

South High Community School

170 Apricot Street, Worcester, MA 01603



Final Bid Package

Volume I of IV – Div. 0 & 1

January 31, 2019

MSBA

Massachusetts School Building Authority
40 Broad Street, Suite 500, Boston, MA 02111

OWNER

City of Worcester, MA
City Hall, 455 Main Street, Worcester, MA 01608

OPM

Heery International
80 Blanchard Road, Suite 108, Burlington, MA 01803

DESIGNER

Lamoureux Pagano & Associates, Inc.
108 Grove Street, Suite 300, Worcester, MA 01605

Prepared by:



LAMOUREUX · PAGANO
ARCHITECTS PROJECT MANAGERS

PROJECT DIRECTORY

OWNER

Massachusetts School Building Authority
40 Broad Street, Suite 500
Boston, Massachusetts 02111

City of Worcester
City Hall
455 Main Street
Worcester, Massachusetts 01608

CONSTRUCTION MANAGER

Fontaine/W.T. Rich, LLC
510 Cottage Street
Springfield, Massachusetts 01104

OWNER'S PROJECT MANAGER

CBRE/Heery International
80 Blanchard Road, Suite 108
Burlington, Massachusetts 01803

ARCHITECT

Lamoureux Pagano Associates
108 Grove Street, Suite 300
Worcester, Massachusetts 01605

CONSULTANTS

GEOTECHNICAL ENGINEERING

Lahlaf Geotechnical Consulting
100 Chelmsford Road, Suite 2
Billerica, Massachusetts 01742

LANDSCAPE ARCHITECTS

Studio 2112
840 Summer Street, Suite 102
Boston, Massachusetts 02127

SITE SURVEY & CIVIL ENGINEERING

Nitsch Engineering
2 Center Plaza, Suite 430
Boston, Massachusetts 02108

HARDOUS MATERIALS CONSULTANT

Universal Environmental Consultants
12 Brewster Road
Framingham, Massachusetts 01782

SUSTAINABLE DESIGN CONSULTANTS

The Green Engineer
23 Bradford Street, 1st Floor
Concord, Massachusetts 01742

STRUCTURAL ENGINEERING

Bolton & DiMartino, Inc.
100 Grove Street #317
Worcester, Massachusetts 01608

LIBRARY/MEDIA CONSULTANT

Lamoureux Pagano & Associates
108 Grove Street, Suite 300
Worcester, Massachusetts 01605

EDUCATIONAL PROGRAMMING & LABORATORY CONSULTANT

NESDEC
28 Lord Street
Marlborough, Massachusetts 01752

ACOUSTICAL & THEATER CONSULTANT

Cavanaugh Tocci Associates
327 F Boston Post Road
Sudbury, Massachusetts 01776

FOOD SERVICE CONSULTANT

Colburn & Guyette Foodservice Design
Consulting
100 Ledgewood Place, Suite 104
Rockland, Massachusetts 02370

SECURITY CONSULTANT

ART Engineering Corp.
38 Front Street, 3rd Floor
Worcester, Massachusetts 01608

FIRE PROTECTION ENGINEERING

Sensible Solutions
64 Knightly Road
Hadley, Massachusetts 01035

**MECHANICAL & PLUMBING
ENGINEERING**

Seaman Engineering Corp.
22 West Street, Unit C
Millbury, Massachusetts, 01527

**ELECTRICAL, COMMUNICATIONS &
TECHNOLOGY ENGINEERING**

ART Engineering Corp.
38 Front Street, Floor 3
Worcester, Massachusetts 01608

**FURNITURE AND FIXTURES
CONSULTANT**

Blueline Design
The Amherst Building
34 Main Street
Amherst, MA 01002

ACCESSIBILITY/CODE CONSULTANT

R.W. Sullivan Engineering
529 Main Street, Suite 203
Boston,

COST ESTIMATING CONSULTANT

A.M. Fogarty & Associates
175 Derby Street, Suite 5
Hingham, Massachusetts 02043

SPECIFICATIONS CONSULTANT

Wil-Spec LLC
375 Main Street
Boxford, Massachusetts 01921

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South High Community School
170 Apricot Street
Worcester, Massachusetts 01603

Lamoureux Pagano Associates
Architect of Record

Bolton & DiMartino, Inc.
Structural Engineer

Sensible Solutions
Fire Protection Engineer

Seaman Engineering Group
Plumbing Engineer

Seaman Engineering Group
HVAC Engineer

ART Engineering Corp.
Electrical Engineer

Nitsch Engineering
Civil Engineer

Studio 2112
Landscape Architect

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CITY OF WORCESTER
INVITATION TO BID / NOTICE TO CONTRACTORS
South High Community School
170 Apricot Street
Worcester, Massachusetts 01603

The City of Worcester, the Awarding Authority, invites sealed prequalified trade bids for: South High Community School in accordance with documents prepared by Lamoureux Pagano Associates Architects, Inc. 108 Grove Street, Suite 300, Worcester, MA 01605.

The project scope generally includes:

Replacement 1420 student High School, constructed behind the existing high school. Work is a phased project; the enabling site work has been completed from summer of 2018 to November 2018. Early sitework and structural (concrete and steel) bid packages have been or will soon be awarded. The project scope generally consists of constructing a new 360,000+ SF building which includes Classrooms, Administrative office areas, Media Center, Gymnasium, Cafeteria, Auditorium, Auto/Diesel Shop, Pre-K Early Childhood Education, Day Care, Kitchen/Serving, Culinary Arts and other associated educational and support spaces. The new building is multi-story (on four main levels); steel-framed; masonry veneer, fiber cement and metal panel; with single-ply membrane roofing, aluminum windows, and with all associated work including site work, architectural, food service, structural, fire suppression, plumbing, HVAC, electrical, and voice/data/communications work. Site work generally includes earthwork, utilities, paving, playgrounds, lawns, plantings, site improvements and other items as indicated in the drawings and specifications. The project is a Chapter 149A Project; the Construction Manager is a joint venture with Fontaine Brothers Inc. and W.T. Rich.

Trade Bidders have been pre-qualified for this project, bids will be received only from bidders that were notified by the City as being pre-qualified.

SEALED FILED TRADE-BIDS for **SOUTH HIGH COMMUNITY SCHOOL** will be received at the Department of Public Works and Parks, Architectural Services Division, 50 Skyline Drive, Worcester, MA 01605 no later than 11:00 a.m., Wednesday, February 27, 2019 and will be publicly opened thereafter and read aloud.

Pre-Qualified Filed Trade-Bids required and Pre-Qualified Trade Bidders are as follows:

UNIT MASONRY:

Acranom Masonry, Inc.
Costa Brothers Masonry
Empire Masonry Corp.
Fernandes Masonry, Inc.
Lighthouse Masonry, Inc.
Marmelo Bros. Construction

METAL FABRICATIONS:

Avid Ironworks, Inc.
Quinn Bros. of Essex, Inc.
SMJ Metal Co., Inc.
United Steel, Inc.
V&G Iron Works, Inc.

WATERPROOFING, DAMPPROOFING &
CAULKING:

ACME Waterproofing Co., Inc.
Armani Restoration, Inc.
Beacon Waterproofing & Restoration, Inc.
Chapman Waterproofing Company
Debrino Caulking Associates, Inc.
Folan Waterproofing & Construction Co.,
Inc.
P.J. Spillane Company
Superior Caulking & Waterproofing Co.,
Inc.

ROOFING AND FLASHING:

Feeley, McAnepie, Inc.
Gibson Roofs, Inc.
Greenwood Industries, Inc.
J.D. Rivet & Co., Inc.
Rockwell Roofing, Inc.
Silktown Roofing, Inc.
Stanley Roofing Company, Inc.

METAL WINDOWS:

A&A Window Products, Inc.
Chandler Architectural Products, Inc.
Cherry Hill Glass Co., Inc.

Lizotte Glass, Inc.
Lockheed Window Corp.
Modern Glass & Aluminum
R&R Window Contractors, Inc.

GLASS AND GLAZING:

A&A Window Products, Inc.
Aluminum & Glass Concepts, Inc.
Chandler Architectural Products, Inc.
Cherry Hill Glass Co., Inc.
Greenfield Glass
Kapiloff's Glass Inc.
Lizotte Glass, Inc.
Lockheed Window Corp.
Modern Glass & Aluminum
R&R Window Contractors, Inc.

RESILIENT FLOORS:

Ayotte & King For Tile, Inc.
Capital Carpet & Floorings Specialists, Inc.
CJM Services, Inc.
M. Frank Higgins & Co., Inc.
Pavilion Floors, Inc.

TILE:

Ayotte & King For Tile, Inc.
Capital Carpet & Floorings Specialists, Inc.
Joseph Cohn & Sons Tile & Terrazzo, LLC
M. Frank Higgins & Co., Inc.
Pavilion Floors, Inc.

ACOUSTICAL CEILINGS:

Central Ceilings
The Cheviot Corporation
H. Carr & Sons, Inc.
K&K Acoustical Ceilings, Inc.

PAINTING:

Alpha Contracting Associates, Inc.
Bello Painting Co., Inc.
Color Concepts, Inc.
Dandis Contracting, Inc.
Homer Contracting

John W. Egan Co.

ELEVATORS:

Delta Beckwith Elevator Company
Eagle Elevator Co., Inc.
Bay State Elevator Company

FIRE SUPPRESSION:

Carlyle Engineering, Inc.
Cogswell Sprinkler Co., Inc.
Covenant Fire Protection
Xcel Fire Protection, Inc.
Yankee Sprinkler Co.

PLUMBING:

Adams Heating and Plumbing, Inc.
Araujo Bros. Plumbing & Heating, Inc.
B-G Mechanical Contractors, Inc.
E. Amanti & Sons, Inc.
Grasseschi Plumbing and Heating, Inc.
Harold Brothers
Harry Grodsky & Co., Inc.
KMD Mechanical Corp
N.B. Kenney Company, Inc.
William F Lynch Co., Inc.

HVAC:

Adams Heating and Plumbing, Inc.
B-G Mechanical Contractors, Inc.
E. Amanti & Sons, Inc.
General Mechanical Contractors, Inc.
Harold Brothers
Harry Grodsky & Co., Inc.
J.F. White Contracting Company
KMD Mechanical Corp
N.B. Kenney Company, Inc.
William F Lynch Co., Inc.

ELECTRICAL WORK:

Annese Electrical Services, Inc.
Coghlin Electrical Contractors, Inc.
LeVangie Electric Co., Inc.

Ostrow Electrical Co., Inc.
Wayne J. Griffin Electric, Inc.

PREQUALIFIED TRADE-BIDS must be accompanied by:

- (1) A fully executed FORM FOR SUB-BID;
Specification Section 00 70 00.
- (2) Certification of Payment of Massachusetts State Taxes Form;
Specification Section 00 85 00.
- (3) **Affidavit of Acknowledgment and Certificate of Compliance** for the City of Worcester Minority/Women Business Enterprise & Worker Utilization. **M/WBEP-Form EOO-101;**
Specification Section 00 95 00.
- (4) **Initial Statement and Certification of Compliance** with the Responsible Employer Ordinance, **Form REO-101 page 2, Specification Section 00 95 00.**
- (5) **Provide Evidence** of Compliance with the Responsible Employer Ordinance (REO). **As per Specification Section 00 95 00.**
- (6) **A Certificate of Eligibility** certifying the bidders qualification, in the respective filed sub trade category being bid, issued by the Division of Capital Asset Management, DCAM (formerly the Division of Capital Planning and Operations, DCPO), showing that the Bidder has been approved to bid on projects the size and nature of this project. In order to be eligible to be awarded this contract, a bidder must be certified in the appropriate category and for the total Cost of the respective work including all alternates elected (if applicable) to be taken by the Owner.
- (7) **A Contractor Update Statement**, DCPO FORM CQ3. It is the Bidder's responsibility to obtain the necessary forms and make application to DCAM (DCPO) in sufficient time for DCAM (DCPO) to evaluate the application and issue a Certificate of Eligibility. A sample of the **Contractor Update Statement**, DCAM FORM CQ3 (revised December, 1999) is located at the end of Section 00 21 16.
- (8) **Bid deposit** for the sub-bid in the amount of **five (5) percent** of the value of the bid, or a bid bond.
- (9) **Foreign Corporation Certificate of Registration** from the Commonwealth of Massachusetts State Secretary (if applicable).

Plans and Specifications will be available **Thursday, February 7, 2019** at the Department of Public Works and Parks, Architectural Services, 50 Skyline Drive, Worcester, MA 01605, Phone: (508) 799-8588, Fax: (508) 799-8188. Plans and specifications will also be available at: <http://bids.worcesterma.gov/>

- (1) A **refundable plan deposit** in the form of a company check (cash not accepted), without date restrictions, payable to "City of Worcester" in the amount of \$800.00 per set for up to three (3) sets is required. Deposits shall be returned to the bidders who return the complete sets, including any addenda issued, in good

condition to the Department of Public Works and Parks, Architectural Services, 50 Skyline Drive, Worcester, MA 01605 within thirty (30) days after the bid opening.

- (2) If **plans** and **specifications** are requested to be mailed, a **separate** non-refundable shipping and handling/mailing fee in the form of a company check payable to "City of Worcester" in the amount of \$250.00 is required per set.
- (3) **Plans** and **specifications** are also available at: <http://bids.worcesterma.gov/> ALL bidders are **required to register** to receive addenda. For any bid or document and any addenda that are received electronically, it is the responsibility of every bidder who receives this bid and all associated documents to check this website for any addenda. The City of Worcester accepts no liability to provide accommodation to bidders who submit a response based upon information obtained from its website. Bidders may not alter (manually or electronically) the bid language or any bid documents. Unauthorized modifications to the body of the bid, specifications, terms or conditions, which change the intent of this bid are prohibited and will disqualify a response.
- (4) A "Contractor's Plans and Specifications Request Form" is required to be filled out to obtain **plans** and **specifications** via the Architectural Services Division. Forms are available at the Department of Public Works and Parks, Architectural Services, 50 Skyline Drive, Worcester, MA 01605, Phone: (508) 799-8588, Fax: (508) 799-8188.
 - (a) After receipt of Contractor's Plans and Specifications Request Form, deposit and mailing fee, plans and specifications will be shipped via UPS.
- (5) **PARTIAL SETS WILL NOT BE ISSUED OR MAILED.**

Contract Documents may be viewed, but not removed, at the following locations:

Architectural Services
Department of Public Works and Parks
50 Skyline Drive
Worcester, MA 01605

WAGE RATES - Bids are subject to the provisions of M.G.L., Chapter 149, Section 44A to J inclusive, as amended to date, and such other Federal, State and Municipal laws or regulations.

Attention of bidders is particularly called to the requirements as to conditions of employment to be observed and to the fact that not less than the minimum wage rates set forth in the Contract Documents shall be paid on this project. Minimum wage rates are per M.G.L., Chapter 149, Sections 26 & 27 inclusive.

MINORITY/WOMEN BUSINESS ENTERPRISE PROGRAM - The City of Worcester has established goals for the participation of minorities and women workers, contractors, subcontractors, and suppliers on all City projects. Bids must demonstrate the contractor's ability to utilize minorities and women in all phases of this project. The City of Worcester has established a program to enhance contract opportunities to minority and women-owned businesses through its Minority/Women Business Enterprise Program. This program contains minimum participation goals of ten (10) percent by MBE's and five (5) percent by WBE's calculated as a percentage of the total bid price. Accordingly, all general bidders and filed sub-bidders must execute and submit with their respective bids M/WBEP Form EOO-101, Contractor's and Filed Subcontractor's Certification.

RESPONSIBLE EMPLOYER ORDINANCE - The performance of the work derived from this bid is subject to the City's Responsible Employer Ordinance, Chapter 2, Section 35 of WRO (2008). Accordingly, all general bidders and filed sub-bidders must execute and submit with their respective bids Form REO-101 page 2, Contractor's and Filed Subcontractor's Initial Certification.

NOISE ORDINANCE – **All Contractors must adhere to the provision of § 1A(e)(9) of chapter nine of the Revised Ordinances of the city by limiting their on-site, noise producing construction and related work to the hours specified by said ordinance.**

PRE-BID CONFERENCE - The pre-bid conference will be held on Thursday, February 14, 2019 at the project site, 170 Apricot Street, beginning at 10:00 a.m. with a brief overview and tour of the construction areas. Bidders will enter construction entrance and follow access road to Fontaine Bros. job trailer. It is recommended that all Bidders attend this meeting.

WORK UNDER SEPARATE CONTRACTS AND BY OWNER – The Owner may do other work during construction with its own forces or by separate contract.

COMMENCEMENT OF WORK AND TIME OF COMPLETION – Is as published in the specifications

The Awarding Authority reserves the right to waive any informality in, or to reject any or all general bids, if it were in the public interest to do so. In inviting sub-bids in connection with such a contract, the Awarding Authority shall reserve the right to reject any sub-bid on any sub-trade, if it determines that such sub-bid does not represent the sub-bid of a person competent to perform the work as specified, or that less than three (3) such sub-bids were received and that the prices are not reasonable for acceptance without further competition.

The City of Worcester is an equal opportunity/affirmative action employer.
City of Worcester, Massachusetts

Executive Office of the City Manager

END OF DOCUMENT



CITY OF WORCESTER

A. INSTRUCTIONS TO BIDDERS

SECTION 1 - INTRODUCTION; DEFINITIONS

In accordance with an Advertisement for Bids, a copy of which is bound herewith, the City of Worcester (the "Owner") has invited Trade bids for the replacement 1420 student High School, constructed behind the existing high school. Work is a phased project; the enabling site work has been completed from summer of 2018 to November 2018. Early sitework and structural (concrete and steel) bid packages have been or will soon be awarded. The project scope generally consists of constructing a new 360,000+ SF building which includes Classrooms, Administrative office areas, Media Center, Gymnasium, Cafeteria, Auditorium, Auto/Diesel Shop, Pre-K Early Childhood Education, Day Care, Kitchen/Serving, Culinary Arts and other associated educational and support spaces. The new building is multi-story (on four main levels); steel-framed; masonry veneer, fiber cement and metal panel; with single-ply membrane roofing, aluminum windows, and with all associated work including site work, architectural, food service, structural, fire suppression, plumbing, HVAC, electrical, and voice/data/communications work. Site work generally includes earthwork, utilities, paving, playgrounds, lawns, plantings, site improvements and other items as indicated in the drawings and specifications. The project is a Chapter 149A Project; the Construction Manager is a joint venture with Fontaine Brothers Inc. and W.T. Rich.

Trade Bidders have been pre-qualified for this project, bids will be received only from bidders that were notified by the City as being pre-qualified.

- 1.1 These Instructions to bidders (the "Instructions") are intended to assist bidders (which term as used in these Instructions shall include general bidders and sub-bidders if applicable) in the preparation of their bids, to call attention to various legal requirements and to set forth certain conditions upon which bids are submitted and received.
- 1.2 The award of the contract is governed by Chapter 149A, Chapter 149, Sections 44A-44J of the Massachusetts General Laws. Certain provisions of the foregoing statute and of other applicable statutes are summarized in these Instructions. Whenever these Instructions or any

other contract documents set forth or summarize applicable statutory provisions, whether or not the statutes have been specifically referred to, such summaries are for convenience only, do not purport to be complete or correct as summaries of any particular material, and shall in no respect supersede, expand or limit rights or duties of the Owner or bidders in matters governed by the statute.

1.3 The following definitions shall apply in these Instructions and in the other Contract Documents:

- (1) The term "bidding documents" shall, these Instructions, the bid forms, contract forms and other Contract Documents bound herewith, the Drawings, the Specifications, and all Addenda issued prior to receipt of bids.
- (2) The terms "Addenda" and "Addendum" shall mean written documents and/or drawings issued by the Owner prior to execution of the contract, which supplement, modify, correct, explain or interpret the bidding documents.
- (3) All definitions set forth in the Conditions of the Contract or the other Contract Documents as therein defined are applicable to these Instructions and to the other bidding documents.

SECTION 2 - AVAILABILITY OF CONTRACT DOCUMENTS

- 2.1 Refer to Invitation to bid, Prequalification letter.

SECTION 3 - EXAMINATION OF SITE AND CONTRACT DOCUMENTS; PRE-BID CONFERENCE

- 3.1 Before submitting a bid, each bidder must: (a) thoroughly examine the Contract Documents (b) visit the site to fully examine and acquaint himself with local conditions that may in any manner affect cost, progress or performance of the Work, (c) familiarize himself with federal, state and local laws, ordinances, rules and regulations that may in any manner affect cost, progress or performance of the Work, and (d) study and carefully correlate his observations with the requirements of the Contract Documents. Failure of a bidder to visit the site and acquaint himself with the Contract Documents or to attend the pre-bid conference, if any, shall in no way relieve the bidder from any obligation with respect to his bid.
- 3.2 On request, the Owner will provide each bidder access to the site to conduct such reasonable investigations and tests as such bidder deems necessary to prepare his bid.

- 3.3 Each bidder shall promptly notify Jeremy C. Flansburg, Project Manager, City of Worcester, Department of Public Works and Parks, Architectural Services, 50 Skyline Drive, Worcester, MA 01605 of any ambiguity, inconsistency, or error he may discover upon examination of the Contract Documents, the site or other local conditions. The submission of a bid will constitute a representation by the bidder that he has complied with every requirement of this Section 3 and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the work of this contract.
- 3.4 A pre-bid conference will be held at the place and time set forth in the Advertisement for Bids.

SECTION 4 - ADDENDA AND INTERPRETATION OF CONTRACT DOCUMENTS

- 4.1 All questions and requests for clarifications or interpretations of the meaning of the Contract Documents shall be in writing, E-Mail or Facsimile Telephone Transmission (FAX), addressed to Jeremy C. Flansburg, Project Manager, City of Worcester, Department of Public Works and Parks, Architectural Services, 50 Skyline Drive, Worcester, MA 01605, phone: (508) 799-8588, fax (508) 799-8188, email: flansburgj@worcesterma.gov and to be given consideration must be received at least five (5) days prior to the date fixed for opening of bids.
- 4.2 Clarifications or such interpretations and any supplemental instructions or forms, if issued, will be issued in the form of written Addenda and when possible, not later than two (2) days before the date fixed for opening of bids. Addenda will upload to the City's Web site established for Project bids <http://bids.worcesterma.gov/>. Each bidder shall be responsible for determining that he has received all Addenda issued, and failure of any bidder to receive any such Addendum shall not relieve such bidder from any obligation under its bid as submitted. All bidders MUST Register to receive addenda. Failure to acknowledge receipt of an Addendum on the Bid Form by the Bidder may be cause for rejection of the Bid.
- 4.3 All Addenda so issued shall become part of the Contract Documents.
- 4.4 Oral clarifications or interpretations will be of no legal effect. The Owner will not be responsible for, and no bidder may rely upon or use as the basis of a claim against the Owner or the Architect, any information, explanation or interpretation of the Contract Documents rendered in any fashion except as herein provided.
- 4.5 Last Day for Questions shall be at 11:00 AM Friday, February 22, 2019

SECTION 5 - PRE QUALIFICATION BY DIVISION OF CAPITAL ASSET MANAGEMENT MAINTENANCE (DCAMM formerly DCPO) (CHAPTER 149A PROJECTS)

- 5.1 **BIDS** on this contract must be accompanied by a copy of a Certificate of Eligibility issued by the Deputy Commissioner of the Massachusetts Division of Capital Asset Management (formerly the "DCPO") showing that the bidder has the classification and capacity rating to perform the work required. In order to be eligible to be awarded this contract, a general bidder must be certified by the DCAM for the total Project Cost, including all alternates elected (if applicable) to be taken by the Owner, and certified in the category by bidders TRADE.
- 5.2 Each trade bid must also be accompanied by a Contractor Qualifications Statement Update ("Update Statement"). The Owner will ^{furnish} copies of the Update Statement form to bidders on request.
- 5.3 The Owner may at its discretion give the bidder notice of defects or omissions in the bidder's Update Statement and an opportunity to make revisions to this statement. A contractor's bid shall not be rejected if there are mistakes or omissions of form in its Update Statement, provided the contractor promptly corrects those mistakes or omissions upon request by the Owner.

SECTION 6 - WAGE RATES

- 6.1 Minimum rates of wages for work performed under this contract will be as predetermined by the Commissioner of Labor and Industries of the Commonwealth of Massachusetts in accordance with the provisions of Sections 26 to 27C, inclusive, of Chapter 149 of the Massachusetts General Laws.
- 6.2 Section 27B of said Chapter 149 provides record-keeping requirements for contractors and subcontractors with respect to employees, hours, wages and other matters.
- 6.3 Bidders' attention is called to Section 148 of Chapter 149 of the Massachusetts General Laws, relating to the weekly payment of wages.

SECTION 7 - SALES TAX

- 7.1 Section 6(f) of Chapter 54H of the Massachusetts General Laws exempts from Massachusetts sales tax, building materials and supplies to be used in the project, and bidders shall not include in their bids any amount therefore. The number of the certificate granted by the Commissioner of

Revenue for use in obtaining the exemption may be obtained from the City of Worcester.

SECTION 8 - PREPARATION AND SUBMISSION OF BIDS

- 8.1 Each bid shall be submitted upon the bid forms furnished by the Owner, copies of which are bound with the bid documents. The bid forms may be submitted without the balance of the Contract Documents. All blank spaces shall be filled in, in ink or typewritten, in words or figures. The bid prices for each item on the bid forms shall be stated in both words and figures. Where itemized lump sum or unit prices are called for, the bidder shall provide all such prices. In the event of a discrepancy between prices written in words and prices written in figures, the written words shall govern. In the event of a discrepancy between the indicated sum of any column of figures and the correct sum thereof, the correct sum shall govern. The bid shall state the legal name of the bidder and shall be signed in ink by a person or persons legally authorized to bind the bidder to a contract. The name and title of the person or persons signing the bid shall be typed or printed below the signatures.
- 8.2 Each trade bid and the bid deposit (described below) shall be submitted to the Owner at the place stated in the Advertisement for Bids in a sealed envelope bearing on the outside the name of the bidder, his address and the title of the project for which the bid is submitted. If forwarded by mail, the sealed bid and the bid deposit shall be enclosed in an envelope with the notation "TRADE BID ENCLOSED" on the face and addressed as indicated in the Advertisement for Bids. A Certificate of Eligibility and an Update Statement in accordance with Section 5 shall if applicable, accompany each general bid.
- 8.3 Each sub-bid shall be submitted as specified in Paragraph 8.2 above, and, in addition, the notation "SUB-BID" and the name of the sub-trade for which the sub-bid is submitted shall be placed on the outside of the sealed envelope containing the sub-bid.

SECTION 9 - RECEIPT OF BIDS

- 9.1 All bidders are cautioned to allow ample time for transmittal of bids. Bidders are solely responsible for delivery to and receipt by the Owner of bids at the place stated in the Advertisement for Bids. Bids received after the specified time or at other than the specified location will not be accepted or recognized and will be returned to the Bidder unopened. The time of receipt will determine the acceptability of mailed bids, regardless of postmark.
- 9.2 Any bid may be withdrawn by the bidder or his duly authorized representative by written notice received by the Owner at the address for

receipt of bids specified in the Advertisement for Bids prior to the time scheduled for the opening of such bids or authorized postponement thereof. No bid may be withdrawn for sixty (60) days, Saturdays, Sundays and legal holidays excluded, after the opening of general bids. No telephone or telegraphic bid, change in bid or withdrawal of bid will be received or recognized. A bid may be amended or modified only by withdrawing the bid and resubmitting another bid prior to the time for the opening of bids.

- 9.3 Bids will be opened and read publicly at the place and time stated in the Advertisement for Bids or the authorized postponement thereof. Bidders or their authorized representatives are invited to be present.

SECTION 10 - BID DEPOSIT

- 10.1 A bid deposit in the form of a bid bond, or cash, or a certified check must accompany each bid, or a treasurer's or cashier's check issued by a responsible bank or trust company, payable to the City of Worcester. A bid bond shall be (a) in form satisfactory to the Owner and substantially conforming to the sample contained in the Contract Documents, (b) with a Surety company qualified to do business (licensed) in the Commonwealth of Massachusetts and satisfactory to the Owner, and conditioned upon the faithful performance by the principal of the agreements contained in the bid. The bid deposit shall be in the amount of five (5) percent of the value of the bid.

SECTION 11 - TRADE-BID PROCEDURE

- 11.1 As stated in the Advertisement for Bids, the Owner has requested FILED SUB-BIDS on the following classes as listed on the invitation to bid
- 11.2 Every sub-bidder duly filing a sub-bid with the Owner shall be bound thereby to every general bidder not excluded therein from the use thereof; and any variance from such sub-bid communicated to a general bidder shall be of no effect.
- 11.3 Each trade-bidder shall list in the trade-bid form the name and bid price of each person, firm or corporation performing each class of work or part thereof for which the section of the specifications for that sub-trade requires such listings; provided that in the absence of a contrary provision in the specification, any sub-bidder may, without listing any bid price, list his own name for any such class of work or part thereof and perform that work with persons on his own payroll if such sub-bidder after sub-bid opening, shows to the satisfaction of the Owner that he does customarily perform such class of work or the part thereof with employees on his own payroll who are mechanics or laborers referred to in Section 26 of said

Chapter 149, of the Massachusetts General Laws, and is qualified so to do.

- 11.4 **TRADE SUB-BIDS** on this contract must be accompanied by a copy of a Certificate of Eligibility issued by the Deputy Commissioner of the Massachusetts Division of Capital Asset Management (formerly the "DCPO") showing that the bidder has the classification and capacity rating to perform the work required. In order to be eligible to be awarded this contract, each trade sub-bidder must be certified by the DCAM for their total Project Cost, including all alternates elected (if applicable) to be taken by the Owner, and certified in their respective trade category.
- 11.5 Each filed sub-bid must also be accompanied by a Contractor Qualifications Statement Update ("Update Statement"). The Owner will furnish copies of the Update Statement form to bidders on request. (Note: A sample copy of the Update Statement is located at the end of this Section.). Any trade sub-bid submitted without a currently valid Certificate of Eligibility and Update Statement shall be invalid and will not be accepted by the Owner.

SECTION 12 - MINORITY AND WOMEN BUSINESS ENTERPRISE PROGRAM

- 12.1 The Owner has established goals for the participation of minority and women contractors and subcontractors on all City projects. **In furtherance thereof, the City of Worcester's Supplemental Equal Employment Opportunity Anti-Discrimination And Affirmative Action Program is included in the Bidding Documents, and all bidders shall comply with the requirements set forth therein.** Any bidder who has any questions about the forms and procedures should contact Kerrilyn M. Marvill, Contract Compliance Office, City Hall, Room 201, Worcester, MA 01608, Telephone: (508) 799-1174.

SECTION 13 - RESPONSIBLE EMPLOYER ORDINANCE

- 13.1 The performance of the work derived from this bid is subject to the City's Responsible Employer Ordinance, Chapter 2, Section 35 of the Worcester Revised Ordinances (2008). Bidders are hereby instructed to review and familiarize themselves with the requirements thereof. The complete text of the ordinance is contained in the Supplementary General Conditions - Part I.

SAMPLE DCAM FORM CQ3
CERTIFICATE OF ELIGIBILITY UPDATE STATEMENT
ON THE FOLLOWING PAGES

SPECIAL NOTICE TO AWARDING AUTHORITY
BIDDERS' UPDATE STATEMENTS ARE NOT PUBLIC RECORDS AND
ARE NOT OPEN TO PUBLIC INSPECTION (M.G.L. C.149, §44D)

Commonwealth of Massachusetts
Division of Capital Asset Management

UPDATE STATEMENT

TO ALL BIDDERS AND AWARDING AUTHORITIES

A COMPLETED AND SIGNED UPDATE STATEMENT MUST BE SUBMITTED WITH EVERY BID FOR A CONTRACT SUBJECT TO M.G.L. C.149, §44A. ANY BID SUBMITTED WITHOUT AN APPROPRIATE UPDATE STATEMENT IS INVALID AND MUST BE REJECTED.

AWARDING AUTHORITIES

If the Awarding Authority determines that the bidder does not demonstrably possess the skill, ability, and integrity necessary to perform the work on the project, it must reject the bid.

BIDDER'S AFFIDAVIT

I swear under the pains and penalties of perjury that I am duly authorized by the bidder named below to sign and submit this Update Statement on behalf of the bidder named below, that I have read this Update Statement, and that all of the information provided by the bidder in this Update Statement is true, accurate, and complete as of the bid date.

Bid Date

Print Name of Bidder

Project Number (or
name if no number)

Business Address

Awarding Authority

Telephone Number

SIGNATURE⇒

Bidder's Authorized Representative

INSTRUCTIONS

INSTRUCTIONS TO BIDDERS

- You must give complete and accurate answers to all questions and provide all of the information requested. **MAKING A MATERIALLY FALSE STATEMENT IN THIS UPDATE STATEMENT IS GROUNDS FOR REJECTING YOUR BID AND FOR DEBARRING YOU FROM ALL PUBLIC CONTRACTING.**
- Information is to cover the period from the date your most recent annual Certificate of Eligibility was issued (not extended) to the date of the bid.
- You must use this official form of Update Statement. Copies of this form may be obtained from the awarding authority and from the Asset Management Web Site: www.state.ma.us/cam/.
- If additional space is needed, please copy the appropriate page of this Update Statement and attach it as an additional sheet.
- See the section entitled "Bidding Limits" in the *Instructions to Awarding Authorities* for important information concerning your bidding limits.

INSTRUCTIONS TO AWARDING AUTHORITIES

Determination of Bidder Qualifications

- It is the awarding authority's responsibility to determine who is the lowest eligible and responsible bidder. You must consider all of the information in the low bidder's Update Statement in making this determination. **Remember:** this information was not available to the Division of Capital Asset Management at the time of certification.
- The bidder's performance on the projected listed in Parts 1 and 2 must be part of your review. Contact the project references.
- **AWARDING AUTHORITIES ARE STRONGLY ENCOURAGED TO REVIEW THE LOW BIDDER'S ENTIRE CERTIFICATION FILE AT THE DIVISION OF CAPITAL ASSET MANAGEMENT.** Telephone (617) 727-9320 for an appointment.

Bidding Limits

Single Project Limit: The total amount of the bid, including all alternates, may not exceed the bidder's Single Project Limit.

Aggregate Work Limit: The annual value of the work to be performed on the contract for which the bid is submitted, when added to the annual cost to complete the bidder's other currently held contracts, may not exceed the bidder's Aggregate Work Limit. Use the following procedure to determine whether the low bidder is within its Aggregate Work Limit:

Step 1

Review Update Statement Question #2 to make sure that all requested information is provided and that the bidder has accurately calculated and totaled the annualized value of all incomplete work on its currently held contracts (column 9).

Step 2

Determine the annual dollar value of the work to be performed on your project. This is done as follows:

- (i) If the project is to be completed in less than 12 months, the annual dollar value of the work is equal to the full amount of the bid.
- (ii) If the project will take more than 12 months to complete, calculate the number of years given to complete the project by dividing the total number of months in the project schedule by 12 (calculate to 3 decimal places), then divide the amount of the bid by the calculated number of years to find the annual dollar value of the work.

Step 3

Add the annualized value of all of the bidder's incomplete contract work (the total of column 9 on page 5) to the annual dollar value of the work to be performed on your project. **The total may not exceed the bidder's Aggregate Work Limit.**

Correction of Errors and Omissions in Update Statements

Matters of Form: An awarding authority shall not reject a contractor's bid because there are mistakes or omissions of form in the Update Statement submitted with the bid, provided the contractor promptly corrects those mistakes or omissions upon request of the awarding authority. [810 CMR 4.09(1)].

Correction of Other Defects: An awarding authority may, in its discretion, give a contractor notice of defects, other than mistakes or omissions of form, in the contractor's Update Statement, and an opportunity to correct such defects, provided the correction of such defects is not prejudicial to fair competition. An awarding authority may reject a corrected Update Statement if it contains unfavorable information about the contractor that was omitted from the Update Statement filed with the contractor's bid. [810 CMR 4.09(2)].

PART 1 - COMPLETED PROJECTS

LIST ALL PUBLIC AND PRIVATE *BUILDING* PROJECTS YOUR FIRM HAS COMPLETED SINCE THE DATE YOUR CURRENT CERTIFICATE OF ELIGIBILITY WAS ISSUED (NOT EXTENDED). *

PROJECT TITLE & LOCATION	WORK CATEGORY	CONTRACT PRICE	START DATE	DATE COMPLETED

Attach additional sheets if necessary

* If your firm has been terminated from a project prior to completion of the work or has failed or refused to complete its work under any contract, full details and an explanation must be provided. See Part 3 of this Update Statement.

PROVIDE THE FOLLOWING REFERENCE INFORMATION FOR EACH COMPLETED PROJECT LISTED ON THE PREVIOUS PAGE.

PROJECT TITLE	COMPANY NAME	CONTACT PERSON	TELEPHONE
	OWNER DESIGNER GC		
	OWNER DESIGNER GC		
	OWNER DESIGNER GC		
	OWNER DESIGNER GC		
	OWNER DESIGNER GC		
	OWNER DESIGNER GC		
	OWNER DESIGNER GC		

Is your company or any individual who owns, manages or controls your company affiliated with any owner, designer or general contractor named above, either through a business or family relationship? ☐ YES ☐ NO

Are any of the contact persons named above affiliated with your company or any individual who owns, manages or control your company, either through a business or family relationship? ☐ YES ☐ NO

If you have answered YES to either question, explain. _____

PART 2 - CURRENTLY HELD CONTRACTS

LIST ALL PUBLIC AND PRIVATE BUILDING AND NON-BUILDING CONSTRUCTION PROJECTS YOUR FIRM HAS UNDER CONTRACT ON THIS DATE REGARDLESS OF WHEN OR WHETHER THE WORK COMMENCED.

1	2	3	4	5	6	7	8	9
PROJECT TITLE & LOCATION	WORK CATEGORY	START AND END DATES	ON SCHEDULE (yes / no)	CONTRACT PRICE	% NOT COMPLETE	\$ VALUE OF WORK NOT COMPLETE (col. 5 x col. 6)	NO. OF YEARS REMAINING (see note below)	ANNUALIZED VALUE OF INCOMPLETE WORK (col. 7 ÷ col. 8)

ANNUALIZED VALUE OF ALL INCOMPLETE CONTRACT WORK (Total of Column 9) \$ _____

Column 8 • If less than one year is left in the project schedule, write 1.

• If more than 12 months are left in the project schedule, divide the number of months left in the project schedule by 12 (calculate to three decimal places).

PROVIDE THE FOLLOWING REFERENCE INFORMATION FOR EACH INCOMPLETE PROJECT LISTED ON THE PREVIOUS PAGE.

PROJECT TITLE	COMPANY NAME	CONTACT PERSON	TELEPHONE
	OWNER DESIGNER GC		
	OWNER DESIGNER GC		
	OWNER DESIGNER GC		
	OWNER DESIGNER GC		
	OWNER DESIGNER GC		
	OWNER DESIGNER GC		

Is your company or any individual who owns, manages or controls your company affiliated with any owner, designer or general contractor named above either through a business or family relationship? ☐ YES ☐ NO

Are any of the contact persons named above affiliated with your company or any individual who owns, manages or control your company, either through a business or family relationship? ☐ YES ☐ NO

If you have answered YES to either question, explain. _____

PART 3 - PROJECT PERFORMANCE

Please answer the following questions. Information is to cover the period from the date your current Certificate of Eligibility was issued to the bid date.

If you answer YES to any question, on a separate page provide a complete explanation. Include all details [project name(s) and location(s), names of all parties involved, relevant dates, etc.].

	YES	NO
A. Has your firm been terminated on any contract prior to completing its work?	<input type="checkbox"/>	<input type="checkbox"/>
B. Has your firm failed or refused either to perform or complete any of its work under any contract prior to substantial completion?	<input type="checkbox"/>	<input type="checkbox"/>
C. Has your firm failed or refused to complete any punchlist work under any contract?	<input type="checkbox"/>	<input type="checkbox"/>
D. Has your surety taken over or been asked to complete any of your work under any contract?	<input type="checkbox"/>	<input type="checkbox"/>
E. Has your surety made payment to a materials supplier or other party under your payment bond on any contract?	<input type="checkbox"/>	<input type="checkbox"/>
F. Has any subcontractor filed a demand for direct payment with an awarding authority on a public project for any of your contracts?	<input type="checkbox"/>	<input type="checkbox"/>
G. Have any of your subcontractors or suppliers filed litigation to enforce a mechanic's lien against property in connection with work performed or materials supplied under any of your contracts?	<input type="checkbox"/>	<input type="checkbox"/>
H. Have there been any deaths of employee or others occurring in connection with any of your projects?	<input type="checkbox"/>	<input type="checkbox"/>
I. Has any employee or other person suffered an injury resulting in complete disability in excess of thirty working days in connection with any of your projects?	<input type="checkbox"/>	<input type="checkbox"/>

PART 4 - LEGAL PROCEEDINGS

Please answer the following questions. Information is to cover the period from the date your current Certificate of Eligibility was issued to the bid date.

The term "Administrative Proceeding" as used in this Update Statement includes (i) any action or proceeding brought by a governmental agency, department or officer to enforce any law, regulation, code or other legal requirement, except for those brought in state or federal courts, and (ii) any action taken by a governmental agency, department or officer imposing penalties, fines or other sanctions for failure to comply with any such legal requirement.

If you answer YES to any question, on a separate page provide a complete explanation of each proceeding and any judgement or decision. Include all details (name of court or administrative agency, title of case or proceeding, case number, date action was commenced, date judgement or decision was entered, fines or penalties imposed, etc.).

YES NO

A. Have any judicial proceedings (other than criminal proceedings) been brought or concluded adversely against your firm or a principal or officer of your firm relating to the procurement or performance of any construction contract, including actions to obtain payment brought by subcontractors, suppliers or others?	<input type="checkbox"/>	<input type="checkbox"/>
B. Have any criminal proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to any of the following offenses: graft, embezzlement, forgery, bribery, falsification or destruction of records, receipt of stolen property or environmental offenses?	<input type="checkbox"/>	<input type="checkbox"/>
C. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a violation of state or federal antitrust laws arising out of the submission of bids or proposals?	<input type="checkbox"/>	<input type="checkbox"/>
D. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a violation of state or federal laws regulating campaign contributions?	<input type="checkbox"/>	<input type="checkbox"/>
E. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a violation of chapter 268A of the Massachusetts General Laws?	<input type="checkbox"/>	<input type="checkbox"/>
F. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a violation of any state or federal law regulating prevailing wages?	<input type="checkbox"/>	<input type="checkbox"/>
G. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a violation of any state or federal law regulating hours of labor, minimum wages, overtime pay, equal pay, child labor or worker's compensation?	<input type="checkbox"/>	<input type="checkbox"/>
H. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a violation of any state or federal law prohibiting discrimination in employment?	<input type="checkbox"/>	<input type="checkbox"/>
I. Have any judicial or administrative proceedings been brought or concluded adversely against your firm or a principal or officer of your firm relating to a claim of repeated or aggravated violation of any state or federal law regulating labor relations or occupational health or safety?	<input type="checkbox"/>	<input type="checkbox"/>
J. Have any proceedings been brought by any state or federal agency to debar or suspend your firm or any principal or officer of your firm from public contracting?	<input type="checkbox"/>	<input type="checkbox"/>
K. Has your firm been fined by OSHA or any other state or federal agency for violations of any laws or regulations related to occupational health or safety?	<input type="checkbox"/>	<input type="checkbox"/>

PART 5 - SUPERVISORY PERSONNEL

List all supervisory personnel, such as project managers and superintendents, who will be assigned to the project if your firm is awarded the contract. **Attach the resume of each person listed below.**

NAME	TITLE OR FUNCTION

PART 6 - CHANGES IN BUSINESS ORGANIZATION OR FINANCIAL CONDITION

Have there been any changes in your firm's business organization, financial condition or bonding capacity since the date your current Certificate of Eligibility was issued? ☐ Yes ☐ No
If YES, attach a separate page providing complete details.

END OF SECTION

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Document 00 31 25

INFORMATION AVAILABLE TO BIDDERS
WORCESTER CONSERVATION COMMISSION ORDER OF RESOURCE AREA DELINEATION

1.1 DESCRIPTION

- A. The City of Worcester Conservation Commission has issued WPA Form 4-B Order of Resource Delineation for 140 and 170 Apricot Street, adjacent parts of 11 and 51 Goddard Memorial Drive, dated August 22, 2017, relating to work of this Contract. Please refer to Appendix H.
 - 1. Cross reference DEP File #349-1171.

1.2 USE OF DATA

- A. The documents included in Appendix H are made available for Bidder's information, but are not a warranty of conditions. Bidders should visit the site and acquaint themselves with all existing conditions, the adjacency of wetlands to the proposed construction, and regulatory requirements regarding wetlands protection requirements of wetlands. No change orders will be issued
- B. Bidders shall include all cost considerations in the preparation of bids for wetlands and their impact on the project including all requirements and provisions included in the attached Orders of Resource Area Delineation. No claim for extra cost or extension of time will be considered resulting from requirements to protect wetlands or reconstruct damage resulting from the work of this Contract.
- C. It is expressly understood that neither the Architect, nor their consultants or the Owner will be responsible for any deduction, interpretation, or conclusion made by any Construction Manager.

End of Document

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Document 00 31 26

INFORMATION AVAILABLE TO BIDDERS
WORCESTER CONSERVATION COMMISSION ORDER OF CONDITIONS

1.1 DESCRIPTION

- A. The City of Worcester Conservation Commission has issued WPA Form 5 Order of Conditions for 170 (aka 140) Apricot Street, dated May 18, 2018, relating to work of this Contract. Please refer to Appendix M.
 - 1. Cross reference DEP File #349-1194.

1.2 USE OF DATA

- A. The documents included in Appendix L are made available for Bidder's information, but are not a warranty of conditions. Bidders should visit the site and acquaint themselves with all existing conditions, the adjacency of wetlands to the proposed construction, and regulatory requirements regarding wetlands protection requirements of wetlands. No change orders will be issued
- B. Bidders shall include all cost considerations in the preparation of bids for wetlands and their impact on the project including all requirements and provisions included in the attached Orders of Conditions. No claim for extra cost or extension of time will be considered resulting from requirements to protect wetlands or reconstruct damage resulting from the work of this Contract.
- C. It is expressly understood that neither the Architect, nor their consultants or the Owner will be responsible for any deduction, interpretation, or conclusion made by any Construction Manager.

End of Document

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Document 00 31 32
GEOTECHNICAL DATA

1.1 SUMMARY

- A. Subsurface soil investigations have been made and findings are indicated in the Geotechnical Reports included in Appendix A. The locations of the tests are indicated on the Boring Location Plan. This report entitled " Geotechnical Report Proposed Worcester South High School Worcester, Massachusetts LGCI Project No. 1644", dated April 9, 2018 was prepared by Lahlaf Geotechnical Consulting, Inc., 100 Chelmsford Road, Suite 2, Billerica, MA 01862.
- B. The data contained in Appendix A is for general information. The Construction Manager is required to read the soils report and visit the site to determine the character of the materials to be encountered. The Architect and Owner will not assume responsibility for variations in subsoil quality or condition.

1.2 CONTENTS

- A. The attached 197 pages include as part of this document the following:
 - 1. Report Letter
 - 2. Project Information
 - 3. Site and Subsurface Conditions
 - a. Subsurface Conditions
 - 1) Soil Borings
 - 2) Test Pits
 - b. Groundwater
 - c. Double Ring Infiltrometer Tests
 - d. Laboratory Test Data
 - 4. Evaluation and Recommendations
 - 5. Construction Considerations
 - 6. Future Work
 - 7. Report Limitations
 - 8. References

End of Document

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Document 00 41 14
TRADE CONTRACTOR BID FORM

Company Name _____

TO ALL TRADE CONTRACTOR BIDDERS EXCEPT THOSE EXCLUDED:

A. TRADE: _____

Specified in Section (s): _____

(Bidder: Enter above the name of the trade for which you are bidding and list ALL the specification section or sections applicable to that trade as they are listed in the Table of Contents of the Specifications; for example, "Painting, Section 09 91 00;" "Glazing, Section 08 80 00;" "Electrical Work, all Division 26.

The undersigned proposes to furnish all labor and materials are required for completing all the work of the trade identified above, for South High Community School, located in Worcester, Massachusetts, in accordance with the Contract Documents, including Drawings and Specifications.

The proposed Contract Price is

_____ dollars (\$_____)

Alternates: [Enter a dollar value wither in the "add" or "subtract" line. If the Alternate will not change the proposed Contract Price, enter \$0 or "NC" ("no change") in the "add" line.]

B. For Alternate 1, _____:

ADD _____ dollars (\$_____)

SUBTRACT _____ dollars (\$_____)

For Alternate 2, _____:

ADD _____ dollars (\$_____)

SUBTRACT _____ dollars (\$_____)

For Alternate 3, _____:

ADD _____ dollars (\$_____)

SUBTRACT _____ dollars \$ _____)

For Alternate 4, _____:

ADD _____ dollars \$ _____)

SUBTRACT _____ dollars \$ _____)

For Alternate 5, _____:

ADD _____ dollars \$ _____)

SUBTRACT _____ dollars \$ _____)

For Alternate 6, _____:

ADD _____ dollars \$ _____)

SUBTRACT _____ dollars \$ _____)

ADDENDA: This trade contractor bid includes the following Addenda:

<u>Number</u>	<u>Date</u>	<u>Number</u>	<u>Date</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

- C. **IMPORTANT INFORMATION:** Because this is a CM at Risk Project **All Trade Contractors** must include their Bid price the cost of their providing payment and performance bonds in the full amount of their Bid, including all alternates. All Trade Contractors awarded contracts on this Project are required by law to provide full payment and performance bonds at their own expense.
- D. **EXECUTION OF CONTRACT; BONDS; INSURANCE:** The undersigned agrees, if selected as a Trade Contractor, to execute with the Construction Manager (hereafter sometimes referred to as the "CM at Risk" or the "Contractor"), a trade Contractor Agreement in accordance with the terms of this bid and applicable law within ten (10) days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the Construction Manager. If the undersigned further agrees to furnish a performance bond and payment bond in the full amount of the trade contract amount from a surety company licensed to do business in the commonwealth and whose name

appears on the United States Treasury Department Circulation 570; provided that the bonds are subject to section (3) of section 44F of chapter 149 and (b) a Certificate of Insurance evidencing workers' compensation, public liability or property damage insurance of the type and in limits required to be furnished to the Awarding Authority by the Construction manager as required by law.

To the extent provided by law, if the undersigned is bidding on the work of a sub-trade for which bidders have not been prequalified by the awarding authority, the undersigned agrees, if requested to do so by the Construction Manager, to furnish a performance bond and also a labor and materials or payment bond, each of a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the Awarding Authority, and each in the sum of one hundred percent (100%) of the sub trade subcontract Price, the premiums for which shall be paid by the Construction Manager and be included in the Contract Price for the General Contract.

- E. TRADE CONTRACTOR SUB-TRADE SUB-BIDDER LISTING: The names of all persons, firms, and corporations furnishing to the undersigned labor or labor and materials for the class or classes or part thereof of work for which the provisions of the Section of the Specifications for this sub-trade require a listing in this paragraph (including the undersigned if customarily furnished by persons on his own payroll and in the absence of a contrary provision in the specifications), and the bid price for each such class of work or part thereof as follows:

<u>NAME</u>	<u>CLASS OF WORK</u>	<u>BID PRICE</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

(Do not give bid price for any class or part thereof furnished by undersigned.)

(The names of all sub-trade subcontractors to be used if awarded the trade contract and each sub-trade contract sum shall be identified above)

By submission of the Bid the Trade Contractor certifies that it has prequalified each of the sub-trade subcontractors listed above using criteria similar to the criteria for the prequalification of Trade Contractors.

By submission of this Bid the Trade Contractor certifies that the Trade Contractor certifies that the Trade Contractor will perform the complete trade work with employees on his own payroll, except for work customarily performed by the sub-trade subcontractors within the trade. Trade Contractor further certifies that this Bid provides the names of all sub-trade subcontractors to be used and each sub-trade contract sum.

- F. The undersigned agrees that the above list of bids to the undersigned represents *bona fide* bids based on the plans, specifications and addenda, and that, if the undersigned is awarded the

contract, the persons, firms, corporations listed above will be used for the work indicated at the amounts stated, if satisfactory to the Awarding Authority.

- G. UNIT PRICES (*This Provision applies to Trade Contractor Sub-Bidders, for unit prices applicable to work of other trades enter N/A in the "Add and Deduct" column.*) Should certain additional classes of work be required, or should the quantities of certain classes of work be increased or decreased from those on which this sub-bid is to be based, by order or approval of the Architect, the undersigned agrees that the Unit Prices set forth below will be the basis of payment to the subcontractor or credit to the awarding authority for such addition, increase, or decrease of the Work. The undersigned agrees that the Unit Prices given represent the exact amount per unit to be paid to the subcontractor (in the case of additions or increases) or to be refunded to the Awarding Authority (in the case of decreases), and that no additional adjustment will be requested or allowed for overhead, profit, insurance, compensation insurance, or other direct or indirect expenses of the subcontractor. The awarding authority shall have the right to reject any or all proposed Unit Prices at any time prior to the signing the Agreement. In which case the cost of extra work shall be as determined by one of the other methods set forth in the General Conditions.

SCHEDULE OF UNIT PRICES
TRADE CONTRACT

Unit Price Item No.	Spec. Section	Description	Unit of Measure	Add and Deduct Amount
1.	00 00 00			\$ 0.00

- H. The undersigned further agrees to be bound to the Construction Manager by the terms of the plans, drawings, specifications (including all General Conditions), and addenda, and to assume toward Construction Manager all the obligations and responsibilities that the Construction Manager, by those documents, assumes toward the Owner.

- I. The undersigned offers the following information as evidence of his or her qualifications to perform the work as bid upon, according to all the requirements of the plans, drawings and specifications:

1. Have been in business under present business name _____ years.
2. Ever failed to complete any work awarded? (If yes, briefly explain) _____

3. List one or more recent buildings with names of general contractor and architect on which you served as subcontractor and performed work of similar character to the work required for this project:

BUILDING	ARCHITECT	GENERAL CONTRACTOR	AMOUNT OF CONTRACT
----------	-----------	-----------------------	-----------------------

4. Bank Reference: _____

Failure to meet trade contractor qualification requirements in the specification Sections listed in this Trade Contractor Bid Form, or failure to provide sufficient information in this Paragraph 1 to substantiate the required qualifications, may, at the sole discretion of the Awarding Authority, be deemed sufficient cause for rejection of any bid. The bidder expressly agrees that the judgment of the Awarding Authority on the matter of qualification is final.

J. CERTIFICATIONS

The undersigned hereby certifies that the Trade Contractor will perform the complete trade contract work with employees on it own payroll, except for work customarily performed by sub-trade subcontractors within the trade as listed above. Trade Contractor further certifies that this Bid provides the names of all sub-trade subcontractors to be used and each sub-trade contract sum.

The undersigned hereby certifies that all sub-trade subcontractors named in this bid form have been prequalified by the trade contractor using criteria similar to the contractors.

The undersigned further certifies that it shall comply with the prevailing wage law set forth in M.G.L. c. 149, §§26 & 27 and pay wages no less than those set forth in the wage rate tables for the Project. The undersigned further certifies that it is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that will comply fully with all laws and regulations applicable to awards of subcontracts subject to Chapter 149A of the General Laws.

The undersigned further certifies under penalties of perjury that this Bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in the subsection the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity. The undersigned also certifies that he or she (or, if he or she is the authorized representative of the company, the company) is the only person interested in this Bid; that it is made without any connection with any other person making any other submission for the same work; that no person acting for, or employed by, the Commonwealth of Massachusetts, the Massachusetts School Building Authority or the City of Methuen is directly or indirectly interested in the Bid or any subsequent proposal, or in any contract which may be made under it, or in expected profits to arise therefrom; that the undersigned Bidder has not influenced or attempted to influence any other person or corporation to file a Bid or any subsequent proposal or to refrain from doing so or to influence the terms of the Bid or any subsequent proposal of any other person or corporation; and that this submission is made in good faith without collusion or connection with any other person applying for the same work.

The undersigned certifies that if awarded this work shall comply with all federal and state laws, rules and regulations promoting fair employment practices or prohibiting employment discrimination and unfair labor practices and shall not discriminate in the hiring of any applicant for employment nor shall any qualified employee be demoted, discharged or otherwise subject to discrimination in the tenure, position, promotional opportunities, wages, benefits or terms and conditions of their employment because of race, color, national origin, ancestry, age, sex, religion, disability, handicap, sexual orientation or for exercising any rights afforded by law. The undersigned commits to purchasing supplies and services from certified minority and women owned businesses, small businesses or businesses owned by socially or economically disadvantaged persons or persons with disabilities.

The undersigned further certifies pursuant to M.G.L. c.149A, §8(g)(8) and M.G.L. 151A, §19A, I, that Bidder has filed all state and tax returns and paid all taxes as required by law and has complied with all state laws pertaining to contributions to the unemployment compensation fund and to payments in lieu of contributions.

The undersigned further certifies under penalties of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of section twenty nine F of chapter twenty nine or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation [promulgated there under. The undersigned further certifies under pain and penalties perjury that it is not presently debarred from doing public work under any applicable federal law.

K. The undersigned hereby agrees that this bid shall be valid for a period of 30 days, Saturdays, Sundays and legal holidays excluded, after the date designated for opening of the Bids.

L. ATTACHMENTS

ATTACHMENT A – BID BOND: Trade Contractors MUST ATTACH to this Trade Contract Form of Bid at Attachment A a valid Bid Bond equal to 5% of the total bid price including all alternates. Failure to submit such Bid Bond will result in rejection of the bid.

ATTACHMENT B – CERTIFICATE OF ELIGIBILITY: Trade Contractors MUST ATTACH to this Trade Contractor Form of Bid at Attachment B a valid Sub-bidder Certificate of Eligibility for each Trade in which it submits a bid. Failure to attach a valid Certificate of Eligibility will result in rejection of the bid.

ATTACHMENT C – UPDATE STATEMENT: Trade Contractors MUST ATTACH to this Trade Contractor Form of Bid at Attachment CV a current and completed Sub-bidder Update Statement for each Trade in which it submits a bid. Failure to submit such Update Statement will result in rejection of the bid.

Acknowledgement of Addenda. By signing below, the interested Trade Contractor acknowledges receipt of the addenda listed by Trade Contractor Bid Form.

Authorized to sign: This form must be signed by an officer of the firm or an individual so authorized by an officer of the firm who has personal knowledge regarding the information contained herein.

SIGNED UNDER THE PAINS AND PENALTIES OF PERJURY:

Signature: _____

Print Name: _____

Title: _____

Firm Name: _____

Firm Address: _____

Phone No: _____

Date: _____

Project Name: _____

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Document 00 43 96
COMPANY INFORMATION
(Bid Form Attachment)

The following information is furnished by the bidder for the information of the Awarding Authority:

If a Corporation:

Incorporated in what state

President:

Treasurer:

Secretary:

If a foreign corporation [incorporated or organized under laws other than laws of the Commonwealth of Massachusetts], is the corporation registered with the Secretary of State of Massachusetts? Yes....., No.....

If the bidder is selected for the work referred to above, it is required under Massachusetts General Laws (MGL) Chapter 30 Section 39L to furnish to the Awarding Authority a certificate of the Secretary of State stating that the corporation has complied with all applicable requirements set forth in the General Laws of the Commonwealth of Massachusetts.

If a Partnership: [Name All Partners]

Name of Partner:

Residence.....

Name of Partner:

Residence.....

If an Individual doing business under a firm name:

Name of Firm:

Name of Individual:

Business Address:

Residence:

End of Document

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Document 00 45 19
NON-COLLUSION AFFIDAVIT

The undersigned, being first duly sworn, deposes and says that:

(1) He is _____ of _____, the Bidder that has submitted the attached Bid; is fully respecting the preparation and contents of the attached Bid and of all pertinent circumstance respecting such Bid; and such Bid is genuine and is not a collusive or sham Bid;

(2) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the Owner, or any person interested in the proposed Contract; and

(3) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(4) The undersigned certifies under penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used herein, the word person shall mean any natural person, joint venture, partnership, corporation or other business or legal entity; and

(5) The undersigned also hereby certifies under the penalties of perjury that no person acting for, or employed by, the Commonwealth of Massachusetts, the Massachusetts School Building Authority or the City of Worcester is directly or indirectly interested in this proposal, or in any contract which be made under it, or in expected profits to arise therefrom.

Signature: _____

Name of Person signing bid: _____

Name of Business: _____

Subscribed and sworn to before me this _____ day of _____, 2018

(Title)

My commission expires _____

End of Document

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AFFIDAVIT OF COMPLIANCE

_____Massachusetts Business Corp. _____Foreign Corp. _____Non-Profit Corp.

I, _____, President _____ Clerk _____of

_____, principal office is located at _____

I do hereby certify that the above named corporation has filed with the State Secretary all certificates and annual reports required by Chapter 156B Sec. 109 (business corporation), by Chapter 181, Sec. 4 (foreign corporation) or by Chapter 180, Sec. 26A (non-profit corporation) of the Massachusetts General Laws.

SIGNED UNDER THE PENALTIES OF PERJURY this _____day of _____, 200_.

Signature of Responsible Corporate Officer

AFFIDAVIT OF PREVAILING WAGE COMPLIANCE (C. 149, S. 26 AND 27) and Davis Bacon Wages

I, _____, _____, of the
Name Title

_____, with a principal office is located at _____
Offeror's Company Name

do hereby certify that the above named corporation will comply with the prevailing wage laws as set forth in Sections 26 and 27 of the Massachusetts General Laws.

SIGNED UNDER THE PENALTIES OF PERJURY this _____ day of _____, 20____.

Signature of Duly Authorized Officer

Document 00 63 13
REQUEST FOR INTERPRETATION (RFI) FORM

Date Submitted: _____

To the Architect:

Lamoureux Pagano & Associates
108 Grove Street
Worcester, Massachusetts 01605

Architect's Assigned
RFI #

Architect's Project Number: _____

Submitted By: _____

Company: _____

Address _____

References: _____

Specification Section Number: _____

Article/ Paragraph / Subparagraph: _____

Drawing Number: _____

Detail Number: _____

Request: _____

☐ Refer to Attachment(s)

Signed By: _____

Response: _____

☐ Refer to Attachment(s)

Response From: _____

Signed by: _____

Copies to:

☐ Owner

☐ Consultants

☐ _____

☐ _____

☐ _____

☐ _____

☐ _____

☐ _____

☐ File

Date Received at
Architect

Date Returned by
Architect

End of Document

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SUBSTITUTION REQUEST FORM

Project: _____ Architect's Project Number: _____

Substitution Request Number: _____
To: _____ Date: _____

From: _____
Re: _____ Contract For: _____

Section Title: _____ Description: _____
Section No.: _____ Page: _____ Article/Paragraph: _____

Proposed substitution: _____
Manufacturer: _____ Address: _____ Phone: _____
Trade Name: _____ Model No./Color: _____
Installer: _____ Address: _____ Phone: _____
History: ☐ New Product ☐ 1 – 4 years old ☐ 5 – 10 years old ☐ More than 10 years old

Differences between proposed substitution and specified product: _____

☐ Point-by-point comparative data attached – REQUIRED BY ARCHITECT

Reason for not providing specified item: _____

Similar Installation:

Project: _____ Architect: _____
Address: _____ Owner: _____
_____ Date Installed: _____

Proposed substitution affects other parts of Work: ☐ No ☐ Yes; explain _____

Proposed substitution affects LEED v4 requirements of Work:

☐ No

☐ Yes; specifically identify the credit criteria impacted and demonstrate how the proposed substitution meets the same credit requirements

Savings to Owner for accepting substitution: _____ (\$ _____).

Proposed substitution changes Contract Time: ☐ No ☐ Yes [Add] [Deduct] _____ days.

Supporting Data Attached: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests
☐ Reports ☐ Sustainability ([NE-CHPS][LEED v4]) Criteria

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product including meeting LEED credit requirements, where applicable
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be correct in all respects.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

Telephone: _____

Attachments: _____

ARCHITECT'S REVIEW AND ACTION

- ☐ Substitution approved – Make submittals per Division 01 Section "Substitution Procedures."
- ☐ Substitution approved as noted – Make submittals per Division 01 Section "Substitution Procedures."
- ☐ Substitution rejected – Use specified materials.
- ☐ Substitution Request received too late – Use specified materials.

Signed by: _____ Date: _____

Additional Comments: ☐ Contractor ☐ Subcontractor ☐ Supplier ☐ Manufacturer ☐ A/E
☐ Other _____

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DOCUMENT 00 72 00

CONSTRUCTION MANAGER AT RISK GENERAL CONDITIONS OF THE CONTRACT

(CITY OF WORCESTER DOCUMENT 00200)

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CITY OF WORCESTER
FORM OF SUBCONTRACT

TRADE CONTRACTOR AGREEMENT

THIS AGREEMENT made this _____ day of _____, 20____,

by and between _____
(a corporation organized and existing under the laws of _____),
(a partnership consisting of _____),
(an individual doing business as _____),

hereinafter called the "Construction Management At Risk Firm",

and _____
(a corporation organized and existing under the laws of _____),
(a partnership consisting of _____),
(an individual doing business as _____),

hereinafter called the "Trade Contractor".

WITNESSETH, that the Construction Management At Risk Firm and the Trade Contractor for the considerations hereafter named, agree as follows:

1. The Trade Contractor agrees to furnish all labor and materials required for the completion of all work specified in Section No(s) _____ of the specifications for _____ (Name of Sub-trade) and the plans referred to therein and addenda Nos. _____, _____, _____, and _____ for the _____ (complete title of the project and the project number taken from title page of the project manual) as prepared by Lamoureux Pagano Associates Inc., 108 Grove Street, Worcester, Ma, 01605, ("Designer"). All work shall be in accordance with the contract documents listed on Exhibit A; and the detailed Scope of Work listed on Exhibit B. The Construction Management At Risk Firm agrees to pay the Trade Contractor as full payment for all the work in Exhibit B the sum of \$_____. This price includes the following alternates: Nos. _____.

- A. The Trade Contractor agrees to be bound to the Construction Management At Risk Firm by the terms of the hereinbefore described plans, specifications (including all general conditions stated therein) and addenda Nos. _____, _____, _____, and _____, and to assume to the Construction Management At Risk Firm all the obligations and responsibilities that the Construction Management At Risk Firm by those documents assumes to the City of Worcester (Public Agency), hereinafter called the "Public Agency", except to the extent that provisions contained therein are by their terms or by law applicable only to the Construction Management At Risk Firm.

B. The Construction Management At Risk Firm agrees to be bound to the Trade Contractor by the terms of the hereinbefore described documents and to assume to the Trade Contractor all the obligations and responsibilities that the Public Agency, by the terms of the hereinbefore described documents, assumes to the Construction Management At Risk Firm, except to the extent that provisions contained therein are by their terms or by law applicable only to the Public Agency.

C. The Trade Contractor agrees with the terms of Article XV of the General Conditions.

2. The Construction Management At Risk Firm agrees to begin, prosecute and complete the entire work specified by the Public Agency in an orderly manner so that the Trade Contractor will be able to begin, prosecute, and complete the work described in this Trade Contract; and, in consideration thereof, upon notice from the Construction Management At Risk Firm, either oral or in writing, the Trade Contractor agrees to begin, prosecute and complete the work described in this Trade Contract in an orderly manner and in accordance with the Project Schedule attached as Exhibit C as it may be reasonably modified from time to time by agreement of the Construction Management At Risk Firm and the Trade Contractor.
3. The Trade Contractor agrees to furnish to the Construction Management At Risk Firm within a reasonable time after the execution of this subcontract, evidence of workers' compensation insurance as required by law and evidence of public liability and property damage insurance of the type and in limits required to be furnished to the Public Agency by the Construction Management At Risk Firm.
4. The Construction Management At Risk Firm agrees that no claim for services rendered or materials furnished by the Construction Management At Risk Firm to the Trade Contractor shall be valid unless written notice thereof is given by the Construction Management At Risk Firm to the Trade Contractor during the first ten (10) days of the calendar month following that in which the claim originated.
5. This Trade Contractor Agreement is contingent upon the execution of an amendment to the contract between the Construction Management At Risk Firm and the Public Agency for the complete work of the Trade Contractor.
6. If the Trade Contractor should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if he should fail to make prompt payment to sub-trade subcontractors or for material or labor, or persistently disregard laws, ordinances or the instructions of the Construction Management At Risk Firm, or otherwise be guilty of a substantial violation of any provision of the contract, then the Construction Management At Risk Firm may, without prejudice to any other right or remedy and after giving the Trade Contractor and his surety seven days' written notice, terminate the employment of the Trade Contractor and take possession of the premises and of all materials, tools, and appliances thereon and finish the work by whatever method he may deem expedient. In such case the Trade Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the trade contract price shall exceed the expense of finishing the work including compensation for additional architectural, managerial and administrative services, such excess shall be paid to the Trade Contractor. If such expense shall exceed such unpaid balance, the Trade Contractor shall pay the difference to the Construction Management At Risk Firm. The Construction

Management At Risk Firm and Trade Contractor shall have the right to seek damages for breach of this Trade Contract without terminating this Trade Contract or ceasing performance hereunder.

IN WITNESS WHEREOF, the parties hereto have executed this agreement the day and year first above-written.

SEAL

ATTEST:

(Name of Subcontractor)

By: _____

SEAL

ATTEST:

(Name of Construction Manager)

By: _____

END OF SECTION 00700

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APPENDIX A

The following provisions form Article XII of the General Conditions of the Contract between the City of Worcester and the Construction Manager.

EQUAL EMPLOYMENT OPPORTUNITY, NON-DISCRIMINATION AND AFFIRMATIVE ACTION PROGRAM

1. Compliance Generally

For purpose of this Article, "minority" refers to Asians, Blacks, Western Hemisphere Hispanics, Native Americans, and Cape Verdeans; "Commission" refers to the Massachusetts Commission Against Discrimination. During the performance of this Contract, the Construction Manager and all of its Subcontractors (hereinafter collectively referred to as the Contractor) shall comply with all applicable equal employment opportunity, non-discrimination and affirmative action requirements, including but not limited to the following:

2. Non-Discrimination and Affirmative Action

A. The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religious creed, national origin, age, handicap, sexual orientation, or sex. The aforesaid provision shall include, but not be limited to, the following: employment upgrading, demotion or transfer; recruitment advertising; recruitment layoff; termination; rates of pay or other forms of compensation; conditions or privileges of employment; and selection for apprenticeship. The Contractor shall comply with the provisions of M.G.L. c. 151B and all other applicable anti-discrimination and equal opportunity laws.

B. The Contractor shall comply with the provisions of Executive Order No. 246 entitled Revoking and Superseding Executive Orders Numbers 143 and 150, with respect to affirmative action programs for handicapped individuals, which is herein incorporated by reference and made a part of this Contract.

C. In connection with the performance of the Work, the Contractor shall undertake in good faith affirmative action measures designed to eliminate any discriminatory barriers in the terms and conditions of employment on the grounds of race, color, religious creed, national origin, age, sexual orientation, or sex, and to eliminate and remedy any effects of such discrimination in the past. Such affirmative action shall entail positive and aggressive measures to ensure equal opportunity in the areas of hiring, upgrading, demotion or transfer, recruitment, layoff or termination, rate of compensation, and in-service or apprenticeship training programs. This affirmative action shall include all action required to guarantee equal employment opportunity for all persons, regardless of race, color, religious creed, national origin, age, sexual orientation, or sex. A purpose of this provision is to ensure to the fullest extent possible an adequate supply of skilled tradesmen for future public construction projects.

D. If the Contractor shall use any subcontractor on any work performed under this Contract, the Contractor shall take affirmative steps to negotiate with qualified minority and women subcontractors. These affirmative steps shall cover both pre-bid and post-bid periods. It shall include notification to the State Office of Minority and Women Business Assistance or its designee, while bids are in preparation, of all products, work or services for which the Contractor intends to negotiate bids. In all solicitations either by competitive bidding or negotiation made by the Contractor either for work to be performed under a subcontract or for the procurement of materials or equipment, each potential subcontractor or supplier shall be notified in writing by the Contractor of the Contractor's obligations under this Contract relative to non-discrimination and affirmative action.

E. As part of its obligation of remedial action under this Article, the Contractor shall maintain on this project not less than the percent ratio set forth in the Owner – Construction Manager Agreement of minority employee worker hours to total worker hours in each job category including but not limited to bricklayers, carpenters, cement masons, electricians, ironworkers, operating engineers, and those "classes of work" enumerated in M.G. L. c. 149, s. 44F.

F. In the hiring of minority journeypersons, apprentices, trainees and advanced trainees, the Contractor shall rely on referrals from a multi-employer affirmative action program approved by the Commission, traditional referral methods utilized by the construction industry, and referrals from agencies, not more than three in number at any one time, designated by the City of Worcester.

3. Liaison Committee. Reports and Records

A. At the option of the City of Worcester there may be established for the term of this Contract a body to be known as the Liaison Committee. The Liaison Committee shall be composed of one representative each from the Awarding Authority, and such other representatives as may be designated by the City of Worcester. The Contractor (or his agent, if any, designated by him as the on-Site equal employment opportunity officer) shall recognize the Liaison Committee as an affirmative action body, and shall establish a continuing working relationship with the Liaison Committee, consulting with the Liaison Committee on all matters related to minority recruitment, referral, employment and training.

B. The Contractor shall prepare projected staffing tables on a quarterly basis. These shall be broken down into projections, by week, of workers required in each trade. Copies shall be furnished one week in advance of the commencement of the period covered, and also when updated, to the Awarding Authority. The Contractor shall prepare weekly reports in a form approved by the Awarding Authority of hours worked in each trade by each employee, identified as minority or non-minority. Copies of these shall be provided at the end of each such week to the Awarding Authority and to the Liaison Committee.

C. Records of employment referral orders, prepared by the Contractor, shall be made available to the Awarding Authority on request.

D. A designee of the Awarding Authority shall each have right to access to the Site.

E. The Contractor shall comply with the provisions of M.G.L. c. 151B as amended, of the Massachusetts General Laws, both of which are herein incorporated by reference and made a part of this Contract.

F. The Contractor shall provide all information and reports required by the Awarding Authority on forms and in accordance with instructions issued by either of them and will permit access to its facilities and any books, records, accounts and other sources of information which may be determined by the Awarding Authority to affect the employment of personnel. This provision shall apply only to information pertinent to the Owner's supplementary affirmative action Contract requirements. Where information required is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to the Awarding Authority and shall set forth what efforts he has made to obtain the information.

4. Sanctions

A. Whenever the Awarding Authority believes the Contractor or any Subcontractor may not be operating in compliance with the terms of this Article, the City of Worcester shall directly, or through its designated agent, conduct an appropriate investigation, and may confer with the parties, to determine if such Contractor is operating in compliance with the terms of this Article. If the City of Worcester finds the Contractor or any Subcontractor not in compliance, it may make a preliminary report on non-compliance, and notify such Contractor in writing of such steps as will in the judgment of the Commission or its agent bring such Contractor into compliance. In the event that such Contractor fails or refuses to fully perform such steps, the City of Worcester **may** make a final report of non-compliance, and recommend the imposition of one or more of the sanctions listed below. If, however, the City of Worcester believes the Contractor or any Subcontractor has taken or is taking every possible measure to achieve compliance, it shall not make a final report of non-compliance. Within fourteen days of the receipt of the recommendations, the Awarding Authority shall move to impose one or more of the following sanctions, as it may deem appropriate to attain full and effective enforcement:

- (1) The recovery by the Awarding Authority from the Contractor of 1/100 of 1% of the Contract award price or \$1,000 whichever sum is greater, in the nature of liquidated

damages or, if a Subcontractor is in non-compliance, the recovery by the Awarding Authority from the Contractor, to be assessed by the Contractor as a back charge against the subcontractor, of 1/10 of 1% of the sub-Contract Price, or \$400 whichever sum is greater, in the nature of liquidated damages, for each week that such party fails or refuses to comply;

- (2) The suspension of any payment or part thereof due under the Contract until such time as the Contractor or any subcontractor is able to demonstrate his compliance with the terms of the Contract;
- (3) The termination, or cancellation, of the Contract, in whole or in part, unless the Contractor or any Subcontractor is able to demonstrate within a specified time his compliance with the terms of the contract;
- (4) The denial to the Contractor or any subcontractor of the right to participate in any future contracts awarded by the Awarding Authority for a period of up to three years.

B. If at any time after the imposition of one or more of the above sanctions a Contractor is able to demonstrate that it is in compliance with this Article, the Contractor may request the Awarding Authority to suspend the sanctions conditionally, pending a final determination by the Commission as to whether the Contractor is in compliance. Upon final determination, the Awarding Authority, shall either lift the sanctions or reimpose them.

C. Sanctions recommended by the Commission and enumerated under Section A above shall not be imposed by the Awarding Authority except after an adjudicatory proceeding, as that term is used in M.G.L. c. 30A, has been conducted. No investigation by the City of Worcester or its agent shall be initiated without prior notice to the Contractor.

D. Notwithstanding the provisions of 4A-4C above, if the Awarding Authority determines after investigation that the Contractor or any Subcontractor is not in compliance with the terms of this Article, it may suspend any payment or portion thereof due under the Contract until the contractor demonstrates to the satisfaction of the Awarding Authority compliance with the terms of this Article. This temporary suspension of payments by the Awarding Authority is separate from the sanctions set forth in Section 4A-4C of this Article above, which are determined by MCAD and recommend to the Awarding Authority. Payment may be suspended only after the Contractor and any other interested party shall have been given the opportunity to present evidence in support of its position at an informal hearing held by the Awarding Authority, and the Awarding Authority has concluded upon review of all the evidence that such penalty is justified. Payment shall not be suspended if the Awarding Authority finds that the Contractor made its best efforts to comply with this Article, or that some other justifiable reason exists for waiving the provisions of this Article in whole or in part.



ATTACHMENT A

PROCEDURE FOR PRE-ADVERTISING ADJUSTMENT OF MBE/WBE PARTICIPATION GOALS

A. Affirmative Marketing Participation Goals:

The combined goals below were established by the Division of Capital Asset Management and Maintenance (DCAMM) and the Supplier Diversity Office (SDO) and require a reasonable representation of both MBE and WBE firms.

Design Participation: Combined MBE/WBE goal of (17.9%)

Construction Participation: Combined MBE/WBE goal of (10.4%)

All documentation submitted in connection with MBE/WBE credit must be true, accurate and correct to the best of your knowledge. Your signature on any MBE/WBE goal-related document means that you have read and understand it. Any false claims for MBE/WBE credit are subject to the Massachusetts False Claims Act and any applicable civil or criminal penalties as determined by the Massachusetts Attorney General's office.¹

B. Criteria for Adjustment of Goals:

An Awarding Authority may file a written request for the adjustment of participation goals with the Executive Director of the SDO prior to the advertising of the contract.² Factors that may be considered include any or all of the following:

- Actual availability of SDO certified Minority-Owned Business Enterprises (MBE) or Women-Owned Business Enterprises (WBE);
- The geographic location of the project;
- The scope of work of the project including the opportunities for sub-contracting and subdividing the work and other relevant factors; and
- The SDO, at the request of the awarding authority or any perspective bidder may agree to assist in MBE/WBE outreach. The SDO is not required nor obligated to do this. It is a complementary service provided, and one the SDO strongly suggests be taken advantage of.

C. Project Thresholds:

Participation Goals³ can be adjusted by the Awarding Authority without filing a formal request with SDO if the total estimated construction or design cost is \$100,000 or less.

D. Supporting Documentation for Design and Construction Projects will include, but are not limited to the following:

1. Documents to support a reduction/waiver request should include a general description of the project, a copy of the detailed project estimates and the deadline for placement of project advertisement;
2. The reasons that the Awarding Authority or its representative is requesting a reduction/waiver of the MBE/WBE participation goals;
3. Documentation that there may be a lack of eligible MBE/WBEs to perform the design or construction contract work after reviewing the SDO Business Directory;
4. Documentation that all subcontracting opportunities were identified and made available to meet the MBE/WBE participation goals;
5. The Awarding Authority may also submit any other information supporting its request for adjustment of the MBE/WBE participation goals; and
6. All applicable sections of the **Massachusetts False Claims Act** as well as any related civil or criminal penalties as determined by the Massachusetts Attorney General are incorporated by reference into this document.⁴

E. Request for Adjustment of Design and Construction Goals:

1. Requests by an Awarding Authority for Adjustment of MBE/WBE Participation Goals must be submitted in writing no less than ten (10) working days before the deadline for placement of advertisements for the contract. Applications should be directed to the SDO Director of Construction Reform, One Ashburton Place, Room 1017, Boston, MA 02108 or by e-mail to: John.B.Fitzpatrick@state.ma.us.
2. Requests for adjustments on Design and Construction Goals must be applied for separately and are not interchangeable. Participation credits for modular projects can be awarded under either the design or construction goals, but not both.
3. The written request for the reduction/waiver must include the reasons for it and all supporting documentation.
4. The SDO will provide a written response prior to the advertising deadline.

¹ See generally, MG.L. c.12, §§5A-5O, inclusive.

² In rare instances after advertising and before bidding based on new information you may request an adjustment post-advertisement. Any adjustment granted must be the subject of an Addendum.

³ For state-assisted building projects.

⁴ See generally, MG.L. c.12, §§5A-5O, inclusive.

ATTACHMENT B

PROCEDURES FOR PRE-BID REDUCTION/WAIVER OF MBE/WBE PARTICIPATION GOALS

A. Affirmative Marketing Participation Goals:

The combined goals below were established by the Division of Capital Asset Management and Maintenance (DCAMM) and the Supplier Diversity Office (SDO) and require a reasonable representation of both MBE and WBE firms.

Design Participation: Combined MBE/WBE goal of (17.9%);
Construction Participation: Combined MBE/WBE goal of (10.4%)

All documentation submitted in connection with MBE/WBE credit must be true, accurate and correct to the best of your knowledge. Your signature on any MBE/WBE goal-related document means that you have read and understand it. Any false claims for MBE/WBE credit are subject to the Massachusetts False Claims Act and any applicable civil or criminal penalties as determined by the Massachusetts Attorney General's office. ¹

B. Criteria for Adjustment of Goals: ²

Potential Bidders may request a written adjustment before bids are submitted. An awarding authority cannot grant an adjustment of goals. Only the SDO has the authority to do this. Written requests must demonstrate that there is no feasible way to meet established contract goals and that a "Diligent Good Faith Effort" was made to comply. The request for reduction/waiver will ultimately be decided by the SDO. Factors that may be considered include any or all of the following:

- Actual availability of certified Minority- and/or Women-Owned Business Enterprises (MBE/WBEs);
- The geographic location of the project;
- The scope of work of the project including the opportunities for sub-contracting and subdividing the work;
- Documentation that shows the Bidder attempted in a diligent good faith effort to fulfill contract goals and was unable to do so; and
- Other relevant factors;

Although the SDO is not obligated to do so, the SDO may agree to assist either an awarding authority or any potential bidder with its MBE/WBE outreach. **We strongly encourage you to use this service.**

C. Required Supporting Documentation from Potential Construction Bidders:

- Using the SDO Reduction/Waiver Request form, the Bidder must prove that notices were sent to certified firms.
- They must break down larger scopes of work into its smallest component parts so that the widest available pool of ready, willing and able certified MBE/WBE firms may participate;
- In the event that an individual scope of work was not made available to ready, willing and able certified firms in certain trade categories,³ a bidder must explain why in writing. Follow up documentation such as phone logs, or e-mail may be required to determine with certainty whether the firms were interested in performing the work.
- Additional documentation of reasonable efforts on the part of the Bidder to assist a potential MBE/WBE firm may include items such as, but not limited to: (a) bonding, insurance, lines of credit or any other type of assistance; or (b) evidence that the Bidder placed advertisements in appropriate media and trade association publications.
- The Bidder shall also submit any other information reasonably requested by the Awarding Authority.

D. Process for Requesting Waiver/Reduction of Construction Goals:

Requests from prospective general Bidders to reduce or waive the MBE/WBE participation goals must be written. An awarding authority must receive such requests no later than **ten (10) working days** before the general bids are due. Requests submitted beyond this deadline will not be considered.

¹ See generally, MG.L.c.12, §§5A-5O, inclusive.

² Applies to waivers and reductions.

³ Other than work performed by filed Sub-Bidders.

**ATTACHMENT C MODEL
BIDDING INSTRUCTIONS**

A. Affirmative Marketing Participation Goals:

Each Municipality must enforce the current Affirmative Marketing Goals developed by the Division of Capital Asset Management and Maintenance (DCAMM) and Supplier Diversity Office (SDO) as follows:¹

Design Participation:	Combined MBE/WBE goal of (17.9%)
Construction Participation:	Combined MBE/WBE goal of (10.4%)

All documentation submitted in connection with MBE/WBE credit must be true, accurate and correct to the best of your knowledge. Your signature on any MBE/WBE goal-related document means that you have read and understand it. Any false claims for MBE/WBE credit are subject to the Massachusetts False Claims Act and any applicable civil or criminal penalties as determined by the Massachusetts Attorney General's office.²

A. MBE and WBE Participation Requirements:

1. Compliance with the requirements of this Section is a pre-requisite for receiving a Contract Award. The Contractor must utilize a reasonable representation mix of both MBE and WBE firms whose collective participation either meets or exceeds the overall combined contract goal. Both MBE and WBE firms shall have an opportunity to work on public projects with a combined MBE/WBE goal.
2. Projects with a combined goal must include a reasonable representation of both MBE and WBE firms to meet or exceed the combined goal. Both categories must be reflected in the participation goals, e.g. bidders who meet the participation goals of one category, such as MBE, must still find WBE representation. Combined contract participation goals must be reported and tracked separately.
3. The MBE and WBE participation goals for this Contract are set forth above. The Awarding Authority reserves the right to accept and review written requests but does not have the authority to reduce or waive the MBE or WBE participation goals established for this contract. Waivers or reductions of MBE/WBE participation are contingent on the following: (a) MBE/WBE availability, (b) geographic location, (c) scope of work, (d) the percentage of work available for subcontracting to MBE/WBEs and/or (e) other relevant factors including documentation by General Bidder showing a **Diligent, Good Faith Effort** to secure commitments from MBE/WBE subcontractors. If these criteria are met, the Awarding Authority may submit the General Bidders request along with all the foregoing documentation to the Executive Director of the Supplier Diversity Office (SDO) for final determination.
4. All contracts shall provide MBE/WBE firms with contracting opportunities. If a bidder fails to make a subcontracting opportunity available to certified MBEs/WBEs, it must explain why in writing. The Bidder shall also demonstrate that, where commercially reasonable, subcontracts were divided into smaller scopes or tasks capable of being performed by MBE/WBEs.
5. A successful bidder must provide notice of: (a) each MBE/WBE solicited, and (b) each MBE/WBE listed in the SDO directory under the applicable trade category that was not solicited and reasons therefore. The Bidder shall also state the date that notices were mailed and provide a copy of the written notice(s) sent.
6. Reasonable follow up efforts include written notices sent to MBE/WBEs with telephone calls or personal visits in order to determine with certainty whether the MBE/WBEs were interested in performing the work. Phone logs or other documentation must be submitted.
7. A statement of the response received from each MBE/WBE solicited, including the reason for rejecting any MBE/WBE who submitted a bid or proposal may also be provided
8. If MBE/WBEs have difficulty obtaining bonding, insurance or lines of credit to participate in the project, prospective bidders must show reasonable efforts were made to assist MBE/WBEs to obtain bonding, insurance, or lines of credit.
9. Reasonable efforts may also include whether a Bidder placed advertisements in appropriate media and trade association publications announcing the Bidder's interest in obtaining bids or proposals from MBE/WBEs, and/or sent written notification to MBE/WBE economic development assistance agencies, trade groups and other organizations notifying them of the Contract and the work to be subcontracted by the Bidder to MBE/WBEs. The Bidder shall also submit any other information reasonably requested by the Awarding Authority to show that the Bidder has taken all possible reasonable steps to achieve the MBE/WBE participation goals.
10. If **filed Sub-Bids** are solicited for this Contract, requests to reduce or waive the MBE/WBE participation goals must be received by the Awarding Authority no later than ten (10) working days after the list of filed Sub-Bidders is sent by the Awarding Authority to persons who have taken out plans for the Contract. If there are no filed Sub-Bids solicited for this Contract, requests to reduce or waive the MBE/WBE participation goals for this Contract must be received by the Awarding Authority no later than ten (10) working days before the date set for the receipt of general Bids. **The Awarding Authority Will Not Consider Any Request To Reduce Or Waive The MBE/WBE Participation Goals For This Contract That Is Received After These Deadlines.**
11. Within five (5) working days after the opening of general Bids, the low Bidder shall submit the following documents to the Awarding Authority's Affirmative Marketing Construction Officer (AMCO): (a) a completed Schedule for Participation by MBE/WBE ("Schedule for Participation") in the form provided by the Awarding Authority showing MBE/WBE participation in amounts equal to or exceeding the MBE/WBE participation goals for this Contract, (b) a completed Letter of Intent in the form provided by the Awarding Authority for each MBE/WBE listed in the Schedule for Participation, and (c) the most recent SDO

¹ Periodically, goals may be changed or adjusted. Check the [SDO web site](#) for current MBE/WBE participation goals.

² See generally, MG.L. c.12, §§5A-5O, inclusive.

certification letter for each MBE/WBE listed in the Schedule of MBE/WBE Participation showing that the MBE/WBE is certified in the area of work for which it is listed on the Letter of Intent.

12. Each Letter of Intent shall describe the work to be performed by the MBE/WBE (the “ MBE/WBE ”)with enough specificity to allow an awarding authority to determine which specific items count for MBE/WBE participation credit. The Awarding Authority reserves the right to reject any Letter of Intent if the price to be paid for the MBE/WBE Work does not bear a reasonable relationship to the value of such work under the Contract.
13. Within five (5) working days after receipt of the Schedule for MBE/WBE Participation, Letters of Intent, and most recent SDO certification letter, the Awarding Authority shall review and either approve or disapprove the apparent low Bidder s submissions. If the apparent low Bidder has not submitted an appropriate Schedule for MBE/WBE Participation and appropriate Letters of Intent and SDO most recent certification letter establishing that the MBE/WBE participation goal for the project will be met, the apparent low Bidder will be considered ineligible for Award of the Contract and the Awarding Authority will Award the Contract to the second lowest eligible and responsible Bidder, subject to said Bidder s compliance with these conditions. If funds are insufficient to award to the second lowest Bidder, the project may have to be re-bid.
14. General Conditions of the Contract require the Contractor to submit, within thirty (30) days of the Contract Date, copies of current certification letters for all subcontractors, signed subcontracts with all subcontractors or a purchase order or invoice from each material supplier and/or manufacturer listed on the Schedule for MBE/WBE Participation.
15. A filed sub-Bidder is not required to submit a Schedule of MBE/WBE Participation with its Bid. It may submit a Letter of Intent with its Bid if it is a SDO certified MBE/ WBE. If a filed sub-Bidder intends to sub-subcontract work to a SDO certified MBE/WBE, and the awarding authority permits limited sub-sub-contracting for purposes of MBE/WBE participation, and the filed sub-Bidder wishes that sub-subcontract to be credited toward the participation goals for this Contract, the filed sub-Bidder should submit a Letter of Intent from that MBE/WBE with its Bid.

ATTACHMENT D MODEL
CONTRACT INSTRUCTIONS FOR
MUNICIPAL CONTRACTS AND STATE ASSISTED BUILDING PROJECTS

A. Affirmative Marketing Participation Goals:

The combined goals below were established by the Division of Capital Asset Management and Maintenance (DCAMM) and the Supplier Diversity Office (SDO) and require a reasonable representation of both MBE and WBE firms:

Design Participation:	Combined MBE/WBE goal of (17.9%)
Construction Participation:	Combined MBE/WBE goal of (10.4%)

All documentation submitted in connection with MBE/WBE credit must be true, accurate and correct to the best of your knowledge. Your signature on any MBE/WBE goal-related document means that you have read and understand it. Any false claims for MBE/WBE credit are subject to the Massachusetts False Claims Act and any applicable civil or criminal penalties as determined by the Massachusetts Attorney General's Office.¹

B. MBE/WBE Participation Credit:

1. MBE and WBE participation goals are not interchangeable.
2. Participation credit is only given for actual contract work performed by currently certified MBE, WBE or M/WBE firm.
3. If the firm awarded the contract is itself currently certified as a MBE/WBE, 100% participation credit will be given for the work performed.
4. If the prime contractor is not a certified firm, it shall only receive credit for the portion of work completed by the certified firm.
5. MBE/WBE participation credit will be given to a supplier **only** if they are regularly engaged in sales of equipment or supplies to the construction industry from an established place of businesses and bear the risk of loss for product sold prior to delivery to a customer.
6. A contractor can count only 10% of the contract price towards an MBE or WBE goal on DCAMM projects.

C. Establishing MBE/WBE Status:

1. A business will be eligible for participation credit only if it has been certified by the Supplier Diversity Office (SDO) as a minority business enterprise (MBE) or a woman business enterprise (WBE).
2. Certification as a MBE/WBE **by any other agency other than SDO does not** confer the status to the firm for the purposes of contract participation credit.
3. Participation credit shall only be given to firms which are certified at the time of contract award
4. A firm currently being initially reviewed as part of the certification process cannot be used by a contractor towards MBE/WBE participation credit.

D. Performance of Contract Work by MBE/WBEs:

1. Only currently certified MBE/WBE firms count towards participation goals. If during the course of a contract, a SDO certified MBE/WBE firm is decertified their participation credit will be counted up until the date of decertification
2. An awarding authority will not grant MBE/WBE participation credit unless the contract work is actually completed by a certified SDO MBE/WBE firm. No credit will be given for work done by others or for work not on a MBE/WBE schedule of participation.
3. Once a letter of intent and a MBE/WBE letter of participation are approved, a contractor may not perform this same work using its own staff without the prior express written prior approval of the Awarding Authority.
4. The Contractor shall monitor the performance of MBE/WBE Work to ensure that each scheduled MBE/WBE performs its own work with its own workforce.

¹ See generally, MG.L. c. 12, §§5A-5O, inclusive.

5. The Contractor and each MBE/WBE subcontractor shall provide the Awarding Authority with all information and documentation necessary to ascertain whether or not an MBE/WBE has performed its own MBE/WBE Work with its own personnel, tools and equipment.
6. Failure to submit documentation to the Awarding Authority shall establish conclusively for the purpose of giving MBE/WBE participation credit under this Contract that such MBE/WBE did not perform such work.

E. Notification of Changes in MBE/WBE Work:

If during the performance of a contract, a contractor determines or has reason to believe that:

1. A scheduled MBE/WBE is unable or unwilling to perform its MBE/WBE Work;
2. There has been or will be a change in any MBE/WBE Work; or
3. That the Contractor will be unable to meet the MBE/WBE participation goal(s) for the Contract for any reason.

Then he/she shall immediately notify the Awarding Authority in writing. Any notice of a change in MBE/WBE Work shall include a revised Schedule of MBE/WBE Participation, and additional or amended Letters of Intent and related subcontracts, as needed.

F. Good Faith Efforts Needed to Support Changes/Reduction of MBE/WBE Participation Goals:

If there is a change or reduction in any MBE/WBE Work which will result in the Contractor failing to meet the MBE/WBE participation goal(s), then he/she shall undertake a diligent, good faith effort to make up the shortfall as follows:

1. The Contractor shall identify all items of the Work remaining to be performed under the Contract that they made available for subcontracting to MBE/WBEs along with that which wasn't along with reasons why.
2. The Contractor shall send written notices to all MBE/WBEs ready, willing and able to perform such work. The contractor will provide the Awarding Authority with documentation identifying: (i) each MBE/WBE solicited, and (ii) each MBE/WBE listed in the SDO directory under the applicable trade category that was not solicited and the reasons why. The Contractor shall also advise the Awarding Authority of the dates that notices were sent and provide a copy of the written notice(s) sent.
3. The Contractor shall make reasonable efforts to follow up on the written notices, including telephone calls or personal visits in order to determine with certainty whether the MBE/WBEs were interested in performing the work. Phone logs or other documentation must be submitted to the Awarding Authority upon request.
4. The Contractor shall make documented reasonable efforts to assist MBE/WBEs that need assistance in obtaining insurance, bonds, or lines of credit in order to perform work under the Contract. Supporting documentation will be provided to the Awarding Authority upon request.
5. The Contractor shall provide the Awarding Authority with a statement of the response received from each MBE/WBE solicited, including the reason for rejecting any MBE/WBE who submitted a proposal.
6. The Contractor shall take any additional measures including, without limitation, placing advertisements in appropriate media and trade association publications announcing the Contractor's interest in obtaining proposals from MBE/WBEs, and/or sending written notification to MBE/WBE economic development assistance agencies, trade groups and other organizations notifying them of the project and of the work available to be subcontracted by the Contractor to MBE/WBEs.

If the Contractor is unable to meet the MBE/WBE participation goals for this Contract after complying fully with each of the above requirements and is otherwise in full compliance with the terms of this provision, the Awarding Authority may reduce the MBE/WBE participation goals for this Contract to the extent that such goals cannot be achieved.

G. Suspension of Payment and/or Performance for Noncompliance:

If a reduction of MBE/WBE goals was given but sufficient good faith efforts (see above) were not documented, then after proper written notice, the Awarding Authority has the discretion to:

1. Suspend payment to the Contractor of an amount equal to the value of the work which was to have been performed by an MBE/WBE pursuant to the Contractor's Schedule of MBE/WBE Participation but which was not so performed, in order to ensure that sufficient Contract funds will be available if liquidated damages are assessed;
2. Suspend the Contractor's performance of this Contract in whole or in part.

Notice Required Prior to Suspension: The Awarding Authority shall give the Contractor prompt written notice of any action taken and shall give the Contractor and any other interested party, including any MBE/WBEs, an opportunity to present evidence to it that the Contractor is in compliance with the requirements, or that there is some justifiable reason for waiving the requirements in whole or in part. The Awarding Authority may invite SDO to participate in these proceedings

If, based on a totality of the circumstances, it can be shown that all reasonable steps were taken and that the Contractor is in full compliance with the requirements of this Attachment, or that the Contractor has met or will meet the MBE/WBE participation goals for this Contract, the Awarding Authority shall release any funds withheld and lift any related suspension of the Contractor's performance.

H. Liquidated Damages; Termination

If payment by the Awarding Authority or performance by the Contractor is suspended, and if the breach cannot be cured or that same contractor fails to take all reasonable and immediate efforts to comply with the MBE/WBE participation goals set forth in this Contract, subject to the notice provisions above:

1. The Awarding Authority may terminate this Contract; or
2. The Awarding Authority may retain from final payment to the Contractor, as liquidated damages, an amount equal to the difference between:
 - a. The total of the MBE/WBE participation goals set forth in this Contract, and;
 - b. The amount of MBE/WBE participation credit earned by the Contractor for MBE/WBE Work performed under this Contract minus the cost to restore the loss to the Awarding Authority.
3. Any liquidated damages will be assessed separately for MBE and WBE participation.

Discretionary Option to Review Any Additional Mitigating Evidence Prior to Final Decision: Before exercising its rights and remedies, the Awarding Authority may but is not required to give the Contractor and any other interested party a final opportunity to present evidence that the Contractor is in compliance with the requirements or that there is some justifiable reason for waiving the requirements of this Attachment in whole or in part. The Awarding Authority may invite SDO to participate in these proceedings.

OPERATIONAL SERVICES
DIVISION

SUPPLIER DIVERSITY OFFICE

Reginald Nunnally
Executive Director

THE COMMONWEALTH OF MASSACHUSETTS
Executive Office for Administration and Finance

OPERATIONAL SERVICES DIVISION

One Ashburton Place, Suite 1017
Boston, MA 02108—1552

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Kristen Lepore
Secretary

Gary J. Lambert
Assistant Secretary for
Operational Services

SUPPLIER DIVERSITY OFFICE
CONSTRUCTION REFORM PROGRAM
MUNICIPALITIES GENERAL GUIDELINES

The Supplier Diversity Office (SDO) issues the Construction Reform Program guidelines on the [Municipality Guidelines](#) webpage in accordance with the statutory standards set forth in [Chapter 193 of the Acts of 2004](#), which includes a municipal affirmative marketing program for currently certified firms in the Commonwealth of Massachusetts.

THE BIDDING AND CONTRACT INSTRUCTIONS ON THE [MUNICIPALITY GUIDELINES](#) WEBPAGE MUST BE INCORPORATED INTO CONTRACT DOCUMENTS, AS REQUIRED BY CHAPTER 193 OF THE ACTS OF 2004.

Municipalities must incorporate Minority Business Enterprise (MBE) and Women Business Enterprise (WBE) goals into both their design and construction procurement for municipal contracts for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building by any city or town that includes funding provided by the Commonwealth such as legislative appropriations, grant awards, reimbursements and municipal commitments to use state funds.

Only firms which are currently MBE or WBE certified by the Supplier Diversity Office (SDO) at the date of contract award will be counted for Construction Reform program purposes. The firm's current SDO state certification letter shall serve as the sole and exclusive proof of state certification.

Certification as a Disadvantaged Business Enterprise (DBE), certification as an MBE/WBE by any agency other than SDO, or submission of an application to SDO for certification as an MBE/WBE shall not confer MBE or WBE status on a firm for purposes of construction reform program participation credit.

Affirmative Marketing Participation Goals:

The combined goals below were established by the Division of Capital Asset Management and Maintenance (DCAMM) and the Supplier Diversity Office (SDO) and require a reasonable representation of both MBE and WBE firms:

Design Participation: Combined MBE/WBE goal of (17.9%)

Construction Participation: Combined MBE/WBE goal of (10.4%»)

Documentation submitted with your signature means that you swear under the pains and penalties of perjury that you have read and understand it. Any false claims for MBE/WBE credit are subject to the Massachusetts False Claims Act and any applicable civil or criminal penalties as determined by the Massachusetts Attorney General's office.'

Questions and Contact Information:

Separate and individual PDF files are attached for your reference. All questions concerning the Construction Reform Act and the implementation of the new law may be directed to the SDO Director of Construction Reform at 617-502-8851 or by e-mail at John.B.Fitzpatrick@state.ma.us

See generally, M.G.L. c.12, §§5A-5O, inclusive.

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APPENDIX C

PROCEDURES FOR AWARD OF SUBCONTRACTS

Pursuant to M.G.L. c.149A, as contained in Chapter 193 of the Acts of 2004, the City of Worcester is required to develop a process consistent with legal requirements for the selection of subcontractors for construction manager at risk projects. This process is described in these Procedures for Award of Subcontracts (the “Procedures”). The Procedures are divided into three parts. The first part describes the prequalification and procurement of “Trade Contractors”, which, for the purposes of the Procedures, shall mean the subcontractors performing work in trade categories covered by Section 44F of Chapter 149. The second part describes the prequalification and procurement of all subcontractors that are not Trade Contractors. The third part addresses additional procurement matters.

For the purposes of the Procedures, the term Project shall mean the specific construction project to which the Procedures are being applied; the term CM shall mean the construction manager at risk selected by the City of Worcester to construct the Project; the term Designer shall mean the firm (and its subconsultants) selected by the City of Worcester to design; the term Project Manager shall refer to the City of Worcester staff serving as Project Manager on the project; and the term Applicant shall mean any firm that submits a response pursuant to the Procedures.

I. TRADE CONTRACTORS

A. Applicability of Procedures

1. Subcontracts Subject to Trade Contract Procedures. The procedures set forth in Sections 2 and 3 below shall govern the award of subcontracts by the CM for the furnishing of labor, materials, and equipment in the performance of the categories of work listed below whenever the estimated construction cost of such category of work exceeds \$20,000:

Roofing and Flashing	Glass and Glazing
Metal windows	Painting
Waterproofing, Damp-proofing and Caulking	Plumbing
Miscellaneous and Ornamental Iron	Heating, Ventilating, and Air Conditioning
Lathing and Plastering;	Electrical work
Acoustical Tile	Elevators
Marble	Masonry work
Tile	
Terrazzo	Any other categories of work selected by the
Resilient Floors	City of Worcester for designation as Trade Contract work.

The subcontractors performing these trades are referred to throughout the Contract Documents as “Trade Contractor(s).” Contracts for work in these categories of work where the estimated cost of such work exceeds \$20,000 are referred to as “trade contracts.”

B. Qualification of Trade Contractors

1. Prequalification Committee. DCAM shall establish a prequalification committee (“the Prequalification Committee”) consisting of four members. The members shall include two employees of the city’s DPW&P with management roles in the construction of large buildings, a representative of the Designer, and a

representative of the CM. The Commissioner of DPW&P shall designate the Chairperson of the Prequalification Committee. An alternate may be appointed for each member of the Prequalification Committee to serve on occasions when the regular member cannot be available. Both the representative of the Designer and CM serving on the Prequalification Committee, and the alternates representing the Designer and CM shall be subject to the City of Worcester's approval. The Prequalification Committee shall conduct the prequalification of trade contractors as set forth in Sections 2 and 3 of the Procedures. The CM will provide assistance to the Prequalification Committee in the exercise of its responsibilities under the Procedures, including assistance from CM staff.

Three members of the Prequalification Committee shall constitute a quorum for the purposes of conducting the Prequalification Committee's official business. The Commissioner or his designee may join any meeting of the Prequalification Committee as a voting member in order to achieve a quorum, if in the Commissioner's judgment the action scheduled for such meeting cannot be postponed without adverse consequences to the Project.

Request for Qualifications. The City of Worcester shall issue a request for qualifications ("RFQ") for each category of work listed in Section 1.1 if such work is required on the Project. The RFQ shall be placed on the Comm-PASS web site; advertised in a newspaper of general circulation in the area of the Project and in the *Central Register* established under Massachusetts General Laws, Chapter 9, Section 20, and in such additional media as DCAM and the Prequalification Committee may deem appropriate at least fourteen (14) calendar days before the deadline for Applicants to submit a response to the RFQ by submission of a Statement of Qualifications ("SOQ"). All interested Trade Contractors shall be eligible to respond to the RFQ and participate in the prequalification process. The CM firm may submit its qualifications to bid on trade contract work provided that the CM customarily performs the work for which it submits its qualifications and does so with employees on its own payroll, and provided that the CM meets all the requirements of the selection process. The RFQ shall be prepared by the City of Worcester in a form consistent with the requirements of M.G.L. c. 149A and in consultation with the Prequalification Committee and the CM. The RFQ shall contain a form or forms (individually or collectively, the City of Worcester "Statement of Qualifications" or "SOQ") requiring the information necessary for the Prequalification Committee to determine if the Applicant is qualified to perform the category of work for which it seeks prequalification on the Project. City of Worcester's Standard form RFQ and SOQ will be provided by the City of Worcester and must be utilized as the RFQ and SOQ for the Project. The RFQ shall include, at a minimum:

- a. the date, time, and place for submission;
- b. relevant information about the project and the bidding process;
- c. the specific criteria for trade contractor prequalification and selection;
- d. a statement indicating that the RFQ will be used to prequalify trade contractors that will be invited to submit a bid; and
- e. that the responders' names are to be posted, but that there shall be no public opening of responses.

Prequalification Criteria. The Prequalification Committee shall evaluate the information submitted by each Applicant on its City of Worcester Statement of

Qualifications, the results of reference checks performed by the City of Worcester and/or the CM, and any other information required or obtained by the Prequalification Committee. The following subparagraphs enumerate the legally required categories to be used by the Prequalification Committee in evaluating the Applicants, the subcategories of information within each category, and the specific point allocation required for prequalification within each category. Applicants must achieve an overall score of 70 or greater and must also achieve the minimum required points within each category in order to be deemed prequalified. Applicants that do not achieve both the minimum scores within each category and do not achieve an overall score of 70 or above shall not be deemed prequalified.

- a. Management Experience (50 points; minimum of 25 required for approval)
 - i) Business owners - The name, title, years with firm of the owner(s) of the business (1 Point)
 - ii) Management personnel - The names, title, education and construction experience, years with firm, and list of projects completed by all management personnel. (25 Points)
 - iii) Similar project experience - The project name(s), description, description of scope, original trade contract sum, final trade contract sum with explanation, and date completed of similar projects. (10 Points)
 - iv) Terminations – A list of any projects on which the trade contractor was terminated or failed to complete the work. (3 Points)
 - v) Lawsuits – A list of commercial lawsuits in which the trade contractor is a defendant or defendant-in-counterclaim with regard to construction contracts within the last 3 years. The lawsuits shall not include any actions that primarily involve personal injury or workers' compensation claims, or where the sole cause of action involves the trade contractor's exercise of its rights for direct payment under the law. (3 Points)
 - vi) Safety record – The three-year history of the trade contractor's workers' compensation experience modifier. (8 Points)
- b. References (30 points; minimum of 15 required for approval)
 - i) Client references - for all projects listed in clause (iii) of Management experience above, including the project name, client's name, address, telephone and fax number, and contact person. (24 Points)
 - ii) Credit references - .A minimum of five credit references, including telephone and fax number of contact person from key suppliers, vendors and banks. (3 Points)
 - iii) Public project record – A list of all completed public building construction projects as defined in section 44A of chapter 149 during the past three years with client's name, address, telephone and fax number and contact person. (3 Points)
- c. Capacity to Complete Projects – (20 points; minimum of 10 required for approval)
 - i) Annual revenue for prior three fiscal years. There shall be no requirement for submission of financial statements. (10 Points)
 - ii) Revenue under contract for next three fiscal years. (10 Points)
- d. Commitment Letter – (mandatory no points assigned)

Mandatory commitment letters from surety companies or authorized agents stating that payment and performance bonds at 110% of the estimated trade contract value will be provided to the applicant if it is the successful bidder. The surety company providing the commitment letter must be licensed to do business in the Commonwealth and appear on the United States Treasury Department Circular 570.

e. Certificate of Eligibility – (mandatory, no points assigned)

All SOQs submitted after January 1, 2006 must include a DCAM issued certificate of eligibility listing the Applicant as currently certified as a subcontractor in the scope of work for which the Applicant is submitting its SOQ.

f. Update Statement – (mandatory, no points assigned)

All SOQs submitted after January 1, 2006 must include a fully completed and current Update Statement prepared by the Applicant.

Applicants that are certified by the Massachusetts State Office of Minority and Women Business Enterprise (“SOMWBA”) as either a Minority Business Enterprise, a Women Business Enterprise or a Minority/Women Business Enterprise and provide documentation of current SOMWBA certification with their SOQ will have an additional 5 points added to their overall score.

If the Applicant is a joint venture, the Applicant must submit a copy of the joint venture agreement, signed by each member, and the joint venture agreement must clearly identify, for each member of the joint venture, such member’s proportionate share or interest in the financial or other benefits, risks or liabilities of the venture (“joint venture interest”). One member of the joint venture must have a joint venture interest greater than fifty (50) percent (“the Lead Venturer”). The requirements for prequalification in 2.3 a-f above shall be met by each member of the joint venture; and the bonding requirements of 2.3 d above shall be met by the Lead Venturer or by the joint venture as an entity. A joint venture prequalified by the Prequalification Committee must obtain a Certificate of Eligibility from the City of Worcester prior to the time bids are filed and must submit the Joint Venture’s Certificate of Eligibility with its bid.

Joint ventures must be submitted for consideration by the Prequalification Committee.

Following the deadline for submission of SOQs for a specific category of work, joint ventures for that category of work which were not submitted to the Prequalification Committee may not bid on that category of work, except that two firms both of whom were independently prequalified by the Prequalification Committee for that category of work, may form a joint venture to bid that category of work without further consideration by the Prequalification Committee provided the Joint Venture has been the City of Worcester Certified prior to submitting its bid and submits the Joint Venture’s Certificate of Eligibility with its bid.

Deliberations of the Prequalification Committee. The Prequalification Committee shall consider each SOQ submitted based on the criteria set forth in Paragraph 2.3 above.

The Prequalification Committee shall require that all mandatory submissions are submitted by the Applicant and apply a numerical scoring system, with both the minimum point scores for each category, and a score of 70 out of a possible 100 overall points, required to be prequalified. The Prequalification Committee shall prepare a written record of the evaluation of each Applicant.

The scoring system shall provide for the assigning of scores as follows. The Prequalification Committee shall first consider whether the Applicant has met the requirements of Subparagraphs d, e and f, bonding commitment letter, certificate of

eligibility and update statement. If the Applicant has satisfied those criterion, it shall be awarded up to 100 points using the criteria listed above. Applicants that do not meet the requirements of Subparagraphs d, e and f shall not be presented to the Prequalification Committee for consideration.

Any Applicant that fails to achieve either an overall score of at least 70 or that fails to achieve the minimum required points within each category shall be deemed not to be prequalified for the category of work for which the Applicant sought prequalification. If it is determined at any time during the evaluation process, that an Applicant has willfully supplied materially false or misleading information in its application or otherwise, the Applicant may be eliminated from further consideration for prequalification for the Project and, in the discretion of the Commissioner, for any other projects requiring prequalification under these Procedures.

The decision of the Prequalification Committee shall be final and not subject to appeal except on the grounds of fraud or collusion. An Applicant firm's prequalification score shall be made available to that Applicant firm only and only upon request. An Applicant firm's score shall not be a public record as defined in M.G.L. c. 4, §7 and shall not be open to public inspection to the fullest extent possible under the law.

A list of the Applicants that have been determined by the Prequalification Committee to be prequalified and therefore eligible to bid shall be posted at the offices of the City of Worcester listing the firms by trade categories. Applicants shall also be notified of the Prequalification Committee's determination on prequalification by mail at the address furnished by each Applicant.

The Prequalification Committee reserves the right to reopen the prequalification process for any category of work before it has completed its evaluation of firms that previously submitted City of Worcester's SOQs and/or to hold multiple rounds of prequalification for any given category of work. In either case, any Applicant that has submitted a complete City of Worcester SOQ shall not be required to submit another one, although any Applicant not prequalified may elect to amend its SOQ prior to the latest deadline for submitting information for the trade contract for which the Applicant seeks to be prequalified.

No person or firm suspended or debarred pursuant to Massachusetts General Laws Chapter 29, Section 29F, or Chapter 149, Section 44C, or disqualified pursuant to Chapter 7, Section 38D, or which has been debarred by the Federal Government shall be determined to be qualified to compete for a trade contract or any other contract or subcontract to be issued on the Project. If any Applicant determined to be qualified to perform one or more trade contracts is subsequently suspended or debarred pursuant to such laws, the qualification of such Applicant shall be rescinded and such Applicant shall be notified of such action and eliminated from the list of prequalified bidders.

Determinations to Remain in Effect. The Prequalification Committee's determinations as to which Applicants are prequalified shall remain in effect, subject to the following provisions of this Section 2.5, for the duration of the Project. Upon receipt at any time of additional information deemed material and significant by the Prequalification Committee regarding a previously prequalified Applicant's qualifications or responsibility, including, but not limited to, compliance with any minimum prequalification requirements, the Prequalification Committee may determine, in consultation with the City of Worcester and the CM, that the Applicant is not

qualified to perform the applicable trade contract(s) for the Project. In such event, the Prequalification Committee shall notify the Applicant of its determination, and inform the Applicant of any information on which the Prequalification Committee's determination is based that was not furnished by the Applicant.

C. Bidding

1. Requests for Bids. A request for bids ("RFB") will be issued for each trade contract subject to Sections 2 and 3 of these Procedures. The RFB will only be issued to the Trade Contractors appearing on the list of prequalified Applicants for the applicable trade contract determined pursuant to Section 2 above. The RFB shall include at least the following attachments:
 - a. the date, time and place for submission of responses to the request for bids. All Trade Contractor bids for DCAM projects will be submitted and opened at the architectural offices of DPW&P at 50 Skyline Drive, Worcester, MA 01605.;
 - b. fully detailed drawings and specifications by class of work in accordance with paragraph (a) of Subsection 1 of Section 44F of Chapter 149 of the Massachusetts General Laws (i.e., separate specification sections for the trades listed in Paragraph 1.1 above) which shall provide for full competition for each item of material to be furnished under the contract as set forth under subsection (b) of M.G.L. c.30, §39M;
 - c. drawings and specifications that provide for full competition for each item of material to be furnished under the contract as set forth under Subsection (b) of Section 39M of Chapter 30 of the Massachusetts General Laws;
 - d. a detailed definition of the Trade Contractor's scope of work, including alternates and unit price items, if any, within that scope of work;
 - e. a project schedule indicating the planned sequence and duration of each trade contractor's work;
 - f. list of the Trade Contractors prequalified for the work covered by the RFB;
 - g. a Trade Contractor bid form, in a format provided by the City of Worcester, that shall require, without limitation, a listing of price, addenda, alternates and unit price items, if any, for the trade work; certification that the trade contractor will perform the complete trade work with employees on his own payroll, except for work customarily performed by sub-trade subcontractors within the trade; and the names of all sub-trade subcontractors to be used if awarded the trade contract and each sub-trade contract sum; to the extent applicable, an identification by the Trade Contractor that it is a MBE or WBE or a list of the MBEs and/or WBEs proposed to be used by the Trade Contractor;
 - h. an affidavit that must be executed by all bidders confirming that all sub-trade subcontractors named on the bid form have been prequalified by the Trade Contractor using criteria similar to the criteria for the prequalification of Trade Contractors;
 - i. an affidavit of tax compliance that must be executed by all bidders;
 - j. an affidavit of prevailing wage compliance pursuant to M.G.L. c. 149, §§ 26 and 27 that must be executed by all bidders;

- k. a noncollusion affidavit that must be executed by all bidders;
 - l. a requirement that a bidder post a 5% bid bond from a surety company licensed to do business in the Commonwealth and whose names appears on U.S. Treasury Department Circular 570; but the bid bond shall be returned to the bidder if the bidder is not selected as the Trade Contractor;
 - m. a budget for the project, and the budget amount for the trade contract scope of work as provided in the project guaranteed maximum price, if available, or as provided in the most recent budget for the project;
 - n. a requirement that a bidder submit a current Certificate of Eligibility issued by the City of Worcester to the Trade Contractor showing that the Trade Contractor is certified for the trade category for which the bid is submitted.
 - o. a requirement that a bidder submit a completed Update Statement with its bid; and
 - p. a Trade Contractor agreement form as set forth in M.G.L. c. 149A, §8 (k).
- The prequalified Trade Contractors shall submit bids in compliance with the requirements of the Request for Bids package.

2. 2. Bid Opening, Award, Rejection and Negotiation of Bids. Bids shall be opened publicly by the City of Worcester. Bids for each trade shall be: a) accepted only from firms appearing on the list of prequalified firms described in Paragraph 2.4 for such trade; b) submitted as set forth in the RFB, and c) opened publicly. Any bid which does not include the bid bond or affidavits required pursuant to law or any response in which the information requested is incomplete, conditional, or obscure or which contains any additions not required in the request for bids package shall be rejected. The trade contract for each trade shall be awarded to the lowest prequalified bidder except that the City of Worcester reserves the right to reject the bids of any and all Trade Contractors if: a Trade Contractor is not eligible to submit a bid; if the bid does not represent the bid of a person competent to perform the work specified; or if less than three such bids were received and the prices are not reasonable for acceptance without further negotiation or competition. In addition if fewer than three responsive bids are received for any trade category and the lowest bid exceeds the estimated cost for the work, the CM shall attempt to negotiate an acceptable price with the lowest prequalified bidder. If the negotiations are unsuccessful, the construction manager shall terminate negotiations with the lowest prequalified bidder and shall initiate negotiations with the trade contractor who was the second lowest prequalified bidder. If the CM is unsuccessful in negotiating an acceptable price with the lowest prequalified bidder and second lowest prequalified bidder, the construction manager, on behalf of and with the consent of the public agency, shall solicit additional bids utilizing the procedures for selection of subcontractors who are not trade contractors, set out below and in M.G.L. c. 149A, § 8 (j).
3. 3. Trade Contract Execution. Each trade contractor selected to perform work on the Project shall return an executed trade contract

including the required performance and payment bonds and insurance certificate to the CM within 10 business days of receipt of the trade contract from the CM. The trade contract shall be the trade contract agreement required by law and in a form provided by the City of Worcester.

II. OTHER SUBCONTRACTS

A. Applicability of Procedures

1. Subcontracts Subject to Procedures For Other Subcontracts. The process set forth in these Sections 4 and 5 of the Procedures shall apply to the procurement of subcontracts and subcontractors that are not subject to the provisions of Sections 2 and 3 above, specifically subcontractors that are not Trade Contractors, and where the subcontract scope of work has an estimated value that is equal to or exceeds \$20,000.

B. Prequalification and Procurement

1. Subcontracts in With An Estimate Cost equal to or greater than \$20,000. For Subcontracts that are not trade contracts with an estimated cost equal to or greater than \$20,000, the CM shall submit to the City of Worcester for its approval the qualifications which it believes a subcontractor must have to perform the work of the subcontract and a list of a minimum of three (3) subcontracting firms, and preferably at least five (5) subcontracting firms, which the CM believes meet the qualifications. The CM shall submit information in a form and content satisfactory to the City of Worcester concerning the qualifications and responsibility of the proposed subcontractors and, when relevant, how the selection will further the CM's compliance with its Project MBE and WBE participation goals. The CM firm may submit its qualifications to bid on subcontract work provided that the CM customarily performs the work for which it submits its qualifications and does so with employees on its own payroll, and provided that the CM meets all the requirements of the selection process. The City of Worcester may eliminate firms from the list of firms submitted by the CM, and the City of Worcester may add firms to the list submitted by the CM. The CM must add the firms requested by the City of Worcester to the list if the firms are acceptable to the CM. If the firms the City of Worcester requested be added are not acceptable to the CM based upon qualifications, ability or for any other reason the CM must advise the City of Worcester of its objections and the basis for the objections in writing. If the City of Worcester determines that the CM's objections to the City of Worcester requested firm(s) are valid then the requested firms will not be added to the list otherwise the firm(s) requested by the City of Worcester will be added.

The CM will invite all subcontractors on the approved list to submit bids for the subcontract work, using forms and procedures approved by the City of Worcester. The bids shall be based on detailed bidding information developed by the CM for the subcontract work. The CM will submit to the City of Worcester a list of bids submitted for each subcontract and with the list will indicate the bidder it recommends be selected to be awarded a subcontract. The CM shall along with its submission provide a written explanation as to the reasons for its selection and recommendation. The CM's recommendation

will be based on relevant factors including, but not limited to, price, quality of work, and MBE and/or WBE participation. City of Worcester's approval is required before a subcontract can be awarded by the CM to a subcontractor, which approval shall not be unreasonably withheld provided the selection will not have an adverse effect on meeting project goals including, but not limited to, price, quality of work and/or MBE/WBE participation. In no event will the selection of a subcontractor affect the GMP agreed to by the CM.

The CM may, with the approval of the City of Worcester, reject the proposals for a subcontract and either resolicit that scope of work or negotiate with one or more of the firms that submitted the rejected proposals. Such rejection may be based on the proposal being too high compared to the amount carried in the GMP for that scope of work or upon any other basis approved by the City of Worcester.

2. Subcontracts With An Estimated Cost Less Than \$20,000. Subcontracts with an estimated cost less than \$20,000, and subcontracts for the supply of materials or equipment not including performance of labor in construction at the Project site, regardless of the estimated cost, may be awarded by the CM using any method selected by the CM with the approval of the City of Worcester.

III. OTHER PROCUREMENT PROVISIONS

A. Emergencies

In case of an emergency, the City of Worcester or the CM, with the prior approval of the City of Worcester, may award a contract for such work as is necessary to preserve or protect the health or safety of persons or property on the basis of such competitive bids or proposals as it can reasonably obtain in time to respond to the emergency and without public advertisement or opening of bids or proposals; or the CM may perform such work with its own forces.

B. Termination of Contracts

Termination of Trade Contracts and Other Subcontracts. If a trade contract, or other subcontract, is terminated in whole or in part by the CM **after** the subcontractor commences work but prior to completion of the work covered by such trade contract or other subcontract on account of breach or default by the trade contractor or other subcontractor, or for other reasons in the public interest approved by the City of Worcester, the CM may engage a replacement subcontractor using any method selected by the CM and approved by the City of Worcester, or may perform the affected work with its own forces, as necessary to preserve, protect, or complete the work without following these procedures and without public advertisement or opening of bids or proposals. The termination of a trade or other subcontractor prior to completion of its work shall not be the basis for an increase in the GMP.

C. Miscellaneous Provisions

1. Procurement Records. The Prequalification Committee and the CM shall ensure that the City of Worcester has a complete set of the following records:
 - a. All RFQs issued pursuant to Section 2 of these Procedures, including all addenda.

- b. All City of Worcester's SOQs and other information furnished to or otherwise obtained by the Prequalification Committee and the CM concerning qualification of each Applicant responding to an RFQ including any references or scoring obtained or generated in connection with the SOQs.
- c. All RFBs issued by the CM to prequalified Trade Contractors pursuant to Section 3 of these Procedures.
- d. All bids received from such Trade Contractors in response to such RFBs.
- e. All solicitations for bids or proposals issued by the CM to firms other than Trade Contractors.
- f. All bids and proposals received by the CM from such firms in response to such solicitations.
- g. All contracts awarded pursuant to these procedures.
- h. All other written documents required pursuant to the terms of these Procedures.
- i. All other documents referring or relating to the evaluation of qualifications, proposals or bids, including but not limited to, all notes (to the extent included in Project files), memoranda, correspondence and meeting minutes, whether formal or informal, in either electronic media or hard copy.

The City of Worcester shall retain copies of such records for a period of six (6) years from the date of final payment under the contract to which such records relate. The Secretary of Administration and Finance and the Inspector General of the Commonwealth shall have access to all such records at any time upon reasonable notice.

- 2. Severability. If any provision of these Procedures shall be determined to be invalid or unenforceable, the remaining provisions of the Procedures shall remain in full force and effect.
- 3. Time. The periods of time within which any party is required to act under the terms of these procedures when described in terms of "days" shall, unless otherwise specified, mean calendar days (and not business days), except that if the last day of any such time period falls on a Saturday, Sunday, or legal holiday in Massachusetts, the period of time during which the required action must be taken will be extended to the next following business day.

APPENDIX D

- Form for Subcontract between Construction Manager and Trade Contractor
- Form for Subcontract between Construction Manager and Subcontractor



**COMMONWEALTH OF MASSACHUSETTS
FORM FOR SUBCONTRACT BETWEEN CONSTRUCTION MANAGER AND TRADE
CONTRACTOR AS SET FORTH IN THE CONTRACT DOCUMENTS**

THIS AGREEMENT made this _____ day of _____, 20____, by and between

_____ a corporation organized and existing under the law of _____
a partnership consisting of _____
an individual doing business as _____
hereinafter called the "Construction Manager or CM" and

_____ a corporation organized and existing under the laws of _____
a partnership consisting of _____
an individual doing business _____
hereinafter called the "Trade Contractor" or "Subcontractor",

WITNESSETH that the CM and the Trade Contractor for the considerations hereafter named, agree as follows:

1. The Trade Contractor agrees to furnish all labor and materials required for the completion of all work specified in Section No. _____ of the Specifications for _____ (Name of Sub-trade) and the Plans referred to therein and addenda No. _____, _____, _____ and _____ for the _____

_____ (complete title of project and project no. taken from the title page of the Specifications)
all as prepared by _____

(Name of Designer or Engineer)

for the sum of _____ (\$_____)

and the CM agrees to pay the Trade Contractor said sum for said work. This price includes the following alternates (and other items set forth in the sub-bid):

Alternate No(s) _____, _____, _____,
_____, _____, _____.

(a) The Trade Contractor agrees to be bound to the CM by the terms of the hereinbefore described Plans, Specifications (including all general conditions stated herein) and addenda Nos. _____, _____, and _____, and to assume to the CM all the obligations and responsibilities that the CM by those documents assumes to the _____

_____ hereinafter called the “Awarding Authority,” except to the extent that provisions contained herein are by their terms or by law applicable only to the CM.

(b) The CM agrees to be bound to the Trade Contractor by the terms of the hereinbefore described documents and to assume to the Trade Contractor all the obligations and responsibilities that the Awarding Authority by the terms of the hereinbefore described documents assumes to the CM, except to the extent that provisions contained therein are by their terms or by law applicable only to the Awarding Authority. The Trade Contractor shall preserve and protect the rights of the City of Worcester under the Contract Documents with respect to the Work to be performed by the Trade Contractor so that the subcontracting thereof will not prejudice such rights, and shall be subject to the Record Retention requirements as set forth in the Contract Documents.

2. The CM agrees to begin, prosecute and complete the entire work specified by the Awarding Authority in an orderly manner so that the Trade Contractor will be able to begin, prosecute and complete the work described in this subcontract; and, in consideration thereof, upon notice from the CM, either oral or in writing, the Trade Contractor agrees to begin, prosecute and complete the work described in this Subcontract in an orderly manner and with due consideration to the date or time specified by the Awarding Authority for the completion of the entire work.

3. The Trade Contractor agrees to furnish to the CM within a reasonable time after the execution of this subcontract, evidence of workmen’s compensation insurance as required by law and evidence of public liability and property damage insurance of the type and in limits required to be furnished to the Awarding Authority by the CM.

4. The CM agrees that no claim for services rendered or materials furnished by the CM to the Trade Contractor shall be valid unless written notice thereof is given by the CM to the Trade Contractor during the first ten (10) days of the calendar month following that in which the claim originated.

5. The Trade Contractor agrees that it shall enter into similar agreements, as this, with its Subcontractors, except to the extent that provisions contained herein are by their terms or by law applicable only to the CM and/or Contractor.

6. The CM agrees that it has provided to the Trade Contractor, prior to the execution of this Subcontract, copies of the Contract Documents to which the Trade Contractor will be bound by this Subcontract. The Trade Contractor agrees that it shall similarly make copies of such Contract Documents available to its Subcontractors.

7. In the event of termination of the Contract due to the default of the CM or for any other reason, the City of Worcester shall have the right (but shall have no obligation) to assume, and/or accept assignment of and further assign to a general contractor or construction manager or other third party who is qualified and has sufficient resources to complete the Work, the rights of the CM under the Subcontract with such Trade Contractor. In the event of such assumption or assignment by the City of Worcester, the Trade Contractor shall have no claim against the City of Worcester or such third party for work performed by such Trade Contractor or other matters

arising prior to termination of the Contract, and the DCAM or such third party, as the case may be, shall be liable only for obligations to the Trade Contractor arising after such assumption or assignment.

8. Nothing contained herein, shall be construed to create any contractual relationship between the Trade Contractor and the City of Worcester.

9. This agreement is contingent upon the execution of a Contract for Construction Management Services between the CM and the Awarding Authority for the complete work.

IN WITNESS WHEREOF, the parties hereto have executed this agreement the day and year first above-written.

SEAL ATTEST

(Name of Trade Contractor)

By: _____

SEAL ATTEST

(Name of CM)

By: _____

(City and State)

THIS FORM MAY BE REPRODUCED

called the "Awarding Authority", except

that provisions contained herein are by



**COMMONWEALTH OF MASSACHUSETTS
FORM FOR SUBCONTRACT BETWEEN CONSTRUCTION MANAGER AND
SUBCONTRACTOR OTHER THAN TRADE CONTRACTOR AS SET FORTH
IN THE CONTRACT DOCUMENTS**

THIS AGREEMENT made this _____ day of _____ 20____, by and between

_____ a corporation organized and existing under the law of _____
a partnership consisting of _____
an individual doing business as _____
hereinafter called the "Construction Manager or CM" and

_____ a corporation organized and existing under the laws of _____
a partnership consisting of _____
an individual doing business _____
hereinafter called the "Subcontractor",

WITNESSETH that the CM and the Subcontractor for the considerations hereafter named, agree as follows:

1. The Subcontractor agrees to furnish all labor and materials required for the completion of all work as follows: _____

_____ (attach additional sheets as necessary)
according to the Specifications and Plans referred to therein and addenda No. _____,
_____, _____ and _____ for the

_____ (complete title of project and project no. taken from the title page of the Specifications)
all as prepared by _____
(Name of Designer or Engineer)

for the sum of _____ (\$_____) and the CM agrees to pay the Subcontractor said sum for said work. This price includes the following alternates (and other items set forth in the sub-bid):

Alternate No(s) _____, _____, _____,
_____, _____, _____, _____.

(a) The Subcontractor agrees to be bound to the CM by the terms of the hereinbefore described Plans, Specifications (including all general conditions stated herein) and addenda No. _____, and _____, and _____, and to assume to the CM all the obligations and responsibilities that the CM by those documents assumes to the _____ hereinafter

(Awarding Authority)

their terms or by law applicable only to the CM.

(b) The CM agrees to be bound to the Subcontractor by the terms of the hereinbefore described documents and to assume to the Subcontractor all the obligations and responsibilities that the Awarding Authority by the terms of the hereinbefore described documents assumes to the CM, except to the extent that provisions contained therein are by their terms or by law applicable only to the Awarding Authority. The Subcontractor shall preserve and protect the rights of the City of Worcester under the Contract Documents with respect to the Work to be performed by the Subcontractor so that the subcontracting thereof will not prejudice such rights, and shall be subject to the Record Retention requirements as set forth in the Contract Documents.

2. The CM agrees to begin, prosecute and complete the entire work specified by the Awarding Authority in an orderly manner so that the Subcontractor will be able to begin, prosecute and complete the work described in this subcontract; and, in consideration thereof, upon notice from the CM, either oral or in writing, the Subcontractor agrees to begin, prosecute and complete the work described in this Subcontract in an orderly manner and with due consideration to the date or time specified by the Awarding Authority for the completion of the entire work.

3. The Subcontractor agrees to furnish to the CM within a reasonable time after the execution of this subcontract, evidence of workmen's compensation insurance as required by law and evidence of public liability and property damage insurance of the type and in limits required to be furnished to the Awarding Authority by the CM.

4. The CM agrees that no claim for services rendered or materials furnished by the CM to the Subcontractor shall be valid unless written notice thereof is given by the CM to the Subcontractor during the first ten (10) days of the calendar month following that in which the claim originated.

5. The Subcontractor agrees that it shall enter into similar agreements, as this, with its Subcontractors, except to the extent that provisions contained herein are by their terms or by law applicable only to the CM and/or Contractor.

6. The CM agrees that it has provided to the Subcontractor, prior to the execution of this Subcontract, copies of the Contract Documents to which the Subcontractor will be bound by this Subcontract. The Subcontractor agrees that it shall similarly make copies of such Contract Documents available to its Subcontractors.

7. In the event of termination of the Contract due to the default of the CM or for any other reason, the City of Worcester shall have the right (but shall have no obligation) to assume, and/or accept assignment of and further assign to a general contractor or construction manager or other third party who is qualified and has sufficient resources to complete the Work, the rights of the CM under the Subcontract with such Subcontractor. In the event of such assumption or assignment by the City of Worcester, the Subcontractor shall have no claim against the City of Worcester or such third party for work performed by such Subcontractor or other matters arising prior to termination of the Contract, and the City of Worcester or such third party, as the case

may be, shall be liable only for obligations to the Subcontractor arising after such assumption or assignment.

8. Nothing contained herein, shall be construed to create any contractual relationship between the Subcontractor and the City of Worcester.

9. This agreement is contingent upon the execution of a Contract for Construction Management Services between the CM and the Awarding Authority for the complete work.

IN WITNESS WHEREOF, the parties hereto have executed this agreement the day and year first above-written.

SEAL ATTEST

(Name of Subcontractor)

By: _____

SEAL ATTEST

(Name of CM)

By: _____

(City and State)

THIS FORM MAY BE REPRODUCED

**DO NOT REMOVE
THIS PAGE INTENTIONALLY LEFT BLANK**



CONSTRUCTION MANAGER AT RISK CONTRACT

GENERAL CONDITIONS OF THE CONTRACT

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APPENDICES

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ARTICLE I **DEFINITION OF TERMS**

The following words shall have the following meanings as used in this Contract:

Advertisement:

The Advertisement or Notice Inviting Bids or Proposals for the Work.

Approval (or Approved):

An approval in writing signed by the authorized signatory of the City of Worcester.

Architect:

The architect identified as the Designer in Article 1 of the Owner-CM Agreement.

As directed (As permitted, as required, as determined or words of like effect): The direction, permission, requirement or determination of the City of Worcester unless otherwise stated in the Contract Documents. Similarly, *approved*, *acceptable*, *satisfactory* or words of like import shall mean approved by or acceptable or satisfactory to the Designer and the City of Worcester, except as may be otherwise determined by the City of Worcester.

Building Code:

All applicable rules and regulations to which the City of Worcester is subject and which are contained or referenced in the code authorized by M.G.L. c. 143, s. 93 et seq., including all amendments thereto.

Certificate of Agency Use and Occupancy:

A certificate signed by the Designer and the City of Worcester pursuant to the requirements of Article VI of these General Conditions of the Contract, indicating that the City of Worcester has determined that (1) the Work has been completed in accordance with the Contract Documents, except for Punch List items, (2) certificates of inspection, testing and/or approval (including a certificate of occupancy under the Building Code), operating permits for any mechanical apparatus which may be required to permit full use and occupancy of the Work by its intended users (which in a Subcontractor's case may include the Contractor) have been delivered to the City of Worcester, (3) any applicable written warranties, operating instructions and related materials have been delivered to the City of Worcester, and (4) the Work may be used for its intended purpose without substantial inconvenience or interference.

Change Order:

(1) A written order not requiring the consent of the CM, signed by the Project Manager and designated as a Change Order, directing the CM to make changes in the Work within the general scope of the Contract, or (2) any written or oral order from the Project Manager that causes any change in the Work Provided that the CM has given the City of Worcester written notice stating the date, circumstances, and source of the order and that the CM regards the order as a Change Order.

Construction Manager, Contractor, CM and General Contractor:

The person, corporation or other entity with whom the City of Worcester has executed the CM Agreement.

Construction Manager's Key Personnel:

The personnel listed in the Construction Manager's Proposal and Sections B.1, C.1, and C.2 of Exhibit GC of the Owner-CM Agreement, all of whom shall be dedicated to the

Project on a full time basis, and which personnel shall include at a minimum the Project Executive, the Project Manager, the Superintendent (who shall be a properly licensed construction supervisor), and the Project Scheduler. Unless otherwise designated by the CM, the Project Executive shall have complete authority to act for the CM.

Contract:

The Contract formed by the Contract Documents.

Contract Documents:

The documents listed in Article 2 of the Owner-CM Agreement.

Contract Modification:

Any alteration of the Contract Documents accomplished by a written agreement properly executed by the parties to this Contract.

Contract Price:

The Contract Price constitutes full compensation to the CM for everything to be performed and furnished in connection with the Work and for all damages arising out of the performance of the Work for which the City of Worcester is responsible, and constitutes the maximum compensation regardless of any difficulty incurred by the CM in connection with the Work or in consequence of any suspension or discontinuance of the Work. See also definition of Guaranteed Maximum Price.

Designer:

The architect or engineer identified as the Designer in the Preliminary Statement of the Owner- CM Agreement, subject to the provisions of Article III, Section 1 of these General Conditions of the Contract.

Drawings:

The Drawings are the graphic and pictorial portions of the Contract Documents, wherever located and whenever issued, showing the design, location and dimensions of the Work, generally including Plans, elevations, sections, details, schedules, and diagrams.

Engineer: The Designer, except that the term "Resident Engineer" shall have the meaning otherwise specified herein.

Final Acceptance:

The written determination by the City of Worcester that the Work has been 100% completed, except for the CM's indemnification obligations, warranty obligations, obligations to continue to maintain insurance coverage for the time periods provided in the Contract Documents, and any other obligations which are intended to survive Final Acceptance and/or the termination of the Contract.

Guaranteed Maximum Price:

Guaranteed maximum price", or "GMP", is the agreed total dollar amount for the construction management at risk services, including the cost of the work, the general conditions and the fees charged by the construction management at risk firm; also known as the Contract Price.

Laws:

All applicable statutes, regulations, ordinances, codes, laws, orders, decrees, approvals, certificates and requirements of governmental and quasi-governmental authorities.

Neutral:

An impartial third party not having an interest in the Owner, the Designer, the Program Manager, the CM or the Project.

Notice to Proceed (NTP):

The written notice provided by the City of Worcester to the CM which authorizes the CM to commence the Work as of a date specified therein, from which date the times specified in Article 4 of the Owner-CM Agreement is measured. The City of Worcester may issue more than one

NTP, including but not limited to separate NTPs for Preconstruction and Construction Services, in which case the date from which the time for completion of construction is measured shall be as stated in the appropriate NTP.

Or equal (or words of like import):

Equal in the opinion of the City of Worcester determined pursuant to the provisions of M.G.L. c.30, s. 39M and the provisions of these General Conditions of the Contract.

Owner:

The Commonwealth of Massachusetts or political subdivision thereof, authority, or other instrumentality that will own the Work. This term may also be used interchangeably with the term "the City of Worcester."

Plan(s):

Drawing(s).

Product Data:

Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the CM or its Subcontractors and suppliers to illustrate materials or equipment for some portion of the Work. Product data shall also include any such information or instructions produced by the manufacturer or distributor of such materials or equipment and made readily available by said manufacturer or distributor.

Progress Schedule:

The progress schedule submitted by the CM Approved by the City of Worcester in accordance with the Contract Documents.

Project:

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by separate contractors.

Project Manager:

The City of Worcester's representative assigned to the Project.

Punch List:

A list of items determined by the City of Worcester to be minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the Work for its intended purpose.

Resident Engineer:

The on-Site representative of the City of Worcester.

Samples:

Samples are physical examples, that illustrate materials, equipment, or workmanship and establish standards by which the Work will be judged.

Schedule of Values:

The schedule Approved by the City of Worcester pursuant to Article VIII of these General Conditions of the Contract which allocates the Contract Price to the various portions of the Work and is used as a basis for payments to the CM.

Shop Drawings:

Drawings, diagrams, details, schedules, and other data specially prepared for the Work by the CM or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate a portion of the Work.

Site:

The land and, if any, building(s) or space within any such building(s) on which or in which the CM is to perform the Work.

Specifications:

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards, and workmanship for the Work and performance of related services.

Subcontractor:

Person or entity with whom the CM or a subcontractor contracts in order to perform the Work, except as otherwise specifically provided or required herein or by Law. "Subcontractor" when used also means "Trade Contractor" except when otherwise specified.

Substantial Completion:

"Substantial completion" shall occur when (1) the CM fully completes the Work or substantially completes the Work so that the value of the Work remaining to be done is, in the estimate of the City of Worcester, less than one percent of the adjusted contract price, or (2) the CM substantially completes the work and the City of Worcester takes possession for occupancy, whichever occurs first.

Superintendent:

The licensed construction supervisor who is an employee of the CM designated to be in full time attendance at the Site throughout the prosecution and progress of the Work and who shall have complete authority to act for the CM.

Trade Contractor:

Subcontractors under Contract with the CM to perform the work of the trades listed in paragraph 1.1 of the Procedures for Award of Subcontracts at Appendix C, and selected under the process authorized in M.G.L. c. 149A and Section I of the aforementioned Procedures by the CM. Sometimes referred to as "Filed Subcontractor" or "Filed Subbidder."

Work:

The Work consists of all the work identified in the Contract Documents. The Work comprises the completed construction required by the Contract Documents and includes all labor, tools, materials, supplies, equipment, permits, approvals, paperwork, calculations, submittals, and certificates necessary to develop, construct and complete the Work in accordance with all Laws, and all construction and other services required to be supervised, overseen, performed or furnished by CM or that the Contract Documents require the CM to cause to be supervised, overseen, performed or furnished. The CM shall provide and perform for the Contract Price all of the duties and obligations set forth in the Contract Documents.

All terms that this Contract defines may be used with or without initial capital letters. Other terms, abbreviations and references are defined as they appear herein. Words and abbreviations that are not defined in the Contract Documents but which have recognized technical or trade meanings are used in accordance with those meanings. For additional definitions of terms, abbreviations and references refer to the *General Requirements, or Specifications*.

ARTICLE II

EXECUTION OF THE CONTRACT, SCOPE OF WORK, INTERPRETATION OF CONTRACT DOCUMENTS, DISTRIBUTION OF WORK, SUBCONTRACTS

1. Execution

The execution of the Owner – CM Agreement by the CM is a representation that the CM has visited the Site, has become familiar with local conditions under which the Work is to be performed and has correlated observations at the site with requirements of the Contract Documents.

2. Scope of Work

The Work consists of all the work identified in the Contract Documents. The Work comprises the completed construction required by the Contract Documents and includes all labor, tools, materials, supplies, equipment, permits, approvals, paperwork, calculations, submittals, and certificates necessary to develop, construct and complete the Work in accordance with all Laws, and all construction and other services required to be supervised, overseen, performed or furnished by CM or that the Contract Documents require the CM to cause to be supervised, overseen, performed or furnished. The CM shall provide and perform for the Contract Price all of the duties and obligations set forth in the Contract Documents.

3. Interpretation

A. The Plans and Specifications and other Contract Documents are to be considered together and are intended to be mutually complementary, so that any work shown on the Plans though not specified in the Specifications, and any work specified in the Specifications though not shown on the Plans, is to be executed by the CM as a part of this Contract. Should a conflict occur in or between or among any parts of the Contract Documents that are entitled to equal preference, the better quality or greater quantity shall govern, unless the City of Worcester directs otherwise. Figured dimensions shall take precedence over scaled dimensions.

B. All things that in the opinion of the City of Worcester may be reasonably inferred from the Plans, Specifications and other Contract Documents are to be executed by the CM. The Designer shall determine whether the detail Plans conform to the general Plans and Contract Documents, except as may be otherwise determined by the City of Worcester.

C. The tables of contents, titles, headings and marginal notes or sub-scripts contained herein are solely to facilitate references, are not intended to be construed as provisions of the Contract, and in no way affect the interpretation of the provisions to which they refer.

D. Where reference is made in the Contract Documents to publications, standards, or codes issued by associations or societies, such reference shall be interpreted to mean the current edition of such publications, standards, or codes, including revisions in effect on the date of the issuance of the RFP for the contract notwithstanding any reference to a particular date. The foregoing sentence shall not apply to the dates, if any, specified with respect to insurance policy endorsement forms.

E. In case of any conflict among the Contract Documents, unless the context clearly otherwise requires, the Contract Documents shall be construed according to the following priorities:

- First Priority: Contract Modifications and Change Orders
- Second Priority: Owner-CM Agreement as amended
- Third Priority: General and Supplementary Conditions of the Contract as amended
- Fourth Priority: Drawings as amended -- Schedules take precedence over enlarged detail Drawings, and enlarged Detail Drawings take precedence over reduced scale Drawings; figured dimensions shall prevail over scale.
- Fifth Priority: Specifications as amended
- Sixth Priority: Request for Proposals as amended
- Seventh Priority: CM's Proposal as amended

F. The CM shall refer to all of the Drawings, and to all of the sections of the Specifications, and shall perform all work reasonably inferable therefrom as being necessary to produce the indicated results. Neither the City of Worcester nor the Designer assumes any liability arising out of jurisdictional issues raised or claims advanced by Subcontractors, trade organizations or other interested parties based on the arrangement or manner of subdivision of the content of the Specifications and Drawings. In the event of any claim arising out of any duplication, conflict, inconsistency or discrepancy within the Specifications or on the Drawings as to the allocation of the Work among the Subcontractors the CM shall be solely responsible for resolving the claim and shall be responsible for ensuring that all of the Work is completed, regardless of where it appears in the Specifications or on the Drawings.

4. Distribution of Work

Other than as required by M.G.L. c. 149A and any other applicable provisions of the Massachusetts General Laws and these Contract Documents, the CM shall be responsible for distributing the Work in the best interests of the Project.

5. Subcontracts

Procedures for the award of contracts by the CM for the furnishing of labor, materials and equipment in the performance of the Work ("Subcontracts") shall be as specified in the procedures attached hereto as Appendix "C". The CM shall make no substitution for any Subcontractor previously selected without the prior written approval of the City of Worcester. The term Subcontractor also means Trade Contractor except when otherwise specified. The CM shall maintain and periodically update and distribute to the City of Worcester, the Program Manager and the Designer a Project Directory listing the names, addresses and telephone numbers of the principal members of the staff of each Subcontractor. The principal contact and a back-up for each Subcontractor and each of their home telephone numbers, mobile telephone numbers and pager numbers, if available, shall be indicated in the Project Directory so that such persons can be reached in emergency situations occurring beyond regular business hours.

All work shall be performed pursuant to written subcontracts. The CM shall use the Subcontract forms attached hereto in Appendix "D", for all Subcontractors. One form of Subcontract is to be used for all Trade Contractors selected for the trades listed in section 1.1 of the above referenced Procedures, and the other form is to be used for all Other Subcontractors. All subcontracts shall require the Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the CM by the terms of the Contract Documents, and to assume toward the CM all the obligations and responsibilities which the CM, by the Contract Documents, assumes toward the City of Worcester. Each Subcontract shall preserve and protect the rights of the City of Worcester under the Contract Documents with respect to the Work to be performed by the Subcontractor so that the subcontracting thereof will not prejudice such rights. The CM shall require each Subcontractor to enter into similar agreements with its Subcontractors. The CM shall provide to each proposed Subcontractor, prior to the execution of a Subcontract with such Subcontractor, copies of the Contract Documents to which the Subcontractor will be bound by this Paragraph. Each Subcontractor shall provide copies of such Contract Documents to its Subcontractors.

Each Subcontract shall provide that in the event of termination of the Contract due to the default of the CM or for any other reason, the City of Worcester shall have the right (but shall have no obligation) to assume, and/or accept assignment of and further assign to a general contractor or construction manager or other third party who is qualified and has sufficient resources to complete the Work, the rights of the CM under the Subcontract with such Subcontractor. In the event of such assumption or assignment by the City of Worcester, the Subcontractor shall have no claim against the City of Worcester or such third party for work performed by such Subcontractor or other matters arising prior to termination of the Contract, and the City of Worcester or such third party, as the case may be, shall be liable only for obligations to the Subcontractor arising after such assumption or assignment.

No Subcontract, and nothing contained herein or in any Subcontract, shall be construed to create any contractual relationship between any Subcontractor and the City of Worcester.

6. Contract Price

The Contract Price constitutes full compensation to the CM for everything to be performed and furnished in connection with the Work and for all damages arising out of the performance of the Work for which the City of Worcester is responsible, and constitutes the maximum compensation regardless of any difficulty incurred by the CM in connection with the Work or in consequence of any suspension or discontinuance of the Work.

ARTICLE III

CONTROL OF WORK/ADMINISTRATION OF THE CONTRACT

1. Designer

Notwithstanding anything to the contrary expressed or implied in this Contract, any of the powers, rights, and duties of the Designer may be exercised by the City of Worcester, provided that the City of Worcester shall be under no obligation to do so. The City of Worcester may rely

on the Designer for the performance and exercise of its rights and obligations hereunder and shall be presumed to so rely on the Designer in the absence of an explicit written assumption by the City of Worcester of any such rights and obligations, except that any Approval required to be obtained from the City of Worcester hereunder shall not be valid without the signature of the City of Worcester. The City of Worcester may explicitly overrule in writing any action, determination or decision of the Designer should the City of Worcester choose to do so, except to the extent that the same would violate applicable law. Subject to the foregoing, the Designer shall be responsible for the general administration of the Contract and shall perform the duties and exercise the rights herein conferred on the Designer. Except as otherwise specifically provided herein, the Designer shall decide all questions which may arise as to the conduct, quantity, quality, equality, acceptability, fitness, and rate of progress of the several kinds of work and materials to be performed and furnished under this Contract, and shall decide all questions which may arise as to the interpretation of the Plans and Specifications and as to the fulfillment of this Contract on the part of the CM. In the case of the death, resignation, inability or refusal of the Designer to act, or the termination of his or her or its employment, the City of Worcester may appoint another person to act as Designer for the purposes of this Contract. The City of Worcester shall give written notice to the CM of any such appointment.

2. Right of Access to Work

The City of Worcester, the User Agency and the Designer (and persons designated by them) may for any purpose enter upon the Work, the Site, and premises used by the CM, and the CM shall provide safe facilities therefor. Other contractors of the City of Worcester may also enter upon the same for the purposes which may be required by their contracts or work. Any differences or conflicts which may arise between the CM and other contractors of the City of Worcester with respect to their work shall be initially resolved by the Designer.

3. Inspection No Waiver

No inspection by the City of Worcester or the Designer or employees or agents of either of them, and no order, measurement, certificate, approval, payment order, payment, acceptance or any other action or inaction of any of them, shall operate as a waiver by the City of Worcester of any provision of this Contract.

ARTICLE IV **GENERAL PERFORMANCE OBLIGATIONS OF THE CM**

The CM shall complete for the Contract Price all of the Work in a proper, thorough, and workmanlike manner in accordance with the Contract Documents. Without limiting the foregoing and without limiting the CM's obligations under any other provision of the Contract Documents, the CM shall for the Contract Price perform the following general obligations:

1. Review of Contract Documents and Field Conditions

A. Before commencing the Work, the CM shall carefully study the Contract Documents and carefully compare all Specifications, Plans, Drawings, figures, dimensions, lines, marks, scales, directions of the Designer, and any other information provided by the City of Worcester and shall at once report to the Designer any questions, errors, inconsistencies, or omissions.

B. Before commencing the Work, the CM shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the CM with the Contract Documents and shall at once report to the Designer any questions, errors, inconsistencies, or omissions.

2. Supervision and Construction Procedures:

Coordination: Cutting and Patching

A. The CM shall supervise and direct the Work, using the CM's best skill and attention. The CM shall be solely responsible for, and shall have control over, construction means, methods, techniques, sequences and procedures, and shall be responsible for coordinating all portions of the Work under the Contract.

B. The CM shall be responsible for the proper fitting of all Work and the coordination of the operations of all trades, Subcontractors, and materialmen engaged upon the Work. The CM shall guarantee to each of its Subcontractors all dimensions which they may require for the fitting of their work to all surrounding work.

C. All necessary cutting, coring, drilling, grouting, and patching required to fit together the several parts of the Work shall be coordinated by the CM.

D. The CM shall be responsible to the City of Worcester for the acts and omissions of the CM's employees, agents and Subcontractors of all tiers, and their agents and respective contractors employees, and other persons performing portions of the Work or supplying materials therefor.

E. The CM shall be responsible for the inspection of portions of the Work already performed under this Contract to determine that such portions are in proper condition to receive subsequent Work.

F. The CM shall employ a registered land surveyor to perform any engineering required for establishing grades, lines, levels, dimensions, layouts, and reference points for the trades. The CM shall be responsible for maintaining benchmarks and other survey marks and shall replace any benchmarks or survey marks that may have become disturbed or destroyed. The CM shall verify the materials shown on the Drawings before laying out the Work and shall be responsible for any error resulting from its failure to exercise this precaution.

G. Unless otherwise required by the Contract Documents, or directed in writing by the Designer or the City of Worcester, Work shall be performed during regular Working Hours which, unless prescribed otherwise by applicable law, shall be 7:00 a.m. to 5:00 p.m. However, if the CM desires to carry on the Work outside of regular working hours or on Saturdays, Sundays, or Massachusetts or federal holidays then the CM shall provide 48 hours notice to allow satisfactory arrangements to be made for inspecting Work in progress and shall bear the costs of such inspection. the City of Worcester shall bill the CM directly for such costs.

H. Work performed outside of regular Working Hours without the consent or knowledge of the Designer and/or the City of Worcester shall be subject to additional inspection and testing as directed by the Designer. The cost of this inspection and testing shall be borne by the CM whether the Work is found to be acceptable or not. The City of Worcester at its election shall be entitled either to issue a credit Change Order to cover such cost or to withhold such cost from any further payments due the CM and/or to receive a payment from the CM of the amount of such cost.

3. Key Personnel

The CM shall employ the Key Personnel as defined in Article I of the General Conditions unless otherwise agreed to by the City of Worcester. The Project Executive shall be the CM's senior person on Site and shall have full authority to accept communications to, make decisions for, and otherwise fully represent the CM in connection with all matters relevant to the Project. The CM's Project Manager(s) shall be responsible for one or more portions of the Work as assigned by the Project Executive. A Project Manager may be the designee of the Project Executive to exercise the Project Executive's responsibilities in the CM's Project Executive's absence. The Superintendent shall be properly licensed in accordance with the Building Code.

4. Labor

A. The CM shall employ only competent workers. The CM shall enforce and shall require all its Subcontractors to enforce strict discipline and good order among their respective employees and other persons carrying out the Work. The CM shall not permit employment of unfit persons or persons not skilled in tasks assigned to them. Whenever the Designer or the City of Worcester shall notify the CM in writing that any worker is, in the Designer's opinion, incompetent, unfaithful, disorderly, or otherwise unsatisfactory, such employee shall be discharged from the Work and shall not again be employed on the Project except with the consent of the City of Worcester.

B. The CM shall ensure that all its Subcontractors employ a sufficient number of workers to carry on the Work with all proper speed in accordance with Laws, the requirements of the Contract Documents, and the Progress Schedule.

C. The CM shall procure materials from such sources and shall manage its own forces and the forces of its Subcontractors in such a manner as will result in harmonious labor relations on the Project Site. The CM shall cause persons to be employed in the Work who will work in harmony with others so employed.

5. Notices and Permits

A. The CM at its sole cost shall take out and pay for all approvals, permits, user fees, certificates and licenses required by Laws, pay all charges and fees, and pay for (or cause the appropriate Subcontractor to pay for all utilities required for the proper execution of the Work.

B. The CM shall comply with all Laws and shall give all notices required thereby.

C. Except as otherwise specified in this Contract, it is not the CM's responsibility to ascertain that the Contract Documents are in accordance with applicable Laws. However, if the CM observes that portions of the Contract Documents are at variance with the requirements of Laws, the CM shall promptly notify the Designer and the City of

Worcester in writing, and necessary changes shall be accomplished by an appropriate Contract Modification.

D. If the CM performs Work knowing it to be contrary to Laws without giving such notice to the Designer and the City of Worcester, the CM shall bear full responsibility for such Work and all costs attributable thereto, including, without limitation, corrections to the Work.

6. Lines, Marks, etc.

The CM shall furnish batter boards and stakes and shall cause to be placed and maintained thereon so as to be easily read, such lines, marks and directions relating to the Work as the Designer shall from time to time direct. The Designer shall establish base lines and benchmarks on the Drawings for the locations of the Work but all other lines and grades shall be determined by the CM.

7. Excavation

The CM shall prevent by sheeting and shoring or bracing, if necessary, any caving or bulging of the sides of any excavation made by the CM, leaving sheeting and shoring in place, or if any is removed, filling solid the spaces left thereby.

8. Corrections to the Work; Inspection No Bar to Subsequent Corrections

The inspection of the Work by the Designer, the City of Worcester or its consultants shall not relieve the CM of its responsibilities to fulfill the Contract obligations. Defective work may be rejected by the Designer, the City of Worcester or its consultants whether or not such work and/or materials have been previously overlooked or misjudged by the Designer, the City of Worcester or its consultants and accepted for payment. If the Work or any part thereof shall be found defective at any time before the Final Acceptance of the whole Work, the CM shall forthwith correct such defect in a manner satisfactory to the Designer, the City of Worcester or its consultants. If any material brought upon the Site for use in the Work, or selected for the same, shall be rejected by the Designer, the City of Worcester or its consultants as unsuitable or not in conformity with the Contract Documents, or as damaged by casualty or deteriorated due to improper storage at the Site or to any other factor, the CM shall forthwith remove such materials from the Site. The CM shall pay for the cost of making good all work or property of other contractors or of the Owner destroyed or damaged by such removal or replacement; repair any injury, defect, omission or mistake in the Work as soon as it is discovered, finish and immediately make good any defect, omission or mistake in the Work and complete and leave the Work in perfect condition.

9. Intentionally Omitted

10. Sanitary Facilities

The CM shall provide and maintain sanitary facilities for all persons employed on the Work, beginning with the first worker at the Site. Said facilities shall meet the following requirements unless otherwise specified in the Supplementary Contract Documents.

A. There shall be no fewer facilities than the number required by applicable Laws.

B. Facilities shall be kept in a clean sanitary condition at all times and shall be adequately screened to be inaccessible to flies.

11. Temporary Offices

A. Except as otherwise specified in the Contract Documents, the CM shall erect the following temporary offices near the Site as directed by the Designer and adequately furnish and maintain them in a clean, orderly condition:

- (1) Refer to specification section 01500 Temporary facilities for additional information.

12. Contract Documents and Samples at the Site

A reasonable number of sets of Contract Documents will be furnished to the CM by the City of Worcester immediately after signing of the Contract, one of which shall be maintained at the Site for reference by authorized representatives of the City of Worcester. The CM shall maintain at the Site for the use and information of the City of Worcester one record copy of the Drawings, Specifications, Addenda, Change Orders, Approved Shop Drawings, Product Data, Samples, updated Progress Schedule, and all other submittals, all in good order and marked currently to record changes and selections made during construction. These shall be available to the Designer and the City of Worcester and shall be delivered to the Designer for submittal to the City of Worcester upon completion of the Work. The Drawings, Specifications and other documents prepared by the Designer, and copies thereof furnished to the CM, are for use solely with respect to this Project. The CM shall not permit their release to other parties except as may be necessary in dealing with governmental authorities in the ordinary course of permitting and constructing the Project. Further, they are not to be used by the CM or any Subcontractor or Supplier on other projects without the specific written consent of the City of Worcester and the Designer.

13. Telephones

The CM shall provide and maintain separate individual telephone service and pay for all calls relating to the Work. Service and equipment shall meet the requirements, if any, of the Contract Documents and shall include provisions for incoming and outgoing calls: (1) in the CM's field office for the use of its authorized agents and (2) in the Resident Engineer's office for the use of the Designer and authorized agents of the City of Worcester.

14. Safety Laws, Regulations, and Practices

A. The CM shall comply with all health and safety Laws applicable to the Work. Without limitation:

- (1) If the CM uses or stores toxic or hazardous substances it shall comply with M.G.L. c. 111F, s. 2, the "Right to Know" law and regulations promulgated by the Department of Public Health, 105 CMR 670, the Department of Environmental Protection, 310 CMR 33, and the Department of Labor and Workforce Development, 441 CMR 21; and shall post a Workplace Notice obtainable from the Department of Labor and Workforce Development.

- (2) The CM shall comply with the Federal Resource Conservation and Recovery Act, the Federal Comprehensive Environmental Response, Compensation and Liability Act, M.G.L. c. 21C, M.G. L. c. 21E, and any other Laws affecting toxic or hazardous materials, solid, special or hazardous waste (collectively "Hazardous Materials Laws). Should the CM discover unforeseen materials subject to Hazardous Materials Laws at the Site, the CM shall immediately notify the City of Worcester of such discovery.
- (3) The CM shall be responsible for the location of all utilities in connection with the Work. Without limiting the foregoing, the CM shall comply with Dig-Safe Laws. Dig-Safe is the Utility Underground Plant Damage Prevention System, 111 South Bedford Road, Burlington, MA 01803, 1-800-322-4844. The CM shall notify Dig-Safe of contemplated excavation, demolition, or explosive work in public or private ways, and in any utility company right of way or easement, by certified mail, with a copy to Department of Environmental Protection (DEP). This notice shall be given at least 72 hours prior to the work, but not more than sixty days before the work is to be done. Such notice shall state the name of the street or the route number of the way and shall include an accurate description of the location and nature of the proposed work. Dig-Safe is required to respond to the notice within 72 hours of receipt by designating the location of pipes, mains, wires or conduits at the Site. The CM shall not commence work until Dig-Safe has responded. The work shall be performed in such manner and with reasonable precautions taken to avoid damage to utilities under the surface at the work location. The CM shall provide the Superintendent with current Dig-Safe regulations, and a copy of M.G.L. c. 82, s. 40. Any costs related to the services performed by Dig-Safe shall be borne by the CM.
- (4) The CM shall comply with Public Law 92-596, "Occupational Safety and Health Act of 1970" (OSHA), with respect to all rules and regulations pertaining to construction, U.S. Code Title 29, sections 651 et seq. including Volume 36, numbers 75 and 105, of the Federal Register as amended, and as published by the U.S. Department of Labor.
- (5) The CM shall comply with M.G.L. c. 149, s. 129A, relative to shoring and bracing of trenches.

B. The CM shall take reasonable precautions to prevent damage, injury or loss to persons or property. Nothing herein shall relieve Subcontractors of their responsibility for the safety of persons and property, and for compliance with all Laws applicable to the Work and their activities in connection therewith. Without limitation, the CM shall take all reasonable precautions for the safety of, and the prevention of injury or damage to (1) all agents and employees and contractors on the Work and all other persons who may be affected thereby including the general public, (2) all the Work and all materials and equipment to be incorporated therein, whether in storage on or off the Site, under the care custody or control of the CM or any of its Subcontractors or any contractors directly or indirectly contracting through any of them, and (3) other property at the Site or adjacent thereto, including but not limited to trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course

of the Work. The CM shall promptly remedy all damage or loss to any such property caused in whole or in part by the CM, any Subcontractor, or anyone directly or indirectly contracted or employed by any of them or by anyone for whose acts any of them may be liable. Without limiting the foregoing, the CM shall:

- (1) post and maintain adequate danger signs and other warnings against hazards;
- (2) promulgate safety regulations and give appropriate notices to the City of Worcester and users of adjacent utilities and property;
- (3) insure the adequate strength and safety of all scaffolding, staging and hoisting equipment, temporary shoring, bracing and tying;
- (4) protect adjoining private or public property;
- (5) provide barricades, temporary fences, and covered walkways required by prudent construction practices, Laws and/or the Contract Documents;
- (6) furnish approved hard hats and other personal protective equipment, furnish approved first aid supplies, furnish the name of the first aid attendant, and maintain a posted list of emergency facilities;
- (7) provide proper means of access to property where the existing access is cut off by the CM;
- (8) maintain from the beginning of any darkness or twilight through the whole of every night sufficient lights on or near any obstruction so as to guard to protect travelers from injury from such obstruction;
- (9) maintain adequate security at the Site so as not to expose the Work and surrounding property to vandalism or malicious mischief;
- (10) provide adequate fire protection procedures during the use of cutting torches, welding equipment, plumbers' torches and other flame and spark producing apparatus; and
- (11) take prompt action to correct any dangerous or hazardous conditions.

C. The CM shall not use or store explosives in the performance of the Work unless the CM first obtains the City of Worcester's prior written specific Approval. If the City of Worcester Approves the use or storage of explosives during the performance of the Work, the CM shall first comply with all Laws and obtain all permits, approvals, and certificates required in connection with the same and shall exercise best efforts, including but not limited to the employment and supervision of properly qualified personnel, to prevent damage, injuries, and accidents involving said explosives.

D. The CM shall not permit cutting or welding in or immediately adjacent to existing property of the Owner or of anyone else without the City of Worcester's prior Approval in each instance.

E. The CM shall submit a safety plan to the City of Worcester and designate by notice to the City of Worcester a full time responsible member of its organization at the Site whose duties shall include preventing accidents.

F. The CM shall submit to the City of Worcester without delay verbal and written reports of all accidents involving bodily injury or property damage arising in connection with the Work.

G. In any emergency affecting the safety of persons or property the CM shall immediately act in the exercise of reasonable judgment to prevent threatened damage, injury, or loss. The CM shall immediately notify the City of Worcester of such emergency.

15. Debris and Chemical Waste

A. The CM shall not permit the accumulation of interior or exterior debris. The CM shall keep the Work area clean at all times. Without limitation, garbage shall be removed daily.

B. The CM shall properly classify and remove debris and waste from the Site and transport and dispose of it, all in accordance with Laws, employing a qualified and properly licensed transporter, at any landfill, disposal or recycling facility licensed under applicable Laws, including without limitation, hazardous materials laws. The CM shall make all arrangements and give and obtain all notices, communications, documentation, permits, certificates, and approvals necessary for said disposal from the owner or officials in charge of such landfills, disposal or recycling facilities. The CM shall bear all fees and costs in connection with such classification, removal, transportation, disposal and storage. The CM shall not permit any storage of debris or waste except in accordance with Laws.

C. The CM shall not permit any open fire on the Site.

D. Chemical Waste: Chemical waste shall be stored in corrosion resistant containers, removed from the Site, and disposed of not less frequently than monthly unless more frequently required by Laws, including without limitation hazardous materials laws, or by the Contract Documents. Disposal of chemical waste shall be performed in accordance with requirements of the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP). Fueling and lubricating of vehicles and equipment shall be conducted in a manner that affords the maximum protection against spills and evaporation. Lubricants shall be disposed of in accordance with procedures meeting all applicable Laws. The CM shall immediately notify the Designer of any hazardous materials release large enough to require reporting under applicable Laws. The CM shall be responsible for immediately cleaning up in accordance with Laws any oil or hazardous materials releases resulting from its operations. Any costs incurred in cleaning up any such releases shall be borne by the CM.

16. Weather Protection (M.G.L. c. 149, s. 44G and 44F(1))

The CM shall provide "weather protection," which means temporary protection of that Work adversely affected by moisture, wind and cold. Weather protection shall be achieved by covering, enclosing and/or heating working areas such that a minimum temperature of 40 degrees Fahrenheit is maintained at the working surface during the months of November through March in order to permit construction to be carried on during such period in accordance with the Progress Schedule. After the building or portion thereof is completely enclosed by either permanent construction or substantial temporary materials having a resistance comparable to the specified permanent construction, the CM shall provide heat therein of not less than 55 degrees F. nor more than 75 degrees F. The foregoing provisions do not supersede any specific requirements for methods of construction, curing of materials and the like. Such weather protection shall be consistent with the Progress Schedule, shall permit the continuous progress of the Work necessary to maintain an orderly and efficient sequence of construction operations, shall include one thermometer for every 2,000 square feet of floor space or fraction thereof, shall be subject to the Approval of the City of Worcester, and shall meet such additional requirements as may be specified by the City of Worcester and by the Contract Documents.

17. Furnishings and Equipment

When, in the opinion of the Designer, any portion of the Work is in a reasonable condition to receive fittings, furniture, or other property of the Owner not covered by this Contract, the CM shall allow the City of Worcester to bring such fittings, furniture, and/or other property into such portions of the Work and shall provide all reasonable facilities and protection thereof. No such occupancy shall be construed as interfering with the provisions relating to time of completion, or as constituting an acceptance of the whole or any part of the Work. Any furniture or fittings so installed shall be placed in the Work at the risk of the City of Worcester except that the CM shall be liable for damages or losses to such furniture or fittings to the extent such damages or losses arise in whole or in part from the negligence or intentional misconduct of CM, Subcontractors, their agents and/or employees, or anyone for whose acts CM is responsible.

18. Intentionally Omitted

19. Sales Tax Exemption and Other Taxes

All building materials and supplies as well as the rental charges for construction vehicles, equipment and machinery rented exclusively for use on the Site, or while being used exclusively for the transportation of materials for the Work are entitled to an exemption from sales taxes under M.G.L. c. 64H, s. 6(f). The CM shall take all action required to obtain the benefit of such sales tax exemption. The CM shall bear the cost of any sales taxes that CM incurs in connection with the Work and the City of Worcester shall not reimburse the CM for any such taxes. The exemption number assigned to the CM as an exempt purchaser shall be provided to the CM by the City of Worcester upon the written request of the CM.

20. Final Cleaning

At the completion of the Work, the CM shall remove all waste materials, rubbish, tools, equipment, machinery and surplus materials, and professionally clean all sight-exposed surfaces so that the Work is clean and ready for occupancy. Subsequent to installation of User Agency furniture, telephones, and equipment, the CM shall provide such additional cleaning as may be necessary to remove any soil resulting from installation of such furniture, telephones and equipment.

21. Maintenance Data

Subject to such additional requirements as may be provided in the Contract Documents, the CM shall compile four complete and identical binders of operating and maintenance data for the entire Work. The CM shall submit record maintenance data to the Designer for approval, shall submit approved maintenance data to the City of Worcester, and shall instruct and train the User Agency's personnel in proper inspection and maintenance procedures.

22. Closeout Procedures

The CM shall take all actions and submit all items required for the issuance of the Certificate of Agency Use and Occupancy and Final Acceptance as specified in the Contract Documents.

23. Risk of Loss

The CM shall bear all risk of loss to the Work during the term of the Contract except for any portion of the Work as to which the Certificate of Agency Use and Occupancy has been issued pursuant to Article VI of these General Conditions of the Contract. Nothing herein shall limit the CM's responsibilities under Article IX or XV of these General Conditions of the Contract.

ARTICLE V **MATERIALS AND EQUIPMENT**

1. Materials Generally

A. Unless otherwise specifically provided in the Contract Documents, the CM shall provide and pay for materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

The CM shall obtain prior written approval from the City of Worcester for permission to store materials or equipment to be incorporated in the Work, for which progress payments will be requested, at off-site locations. Any and all charges for storage, inspection and verification by the Designer and the City of Worcester, including insurance, shall be borne solely by the CM. Before approval, the City of Worcester may require, without limitation (i) evidence that the off-site location is properly secure, (ii) proper proof of insurance and proof of satisfactory contractual arrangements for transportation to the site, and (iii) a certificate from the CM stating:

- (1) The name of the member of the CM or Subcontractor that leases or owns the warehouse or other storage facility;
- (2) The location of such storage facility, including the storage space; i.e., the entire premises or certain areas of a warehouse giving the number of floors or portions thereof, and a certification that the CM has visited such location, verified the storage of such material or equipment therein or thereon (including confirmation that the materials or equipment are marked and segregated as provided below), and verified payment of all current storage charges;
- (3) The date(s) on which the material or equipment is first stored at such facility; and
- (4) A description of the materials or equipment stored, including quantities, types, manufacturers and other identification information, such as serial numbers.

The CM shall furnish to the City of Worcester, not less often than once per month, a current inventory of all materials or equipment being stored at any off-site location.

The CM shall mark each sealed carton or other item with the name of the Project and the City of Worcester, and all materials or equipment stored off-site shall be segregated to the extent required by the City of Worcester or the Designer.

Payment for materials or equipment stored off-site shall be at the reasonable discretion of the City of Worcester, taking into account the schedule requirements of the Work. Title to materials or equipment stored off-site shall be transferred at the time at which the City of Worcester pays for them, free of any lien or other interest of the Supplier or any other lien or encumbrance. Notwithstanding such transfer of title, the CM shall retain sole care, custody and control of, and shall have complete responsibility for the security and protection of, all materials or equipment included in any Application for Payment which are stored at locations other than the site, and the CM assumes all risk of loss or damage to such materials or equipment, and the CM shall hold harmless the City of Worcester from and against all liabilities arising out of or resulting from loss or damage, from any cause, to such materials or equipment for which payment is requested, including liens, security interests or other claims of any kind by Suppliers or other third parties relating to such materials or equipment.

B. Materials and equipment to be installed as part of the Work (both or either of which are hereinafter referred to as "materials") shall be new, unused, of recent manufacture, assembled, and used in accordance with the best construction practices. The CM shall inform itself as to, and shall comply with, the provisions of M.G.L. c. 7, s. 23A, as amended, and shall abide by the same and all applicable rules, regulations and orders made thereunder in relation to the purchase of supplies and materials in the execution of the Work, including the provisions of M.G.L. c. 7, s. 22, paragraph 17 which provides that there be *"a preference in the purchase of supplies and materials, other considerations being equal, in favor, first, of supplies and materials manufactured and sold within the Commonwealth, and, second, of supplies and materials manufactured and sold elsewhere within the United States."*

2. Shop Drawings, Product Data, and Samples

A. The CM shall furnish to the Designer all samples of the materials to be used in the execution of the Work as required by the Contract Documents. The CM shall furnish to the Designer in a timely manner all coordination Drawings, shop details, Shop Drawings, and setting diagrams which may be necessary for acquiring and installing materials. These shall be reviewed as required by the Designer. A minimum of four (4) copies shall be submitted for final approval, one of which shall be returned to the CM, one to the Resident Engineer, one to the City of Worcester and one filed with the Designer. The inspection and approval by the Designer of Shop Drawings, etc. shall be general and shall in no way relieve the CM from responsibility for proper fitting, coordinating, construction, and construction sequencing. The CM shall furnish to the City of Worcester and the Designer such information and vouchers relative to the Work, the materials therefor, and the persons employed thereon, as the Designer shall from time to time request.

B. Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. The purpose of their submission is to demonstrate for those portions of the Work for which submittals are required the way the CM proposes to conform to the information given and the design concept expressed in the Contract Documents.

C. The CM shall review, approve, and submit to the Designer, Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the City of Worcester or of separate contractors. Submittals made by the CM which are not required by the Contract Documents or which do not comply with the Contract Documents may be returned without action. The CM's attention is directed to the provisions of Section 4 of this Article V and to the Specifications.

D. The CM shall prepare and keep current for the Designer's approval a schedule of submittals which is coordinated with the Progress Schedule and allows the Designer reasonable time to review submittals.

E. The CM shall perform no portion of the Work requiring submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Designer. Such Work shall be in accordance with Approved submittals.

F. By submitting Shop Drawings, Product Data, Samples and similar submittals, the CM represents that the CM has determined and verified materials, field measurements, and field construction criteria related thereto and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

G. The CM shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Designer's approval of Shop Drawings, Product Data, Samples or similar submittals unless the CM has specifically informed the Designer in writing of such deviation at the time of submittal and the City of Worcester has given explicit written approval to the specific deviation. The CM shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals by the Designer's or the City of Worcester's actions.

H. The CM shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Designer on previous submittals.

I. Informational submittals upon which the Designer is not expected to take responsive action may be so identified in the Contract Documents.

J. When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, such certification must be stamped by a registered Massachusetts professional in the discipline required. The Designer shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

K. Materials furnished or used or employed under the Contract must be equal in quality to the samples furnished and be satisfactory to the Designer.

3. Tests

A. Any material to be used in the Work may be tested or inspected at any time by the Designer with an independent testing company with the prior Approval of the City of Worcester and may be rejected if it fails to comply with specified tests. the City of Worcester shall pay for all testing of specified material. If the CM requests permission to use a material that was not specified, then the CM shall pay for such testing. The cost of testing of any materials that fail the testing criteria shall be borne by the CM

B. The CM shall notify the Designer and the City of Worcester of the proposed sources of materials in time to permit all required testing and inspection before the material is needed for incorporation into the Work. The CM shall have no claim arising from CM's failure to designate the proposed source or to order the material in time for adequate testing and inspection. Necessary arrangements shall be made to permit the Designer to make factory, shop or other inspection of materials or equipment ordered for the Work in process of manufacture or fabrication, or in storage elsewhere than the Site.

4. "Or Equal" Submissions

A. Where products or materials are prescribed by manufacturer name, trade name, or catalog reference, the words "or Approved equal" shall be understood to follow. An item shall be considered equal to the item so named or described if in the opinion of the Designer and the City of Worcester (a) it is at least equal in quality, durability, appearance, strength and design, (b) it performs at least equally the function imposed in the general design for the Work, and (c) it conforms substantially, even with deviations, to the detailed requirements for the items as indicated by the Specifications. Any changes in the work made necessary to accommodate products or materials substituted as an "or equal" shall be at the expense of the CM. "Approved equal" shall mean an item with respect to which the City of Worcester shall have issued a written statement to the CM to the effect that the item is, in the City of Worcester's opinion, equal within the meaning of this paragraph to that prescribed in the Contract Documents.

B. The CM shall be responsible for providing the Designer with any information and test results that the Designer reasonably requires to determine whether or not a material is equal to a material named or described in the Contract Documents.

C. Whenever the CM submits a material for approval as a substitute for a material named or described in the Contract Documents, such submission shall be made at least one hundred twenty (120) days prior to the date the materials will be used in the Work. In no event shall the CM maintain a claim for delays based upon the Designer's review of such substituted materials if the CM has failed to comply with the one hundred twenty (120) day submission requirement.

5. Delivery and Storage of Materials: Inspection

A. Materials and equipment shall be progressively delivered to the Site so that there will be neither delay in the progress of the Work nor an undue accumulation of materials that are not to be used within a reasonable time and so that their security, quality, and fitness of the materials for the Work is preserved.

B. Materials stored off Site shall be insured and stored at the expense of the CM so as to guarantee the preservation of their security, quality and fitness for the Work. Without derogating from the CM's responsibilities in the previous sentence, when necessary to avoid deterioration or damage, material (on or off Site) shall be placed on wooden platforms or other hard clean surfaces and not on the ground and shall be properly protected.

C. Expenses for inspection of material by the Designer and/or the City of Worcester personnel including travel, quarters, and subsistence shall be borne by the CM requesting the inspection of material stored outside the Commonwealth of Massachusetts as part of the Contract Price. The policy of the City of Worcester precludes the payment

for material stored outside the boundaries of Massachusetts except in extremely limited circumstances with the express written consent of the City of Worcester. If the CM requests an inspection of material stored outside the Commonwealth of Massachusetts, the City of Worcester will initially pay for all expenses of inspecting the material incurred by the Designer and/or the City of Worcester's personnel including travel, quarters, and subsistence. the City of Worcester will then give CM an invoice for those costs and the CM shall submit a credit Change Order for the amount of those expenses.

D. Stored materials either at the Site or at some other location agreed upon in writing shall be so located as to facilitate prompt inspection and even though approved before storage, may again be inspected prior to their use in the Work.

E. All storage sites shall be restored to their original condition by the CM at the CM's expense.

F. The CM shall take charge of and be liable for any loss of or injury to the materials for its use delivered to or in the vicinity of the place where the Work is being done, whether furnished by the Owner or otherwise; the CM shall notify the Designer as soon as any such materials are so delivered, allow them to be examined by the Designer, and furnish workers to assist therewith.

6. Defective, Damaged, or Deteriorated Materials and Rejection Thereof

The Designer may reject materials if the Designer reasonably determines that such materials do not conform to the Contract Documents in any manner, including but not limited to materials that have become damaged or deteriorated from improper storage whether or not such materials have previously been accepted. The CM at its own expense shall remove rejected materials from the Work. No rejected material, the defects of which have been subsequently corrected, shall be used except with the written permission of the Designer. Should the CM fail to remove rejected material within a reasonable time, the City of Worcester may, in addition to any other available remedies, remove and/or replace the rejected material, and deduct the cost of such removal and/or replacement from any moneys due or to become due the CM. No extra time shall be allowed for completion of Work by reason of such rejection. The inspection of the Work shall not relieve the CM of any of its obligations herein prescribed, and any defective Work shall be corrected. Work not conforming to the Contract Documents may be rejected notwithstanding that such Work and materials have been previously overlooked or misjudged by the Designer and accepted for payment. If the Work or any part thereof shall be found defective at any time before Final Acceptance of the whole Work, the CM shall forthwith make good such defect in a manner satisfactory to the Designer. Nothing in the Contract shall be construed as vesting in the CM any property rights in the materials used after they have been attached or affixed to the Work or the Site; but all such materials shall upon being so attached or affixed become a property of the Owner.

ARTICLE VI
PROSECUTION AND PROGRESS

1. Beginning, Progress Schedule, and Completion of Work

A. The Contract time shall commence upon the date specified and in accordance with any conditions in the Notice to Proceed.

B. Prior to the submission of the first progress payment, CM shall submit and the City of Worcester shall approve a progress schedule which complies with the requirements of specification section 013200 . Upon Approval by the City of Worcester, said schedule shall constitute the Progress Schedule. The CM shall comply with all requirements of said section 01310.

C. Time is of the essence of this Contract. The Work shall be completed within the time specified in the Owner-CM Agreement. Should the CM require additional time to complete the Work, the CM shall document the reasons therefor and submit a written request for an extension of time within 20 days of the occurrence of the event alleged to be the cause of the delay, as provided in this Article and in Article VII of these General Conditions of the Contract. Failure to submit said written request within the time required by the preceding sentence shall preclude the CM from subsequently claiming any time extension due to said delay.

D. If, in the opinion of the Designer or the City of Worcester, the CM fails to comply with the Progress Schedule, the City of Worcester may give the CM a written notice to that effect. whereupon (1) the CM shall, if the notice requires, discontinue all or any portion of the Work (which discontinuance shall neither terminate the Contract nor give the CM any claim for an increase in the Contract Price, damages, or an extension of any completion deadlines); or (2) at CM's sole cost increase the work force, equipment and plant, or any of them, employed on the whole or any part of the Work, to the extent required by such notice, and employ the same from day to day until the completion of the Work or such part thereof, or until the failure regarding the rate of progress, in the opinion of the Designer or the City of Worcester, shall have been sufficiently corrected.

E. If, in the opinion of the City of Worcester the CM fails to comply with the Progress Schedule, and whether or not the City of Worcester shall have given the CM a notice described in D above, the City of Worcester may (but shall not be required to) give the CM written notice of such failure and five days to cure the same. Unless the CM shall within that five days take all necessary steps to do so (including, if the City of Worcester requires, increasing its forces, equipment and plant) and continue to do so until in the opinion of the City of Worcester the failure is corrected, the City of Worcester may at the CM's expense and without terminating this Contract take exclusive or joint possession of all or a portion of the Site and employ and direct the labors of existing or such additional forces, equipment and plant as may in the Designer's or the City of Worcester's opinion be necessary to insure the completion of the Work or such part thereof within the time specified in the Contract Documents or at the earliest possible date thereafter. the City of Worcester may exercise its rights under this Article at any time and from time to time without waiving any of its rights under this Contract, at law or in equity, including, without limitation, the right to deem this Contract terminated or to order the CM to discontinue the Work at any time thereafter. The CM shall continue to

perform the remaining Work under this Contract even if the City of Worcester elects to have another contractor perform a portion of the Work under this Article.

F. the City of Worcester shall deduct the cost of any actions the City of Worcester takes under this Article from any amount then due or which might have become due to the CM under this Contract had the CM performed as required. On demand, the CM shall pay the City of Worcester any amount by which the cost of completing all or any portion of the Work exceeds the amount attributable to that Work under the Contract Documents. the City of Worcester's sole goal will be to complete the Work that it elects to complete within the time limits stated in the Contract or at the earliest possible date thereafter. Consequently, the City of Worcester shall have no obligation to obtain competitive bids or the lowest cost for completing the Work or any part thereof, except when it is required by law. the City of Worcester's election to complete all or part of the Work shall not release the CM from any liability for failure to complete the Work as the Contract Documents require, and shall not entitle the CM to a claim for an increase in the Contract Price or an extension of the time for completing the Work. If the cost that the City of Worcester incurs in completing all or any portion of the Work is less than the amount that the Contract Documents attribute to that Work, the City of Worcester will pay or credit the difference to the CM, less any other costs and expenses that the City of Worcester incurs, including the cost of supervision, and the Designer's and attorneys' fees and costs.

2. Failure to Complete Work on Time - Liquidated Damages

A. If liquidated damages are specified in the Owner - CM Agreement, the City of Worcester has determined that its damages as a result of CM's failure to complete the Work to the point at which it qualifies for the issuance of a Certificate of Agency Use and Occupancy will be difficult or impracticable to ascertain. Accordingly, if the Work is not completed to such point by the date specified in this Contract, the CM shall pay to the City of Worcester the sum designated as liquidated damages in the Contract for each and every calendar day that the CM is in default in completing the Work to such point. Such moneys shall be paid as liquidated damages, not as a penalty, to cover losses and expenses to the City of Worcester and/or the User Agency resulting solely from the fact that the Work is not completed on time.

B. Similarly, if the Contract states that by a specified date a designated portion of the Work shall be prosecuted to the point at which it qualifies for the issuance of a Certificate of Agency Use and Occupancy, and if such portion has not been prosecuted to such point by said date, the CM shall pay to the City of Worcester the sum designated in the Contract for each calendar day that the CM is in default in completing such portion of the Work to such point. Such moneys shall also be paid as liquidated damages not as a penalty, to cover losses and expenses to the Owner resulting solely from the fact that the Work is not completed on time.

C. the City of Worcester may recover such liquidated damages by deducting the amount thereof from any moneys due or that might become due the CM, and if such moneys shall be insufficient to cover the liquidated damages, then the CM or the Surety shall pay to the City of Worcester the amount due.

D. Permitting the CM to continue and finish the Work or any portion of it after the time fixed in the Contract for its completion shall not be deemed as a waiver of any of the Owner's rights hereunder, at law or in equity.

E. Liquidated damages or a portion thereof may be waived by the City of Worcester if the CM submits evidence satisfactory to the City of Worcester that the delay was caused solely by conditions beyond the control of the CM and that the City of Worcester has not suffered any damages as a result of said delay.

F. Failure by the City of Worcester to specify a sum as liquidated damages in the Owner-CM Agreement, or the insertion of "N/A" or "none" in the space provided therein for liquidated damages, shall not be deemed a waiver of the City of Worcester's right to recover actual damages arising from the CM's failure to complete the Work on time.

3. Delays: Statutory Provisions (M.G.L. c. 30, s. 39O)

A. Notwithstanding any provision of this Contract to the contrary, except as otherwise provided by law as set forth in paragraph B below, the CM shall not be entitled to increase the Contract Price or to receive damages on account of any hindrances or delays, avoidable or unavoidable; but if any delay is caused in the opinion of the City of Worcester, by the City of Worcester, the CM shall be entitled to an extension of time. The length of the extension shall be sufficient in the opinion of the City of Worcester for the CM to complete the Work. Although no delay shall increase the Contract Price, the City of Worcester may require that any change in the date by which the CM must complete all or any part of the Work be processed on a standard Change Order form.

B. If a suspension, delay, interruption or failure to act of the City of Worcester increases the cost of performance to any Subcontractor, that Subcontractor shall have the same rights against the CM with respect to such increase as the CM shall have against the City of Worcester by virtue of (a) and (b) of M.G.L. c. 30, s. 39O set forth below, but nothing in provisions (a) and (b) shall alter any other rights which the CM or the Subcontractor may have against each other. As used in the statutory language of (a) and (b) below, "contract" means this Contract, "general contractor" means the CM and "Awarding Authority" means the City of Worcester:

"(a) The Awarding Authority may order the general contractor in writing to suspend, delay, or interrupt all or any part of the work for such period of time as it may determine to be appropriate for the convenience of the Awarding Authority; provided, however, that if there is a suspension, delay or interruption for fifteen days or more or due to a failure of the Awarding Authority to act within the time specified in this contract, the Awarding Authority shall make an adjustment in the contract price for any increase in the cost of performance of this contract but shall not include any profit to the general contractor on such increase; and provided further, that the Awarding Authority shall not make any adjustment in the contract price under this provision for any suspension, delay, interruption or failure to act to the extent that such is due to any cause for which this contract provides for an equitable adjustment of the contract price under any other contract provisions.

(b) The general contractor must submit the amount of a claim under provision (a) to the Awarding Authority in writing as soon as practicable after the end of the suspension, delay, interruption or failure to act and, in any event, not later than the date of final payment under this contract and except for costs due to a suspension order, the Awarding Authority shall not approve any costs in the claim incurred more than

twenty days before the general contractor notified the Awarding Authority in writing of the act or failure to act involved in the claim."

4. Use and Occupancy Prior to Final Acceptance

A. The CM agrees to the use and occupancy of the Project or any portion thereof before Final Acceptance of the Work by the City of Worcester.

B. the City of Worcester and the User Agency will cooperate with the CM with respect to the completion of the Work by taking such reasonable steps as may be possible to avoid interference with the CM's Work provided that they do not interfere with the proper functioning of the facility.

C. The CM shall not be responsible for wear and tear or damage resulting solely from temporary occupancy.

D. Use and occupancy of any part of the Work prior to Final Acceptance by the City of Worcester shall not relieve the CM from maintaining the required payment and performance bonds and insurance (to the extent that insurance is required to be maintained after Substantial Completion) required by this Contract.

5. Certificate of Agency Use and Occupancy

A. When the Work, or portion thereof which the City of Worcester agrees to accept separately has reached the state of Substantial Completion as shown on an Approved payment request, the CM shall develop, with the participation of the Designer and the City of Worcester, the Punch List identifying those items of unfinished or unacceptable Work that remain to be performed or corrected under the Contract.

B. Before the Work shall be deemed completed to the point where it is ready for the issuance of a Certificate of Agency Use and Occupancy, the CM shall:

- (1) Provide CM's proposed Punch List containing a statement of the reason for each item listed thereon;
- (2) Advise the City of Worcester of proposed changes in insurance in accordance with the provisions of this Contract, and provide to the City of Worcester evidence of CM's Completed Operations insurance coverage to the extent required by the Contract Documents;
- (3) Execute and submit a notarized warranty on a form provided by the City of Worcester meeting the requirements of Article IX of these General Conditions of the Contract, to commence upon the date of the issuance of the Certificate of Agency Use and Occupancy for the Work or the designated portion thereof, unless otherwise provided in the Certificate of Agency Use and Occupancy;
- (4) Submit signed special warranties and warranties of longer than one year as required by the Contract Documents;
- (5) Submit signed maintenance agreements for all portions of the Work specified to receive maintenance after the issuance of the Certificate of Agency Use and Occupancy;
- (6) Submit all preliminary record Drawings and documents and framed data in the forms required by the Contract Documents;
- (7) Complete all items required to be completed by the Department of Public Safety and obtain a Certificate of Occupancy from the Department of

- Public Safety and similar releases which permit the User Agency and the City of Worcester full and unrestricted use of the areas claimed to be ready for occupancy;
- (8) Deliver specified maintenance stocks of materials, required spare parts, and all special tools furnished by manufacturers to persons designated by the City of Worcester and obtain written receipts for same;
 - (9) Make final changes of lock cylinders or cores and advise the City of Worcester of the change of project security responsibility;
 - (10) Complete start-up of systems and instruct User Agency personnel on proper operation and routine maintenance of all systems and equipment; obtain and submit to Agency personnel that start-up and instruction have been completed;
 - (11) Remove all remaining temporary facilities that are no longer needed, surplus materials, and debris; (the CM shall not remove construction offices and trailers without the prior Approval of the City of Worcester);
 - (12) Submit final utility meter readings and similar information and advise the User Agency and the City of Worcester of the change of responsibility for utility charges and payments upon the issuance of the Certificate of Agency Use and Occupancy;
 - (13) Complete final clean-up of all Work, restoration of damaged finishes, and replacement of all damaged and broken glass not listed on the CM's Punch List.
 - (14) Complete such other items as may be called for in the Contract Documents, if any, or in the Specifications.

C. After completing the items specified in subsection B above, the CM shall make a written request for the Designer's inspection for a Certificate of Agency Use and Occupancy in accordance with the Contract Documents. The Designer shall review the submittals and the Work and shall either 1) sign a Certificate of Agency Use and Occupancy or 2) notify the CM of incomplete and/or incorrect Work that must be completed and corrected prior to the issuance of the Certificate of Agency Use and Occupancy. The Designer shall notify the CM of any additions to the Punch List. In connection with the execution of the Certificate of Agency Use and Occupancy the Designer shall assign dollar values to each item on the Punch List. Failure to include any incomplete or defective item on the Punch List shall not relieve the CM of the obligation to complete all Work in accordance with the Contract Documents.

6. Final Acceptance of the Work

A. Prerequisites for Final Acceptance. After the issuance of a Certificate of Agency Use and Occupancy for the entire Work, and after the CM has completed all of the Work required by this Contract, including Change Orders and Punch List Items, the CM shall submit the following completed items to the City of Worcester together with such additional items as may be specified in the Contract Documents:

- (1) A completed Final Application for Payment showing a final accounting of all changes in the Work, on the form provided by the City of Worcester.
- (2) Certification and satisfactory evidence that all taxes, fees, and similar obligations have been paid.

- (3) Consent of the Surety to Final Payment executed by applicable bonding companies.
- (4) Certified copy of the Punch List stating that the CM has completed or corrected every item listed.
- (5) Evidence of CM's continuing Completed Operations Insurance coverage to the extent required by the Contract Documents.
- (6) All final record Drawings and documents in the forms specified by the Contract Documents.
- (7) A notarized certification that all purchases made under the tax exemption certificate were legitimate and entitled to exemption.
- (8) Written certifications from the Department of Public Safety and the Designer to the effect that: a) the Work has been inspected for compliance with the Contract Documents and has satisfied the Department of Public Safety; b) all equipment and systems included in the Work have been tested in the presence of the Designer and are operational and satisfactory; c) the Work is completed and ready for final inspection.
- (9) Such other items as may be required by the Contract Documents.

B. Re-inspection; Final Acceptance. After notification from the CM that all remaining contract exceptions, omissions and incompletions have been completed (with the exception of CM's continuing warranty, insurance, indemnification, and such other obligations as are intended by the terms of the Contract Documents to extend beyond the date of Final Acceptance), the City of Worcester and the Designer shall inspect the Work to verify the completion of the same. If the Work is satisfactory, the City of Worcester shall prepare a Certificate of Final Acceptance or shall notify CM of items which remain to be completed prior to Final Acceptance.

7. One-Year Warranty Repair List and Inspection

Approximately 30 days prior to the expiration of the comprehensive one-year warranty period, the CM shall schedule an appointment with the City of Worcester for a re-inspection of the Work with the City of Worcester, and shall thereafter inspect the work at the time scheduled. Based on this inspection and on prior inspections, the City of Worcester shall issue a "Warranty Repair List" of items to be corrected by the CM. The CM shall make the repairs and/or replacements listed within 30 days of the issuance of the Warranty Repair List unless otherwise agreed by the City of Worcester in writing.

ARTICLE VII **CHANGES IN THE WORK**

1. Change Orders Generally

A. No changes in the Work, the Contract Price, the Substantial and Final Completion dates, or any other provision of an Approval by the City of Worcester of the Contract Documents shall be made in absence of a Change Order as defined in Article I of these General Conditions of the Contract, directing the CM to perform such changes. Any request for a change in the provisions of this Contract submitted by the CM must be made in writing and in accordance with the provisions of this Contract, including the procedures of the City of Worcester.

B. A request for a change in the provisions of this Contract may be submitted to the City of Worcester by the CM, Designer, Resident Engineer or User Agency. The request must be made in writing and in accordance with the provisions of this Contract, Laws, and the procedures of the City of Worcester. When the CM believes that an event or circumstance gives rise to an adjustment in the Contract Price and/or the Contract Time it shall submit a request for a change order in accordance with the forms and procedures required by the City of Worcester.

C. A written directive (sometimes called a Notice to Proceed or a Notice of Intent may be issued by the City of Worcester instructing the CM to make changes in the Work within the scope of the Contract, including but not limited to, changes in: (1) the Plans and Specifications; (2) the method or manner of performance of the Work; (3) the Owner-furnished facilities, equipment, materials, services or Site; (4) the schedule for performance of the Work.

D. The CM shall immediately perform any changes in the work that are ordered by the City of Worcester.

E. Whenever a Change Order or written directive will cause a change in the CM's cost, the CM or the City of Worcester may request an adjustment in the Contract Price. Such request shall be in writing and shall be submitted by the party making such claim to the other party before commencement of the pertinent work or as soon thereafter as possible.

F. the City of Worcester and the CM shall negotiate in good faith an agreement on an equitable adjustment in the Contract Price, and/or time if appropriate, before commencement of the pertinent work or as soon thereafter as is possible. In the absence of an agreement for an equitable adjustment, the City of Worcester shall unilaterally determine the costs attributable to the change and provide the CM with a written notice to that effect. The CM may appeal the decision of the City of Worcester within thirty days of receipt of said notice, to the commissioner of the City of Worcester or his designee, and the CM shall have the right to such further appeal as is provided in M.G.L. c.30, s. 39Q set forth in Section 4.D of this Article VII. However, if the CM shall exercise its rights to appeal the decision of the City of Worcester as aforesaid, the CM shall be required to engage in the mandatory mediation procedures set forth in Section 5 of this Article VII.

G. During the negotiation of an equitable adjustment in the Contract Price, the CM shall, if requested, provide the City of Worcester with all cost, pricing data and any other information or documentation used by it in computing the amount of the equitable

adjustment, and the CM shall certify that the pricing data used was accurate, complete, current and reasonable. If the City of Worcester subsequently determines that the data submitted by the CM was incomplete, incorrect, not current, or unreasonable, the City of Worcester may exclude such data from consideration under the equitable adjustment request.

H. Whenever the Construction Manager is entitled or believes it is entitled to a Change Order adjusting the Contract Price, the Construction Manager shall maintain separate accounts (by job order or other suitable accounting procedure) of all costs incurred and attributable to such work. The Construction Manager shall maintain a computerized accounting system, acceptable to the City of Worcester, in which current information as to the status of all such work is maintained. The Construction Manager shall maintain such contemporaneous records as are necessary to provide a clear distinction between the costs of all Change Order Work and proposed Change Order Work, and the costs of other Work.

I. Notwithstanding any provisions in the Contract Documents to the contrary, no additional General Conditions Cost shall be due for any Change Order or portion of a Change Order resulting from or attributable to:

- (1) Increases in the cost of Allowance items;
- (2) Substitutions of equipment or materials which are functionally similar to equipment or materials specified in the Contract Documents; or
- (3) Sales and use taxes.

2. Methods of Computing Equitable Adjustments

A. Equitable adjustments in the Contract Price shall be determined according to one of the following methods, or a combination thereof, as determined by the City of Worcester:

- (1) fixed price basis, provided that the fixed price shall be inclusive of items (a) through (e) below and shall be computed in accordance with those provisions;
- (2) estimated lump sum basis to be adjusted in accordance with Contract unit prices or other agreed upon unit prices provided that the unit prices shall be inclusive of all costs related to such equitable adjustment;
- (3) time and materials basis to be subsequently adjusted on the basis of actual costs (but subject to a predetermined "not to exceed limit") calculated as follows:
 - a) the direct cost (or credit) for labor at the minimum wage rates established for this Contract pursuant to M.G.L. c. 149, s 26-27H, and the direct cost for material and use of equipment;
 - b) plus (or minus) the cost of Workmen's Compensation Insurance, Liability Insurance, Federal Social Security and Massachusetts Unemployment Compensation, or as an alternative the CM may elect to use a flat 30% of the total labor rate computed in accordance with subparagraph (a) above;
 - c) plus an allowance equal to 20% of the amount of (a) above for General Conditions, overhead, superintendence, fee, and profit; (5% of the allowance shall be paid to the CM and the Subcontractor shall be paid 15% of the Allowance).

- d) plus (or minus) the actual direct additional premium costs and expenses incurred as a result of collective bargaining agreements or other agreements between organized labor and employers, and plus (or minus) the actual direct premium cost of payment and performance bonds required of CM and Trade Subcontractors for this Contract.

B. If the net change is an addition to the Contract Price, it shall include the CM's overhead, superintendence and profit. On any change that involves a net credit, no allowance for overhead, superintendence and profits shall be included. For any change that does not include labor performed or materials installed in the project, there will be no markup for the CM's or Subcontractor's overhead, superintendence, and profit, even though there may be a net increase in the Contract Price. Charges for small tools known as "tools of the trade" are not to be computed in the amount of any change in the Contract Price.

C. Adjustments in Subcontractors made under the provisions of the Procedure for Award of Subcontracts shall not be considered Change Orders and shall not entitle the CM to any adjustments for overhead, profit, and superintendence, although the City of Worcester may require that such Contract adjustments be processed on standard Change Order and equitable adjustment forms.

3. Work Performed under Protest

The CM agrees to perform all Work as directed by the City of Worcester, and if the the City of Worcester determines that certain Work that the CM believes to be or to warrant a Change Order under this Article does not represent a change in the Work, the CM shall perform said Work. The CM shall be deemed to have concurred with the the City of Worcester's determination as aforesaid unless the CM shall perform Work under protest in compliance with the following sub-paragraphs (1) and (2) below:

- (1) If the CM claims compensation for a change in the Work that is not deemed by the the City of Worcester to be a change or to warrant additional compensation as claimed by the CM, the CM shall on or before the first working day following the commencement of any such work or the sustaining of any such damage submit to the City of Worcester a written statement of the nature of such work or claim. The CM shall not be entitled to additional compensation for any work performed or damage sustained for which written notice is not given within the time limit specified in the preceding sentence, even though similar in character to work or damage with respect to which notice is timely given.
- (2) On or before the second working day after the commencement of such work or the sustaining of such damage, and daily thereafter, the CM shall file to the extent possible with the Resident Engineer, the Designer, and the City of Worcester, itemized statements of the details and costs of such work performed or damage sustained. The CM shall use the City of Worcester Daily Time and Materials Report found in the City of Worcester Form 13 to record all labor and material used. If the CM shall fail to make such statements to the extent possible, then the CM shall not be entitled to additional compensation for any such work or damages.

4. False Claims, Statutory Provisions Regarding Changes

A. Criminal Penalties: The CM's attention is directed to M.G.L. c. 30, s. 39I which provides criminal penalties for unauthorized deviations from the Plans and Specifications, and to M.G.L. c. 30, s. 39J and M.G.L. c. 7, s. 42E-42I. The CM's attention is also directed to M.G.L. 266, s. 67B which provides criminal penalties for false claims by Contractor under this Contract:

"Whoever makes or presents to any employee, department, agency or public instrumentality of the commonwealth, or of any political subdivision thereof, any claim upon or against any department, agency, or public instrumentality of the commonwealth, or any political subdivision thereof, knowing such claim to be false, fictitious, or fraudulent, shall be punished by a fine of not more than ten thousand dollars or by imprisonment in the state prison for not more than five years, or in the house of correction for not more than two and one-half years, or both."

B. Differing Site Conditions (M.G.L. c. 30, s. 39N):

"If, during the progress of the work, the contractor or the Awarding Authority discovers that the actual subsurface or latent physical conditions encountered at the Site differ substantially or materially from those shown on the plans or indicated in the contract documents either the contractor or the contracting authority may request an equitable adjustment in the contract price of the contract applying to work affected by the differing Site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a contractor, or upon its own initiative, the contracting authority shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the plans or indicated in the contract documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the plans and contract documents and are of such a nature as to cause an increase or decrease in the cost of performance of the work or a change in the construction methods required for the performance of the work which results in an increase or decrease in the cost of the work, the contracting authority shall make an equitable adjustment in the contract price and the contract shall be modified in writing accordingly."

C. Timely Decision By the City of Worcester(M.G.L. c. 30, s. 39P): *"Every contract subject to section thirty-nine M of this chapter or section forty-four A of chapter one hundred forty-nine which requires the Awarding Authority, any official, its architect or engineer to make a decision on interpretation of the specifications, approval of equipment, material or any other approval, or progress of the work, shall require that the decision be made promptly and, in any event, no later than thirty days after the written submission for decision; but if such decision requires extended investigation and study, the Awarding Authority, the official, architect or engineer shall, within thirty days after the receipt of the submission, give the party making the submission written notice of the reasons why the decision cannot be made within the thirty day period and the date by which the decision will be made."*

D. Change Order / Contract Interpretation Appeal Procedure (M.G.L. c. 30, s. 39Q): The following provisions apply to every contract awarded by any state agency as defined by M.G.L. c. 7, s. 39A for the construction, reconstruction, alteration,

remodeling, repair or demolition of any capital facility as defined by the aforesaid section 39A:

"(a) Disputes regarding changes in and interpretations of the terms or scope of the contract and denials of or failures to act upon claims for payment for extra work or materials shall be resolved according to the following procedures, which shall constitute the exclusive method for resolving such disputes. Written notice of the matter in dispute shall be submitted promptly by the claimant to the chief executive official of the state agency which awarded the contract or his designee. No person or business entity having a contract with a state agency shall delay, suspend, or curtail performance under that contract as a result of any dispute subject to this section. Any disputed order, decision or action by the agency or its authorized representative shall be fully performed or complied with pending resolution of the dispute.

"(b) Within thirty days of submission of the dispute to the chief executive official of the state agency or his designee, he shall issue a written decision stating the reasons therefore, and shall notify the parties of their right of appeal under this section. If the official or his designee is unable to issue a decision within thirty days, he shall notify the parties to the dispute in writing of the reasons why a decision cannot be issued within thirty days and of the date by which the decision shall issue. Failure to issue a decision within the thirty-day period or within the additional time period specified in such written notice shall be deemed to constitute a denial of the claim and shall authorize resort to the appeal procedure described below. The decision of the chief executive official or his/her designee shall be final and conclusive unless an appeal is taken as provided below.

"(c) Within twenty-one calendar days of the receipt of a written decision or of the failure to issue a decision as stated in the preceding subparagraph, any aggrieved party may file a notice of claim for an adjudicatory hearing with the division of hearing officers or the aggrieved party may file an action directly in a court of competent jurisdiction and shall serve copies thereof upon all other parties in the form and manner prescribed by the rules governing the conduct of adjudicatory proceedings of the division of hearing officers. In the event an aggrieved party exercises his option to file an action directly in court as provided in the previous sentence, the twenty-one day period shall not apply to such filing and the period of filing such action shall be the same period otherwise applicable for filing a civil action in superior court. The appeal shall be referred to a hearing officer experienced in construction law and shall be prosecuted in accordance with the formal rules of procedure for the conduct of adjudicatory hearings of the division of hearing officers, except as provided below. The hearing officer shall issue a final decision as expeditiously as possible, but in no event more than one hundred and twenty calendar days after conclusion of the adjudicatory hearing, unless the decision is delayed by a request for extension of time for filing post-hearing briefs or other submissions assented to by all parties. Whenever, because an extension of time has been granted, the hearing officer is unable to issue a decision within one hundred and twenty days, s/he shall notify all parties of the reasons for the delay and the date when the decision will issue.

Failure to issue a decision within the one hundred and twenty-day period or within the additional period specified in such written notice shall give the petitioner the right to pursue any legal remedies available to him without further delay.

"(d) When the amount in dispute is less than ten thousand dollars, a contractor who is party to the dispute may elect to submit the appeal to a hearing officer experienced in construction law for expedited hearing in accordance with the informal rules of practice and procedure of the division of hearing officers. An expedited hearing under this subparagraph shall be available at the sole option of the contractor. The hearing officer shall issue a decision no later than sixty days following the conclusion of any hearing conducted pursuant to this subparagraph. The hearing officer's decision shall be final and conclusive, and shall not be set aside except in cases of fraud."

5. Mandatory Mediation

In the case of every dispute where the dollar amount in dispute (or the estimated dollar value of the extension of time in dispute) is \$50,000 or more and the CM appeals the decision of the chief executive officer of the City of Worcester or his designee described in Section 4.B above, the City of Worcester and the CM shall engage in good faith in a non-binding mediation process, which process shall be concluded within sixty days from the date that the CM files an appeal from said decision as provided in Section 4.B above. In the case of such disputes where the dollar amount in dispute (or the estimated dollar value of the extension of time in dispute) is \$500,000 or more, the parties shall, if the mediation process fails, submit the dispute to a third-party Neutral or Dispute Review Board which shall within sixty days render a non-binding advisory opinion. Unless the parties have previously agreed in writing to a process for submitting disputes to mediation or a Dispute Review Board, the City of Worcester shall determine in its reasonable discretion the procedures to be followed and shall give the CM notice of the same in writing within 7 days of the date that the City of Worcester receives notice of the CM's appeal from the decision of the chief executive officer of the City of Worcester or his designee. The cost of the services of any mediator selected by one party to this Contract shall be borne by the party making the selection. The cost of the services of any mediator selected jointly by the parties to this Contract or jointly by mediators selected by the parties to this Contract shall be borne equally by the CM and the City of Worcester.

ARTICLE VIII **PAYMENT PROVISIONS**

1. Schedule of Values

Before submission of the first request for payment under this Contract, the CM shall submit to the City of Worcester a schedule of values for its approval, which shall include all preconstruction activities as well as all construction activities and shall be in sufficient detail to reflect the various preconstruction activities and the major components of each construction trade (with relevant Subcontractors as well as MBE/WBEs noted), including quantities when requested, aggregating the GMP with detail for the Contingency and divided so as to facilitate payments for work under each section of the Specifications. The

schedule shall be prepared in such form and supported by such data to substantiate its accuracy as the the City of Worcester may require. When Approved by the the City of Worcester, it shall constitute the Schedule of Values and shall be used only as a basis for the CM's requests for payments and credits, the first of which payments shall not be made until such Schedule of Values is approved by the City of Worcester.

2. Payment Liabilities of CM

A. The CM shall pay to the City of Worcester all expenses, losses and damages, as determined by the City of Worcester , incurred in consequence of any default, defect, omission or mistake of the CM or his employees or Subcontractors or the making good thereof.

B. If the Work (or a portion thereof) is not completed to Substantial Completion and the CM has not satisfied the requirements for the issuance of a Certificate of Agency Use and Occupancy in accordance with Article VI, Section 5 of these General Conditions, by the date specified in the Owner-CM Agreement, the CM shall pay to the Owner liquidated damages as provided in Article VI, Section 2 of these General Conditions of the Contract.

3. Retention of Moneys by the City of Worcester

A. the City of Worcester may keep any moneys which would otherwise be payable at any time hereunder, and apply the same, or so much as may be necessary therefor, to (1) the the City of Worcester 's expenditures for the CM's account, (2) to secure the City of Worcester's remedies against the CM for the CM's breach of its obligations under this Contract or the breach of any person performing any part of the Work and (3) the payment of any expenses, losses or damages incurred by the City of Worcester or any agency of the Commonwealth as a result of the failure of the CM to perform its obligations hereunder. the City of Worcester may retain, until all claims are settled, such moneys as the City of Worcester estimates to be the fair value of the City of Worcester's claims against the CM, and of all claims for labor performed or furnished and for materials used or employed in or in connection with the Work and for the rental of vehicles, appliances and equipment employed and for the employment of substitute contractors and labor in connection with the Work filed in accordance with M.G.L. c. 30, s. 39A and s. 39F. the City of Worcester may make such settlements and apply thereto any moneys retained under this Contract.

B. The CM shall each week examine all claims so filed, and if the same are in any respect incorrect or do not correctly show the amount due from the CM to the claimant for such labor and materials, the CM shall forthwith file with the City of Worcester a separate written statement of all inaccuracies in each claim and of the correct amount due from the CM to each claimant therefor, and shall immediately file a statement of all payments thereafter made to such claimants. Each such statement shall be sworn to and contain a detailed breakdown required by M.G.L. c. 30 s. 39F(d) and (e). Unless such statements are so filed by the CM the amount shown by the claims filed shall at the option of the City of Worcester be conclusively deemed to be the accurate amount due from the CM therefor in all accounting with the City of Worcester. If the moneys retained under this Contract are insufficient to pay the sums found by the City of Worcester to be due under the claims for labor and materials filed as aforesaid, the City

of Worcester may, at its discretion, pay the same, and the CM shall repay to the City of Worcester all sums paid out. the City of Worcester may also at its discretion use any moneys retained, due or to become due under this Contract, for the purpose of paying for both labor and materials used or employed in the Work for which claims have not been filed with the City of Worcester.

C. No moneys retained under the provisions of this Article shall be held to be statutory security for the payment of claims filed in accordance with the provisions of M.G.L. c. 149, s. 29, as amended, for which security is provided by bond.

4. Applications for Payment

A. The CM shall, once in each month on the day of the month corresponding to the day of the month specified in the Notice to Proceed referenced in Article 2 of the Owner - CM Agreement, on forms provided and in the manner prescribed by the Awarding Authority, submit to the Awarding Authority a statement showing the total amount of Work done to the time of such estimate and the value thereof as approved by the Resident Engineer and the Designer. It shall be the sole responsibility of the CM to deliver or cause to be delivered to the Resident Engineer (the "designee" as provided by M.G.L. c. 30, s. 39K), said periodic estimate in proper form, approved as provided above and arithmetically correct. All periodic estimates shall contain such certifications and other evidence supporting the CM's right to payment as the Awarding Authority may require, including without limitation, lien waivers and other evidence, on such forms as the Awarding Authority may require, establishing that title to the equipment or materials is unencumbered and has been transferred to the Owner. If there is no Resident Engineer assigned to the Contract, the Designer shall be the designee. If there is neither a Resident Engineer nor a Designer the designee shall be a person designated by the Awarding Authority at the project field office or alternatively the home office of the Awarding Authority. The CM shall include in such periodic estimate only such materials as are incorporated in the Work, except as provided in paragraph C below. The Awarding Authority shall retain five percent of such estimated value as part security for the completion of the Work and shall pay to the CM while carrying on the Work the balance not retained as aforesaid, subject to the Approval of the Awarding Authority after deducting therefrom all previous payments and all sums to be kept under the provisions of this Contract.

B. Each periodic estimate shall constitute the CM's representation that (1) the payment then requested to be disbursed has been incurred by the CM on account of the Work and is justly due to Subcontractors or, to the CM in the case of other Work performed by the CM on account thereof, (2) the materials, supplies and equipment for which Application for Payment is being submitted have been installed or incorporated into the Work or have been stored at the Site or at such off Site storage locations as the Awarding Authority shall have Approved, (3) the materials, supplies and equipment are insured in accordance with the provisions of this Contract, (4) the materials, supplies and equipment are owned by the Owner and are not subject to any liens or encumbrances, (5) the Work which is the subject of such periodic estimate has been performed in accordance with the Contract Documents and (6) that all due and payable bills with respect to the Work have been paid to date or shall be paid from the proceeds of such periodic estimate. The CM's attention is directed to the criminal penalties for false claims referenced in paragraph A above.

C. The CM may include in a periodic estimate the value of materials or equipment delivered at the Site (or at some location agreed to in writing) only upon delivery to the Awarding Authority of: (1) an acceptable transfer of title on the form provided by the Awarding Authority; (2) written certification by the CM (or applicable subcontractor) on the form provided by the Awarding Authority that the CM (or the Subcontractor which executed the transfer of title) is the lawful owner and that the materials or equipment are free from all encumbrances, accompanied by receipted invoices or other acceptable proof of prior payment for such materials; (3) a stored materials insurance binder that covers the materials for which payment is requested, that names the Owner as an insured party should the stored materials be subjected to any casualty, loss, or theft prior to their inclusion in the Work. The material(s) or equipment must, in the judgment of the Designer (1) meet the requirements of the Contract, including prior shop drawing, product data, and sample approval, (2) be ready for use, and (3) be properly stored by the CM and be adequately protected until incorporated into the Work. See also Article V.5.C of these General Conditions of the Contract concerning the cost of inspections.

D. The Awarding Authority may make changes in any periodic estimate submitted by the CM in accordance with M.G.L. c.30, s. 39K (see below) and the payment due shall be computed in accordance with the changes so made. The provisions of said section 39K shall govern payments on which the Awarding Authority has made changes.

E. No certificate for payment and no progress payment shall constitute acceptance of Work that is not in accordance with the Contract Documents.

F. The CM and all Subcontractors furnishing labor on this Contract agree to furnish certified payroll reports if requested to do so, at no additional expense to the Awarding Authority. The Awarding Authority may at all reasonable times audit such reports.

5. Periodic Payments (M.G.L. c. 30, s. 39K)

The Awarding Authority shall make payment to the CM in accordance with M.G.L. c. 30, s. 39K, which provides as follows:

"Within fifteen days (30 days in the case of the commonwealth, including local housing authorities) after receipt from the contractor, at the place designated by the awarding authority if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the awarding authority will make a periodic payment to the contractor for the work performed during the preceding month and for the materials not incorporated in the work but delivered and suitably stored at the site (or at some location agreed upon in writing) to which the contractor has title or to which a subcontractor has title and has authorized the contractor to transfer title to the awarding authority upon certification by the contractor that he is the lawful owner and that the materials are free from all encumbrances, but less (1) a retention based on its estimate of the fair value of its claims against the contractor and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, and less (3) a retention not exceeding five percent of the approved amount of the periodic payment. After the receipt of a periodic estimate requesting final payment and within sixty-five days after (a) the contractor fully completes the work or substantially completes the work so that the value of the work remaining to be done is, in the estimate of the awarding authority, less than one percent of the original contract price, or (b) the contractor substantially completes the work and

the awarding authority takes possession for occupancy, whichever occurs first, the awarding authority shall pay the contractor the entire balance due on the Contract less (1) a retention based on its estimate of the fair value of its claims against the contractor and of the cost of completing the incomplete and unsatisfactory items of work and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, or based on the record of payments by the contractor to the subcontractors under this contract if such record of payment indicates that the contractor has not paid subcontractors as provided in section thirty-nine F. If the awarding authority fails to make payment as herein provided, there shall be added to each such payment daily interest at the rate of three percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston commencing on the first day after said payment is due and continuing until the payment is delivered or mailed to the contractor; provided, that no interest shall be due, in any event, on the amount due on a periodic estimate for final payment until fifteen days (twenty-four days in the case of the commonwealth) after receipt of such periodic estimate from the contractor, at the place designated by the awarding authority if such a place is so designated. The contractor agrees to pay to each subcontractor a portion of any such interest paid in accordance with the amount due each subcontractor.

The awarding authority may make changes in any periodic estimate submitted by the contractor and the payment due on said periodic estimate shall be computed in accordance with the change so made, but such changes or any requirement for a corrected periodic estimate shall not affect the due date for the periodic payment or the date for the commencement of interest charges on the amount of the periodic payment computed in accordance with the changes made, as provided herein; provided, that the awarding authority may, within seven days after receipt, return to the contractor for correction, any periodic estimate which is not in the required form or which contains computations not arithmetically correct and, in that event, the date of receipt of such periodic estimate shall be the date of receipt of the corrected periodic estimate in proper form and with arithmetically correct computations. The date of receipt of a periodic estimate received on a Saturday shall be the first working day thereafter. The provisions of section thirty-nine G shall not apply to any contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building to which this section applies.

All periodic estimates shall be submitted to the awarding authority, or to its designee as set forth in writing to the contractor, and the date of receipt by the awarding authority or its designee shall be marked on the estimate. All periodic estimates shall contain a separate item for each filed subtrade and each sub-subtrade listed in sub-bid form as required by specifications and column listing the amount paid to each filed subcontractor as of the date of the periodic estimate is filed. The person making payment for the awarding authority shall add the daily interest provided for herein to each payment for each day beyond the due date of receipt marked on the estimate.

A certificate of the architect to the effect that the contractor has fully or substantially completed the work shall, subject to the provisions of section thirty-nine J, be conclusive for the purposes of this section.

Notwithstanding the provisions of this section, at any time after the value of the work remaining to be done is, in the estimation of the awarding authority, less than 1 per cent of the adjusted contract price, or the awarding authority has determined that the contractor has substantially completed the work and the awarding authority has taken possession for occupancy, the awarding authority may send to the general contractor by certified mail, return receipt requested, a complete and final list of all incomplete and unsatisfactory work items, including, for each item on the list, a good faith estimate of the fair and reasonable cost of completing such item. The general contractor shall then complete all such work items within 30 days of receipt of such list or before the contract completion date, whichever is later. If the general contractor fails to complete all incomplete and unsatisfactory work items within 45 days after receipt of such items furnished by the awarding authority or before the contract completion date, whichever is later, subsequent to an additional 14 days' written notice to the general contractor by certified mail, return receipt requested, the awarding authority may terminate the contract and complete the incomplete and unsatisfactory work items and charge the cost of same to the general contractor and such termination shall be without prejudice to any other rights or remedies the awarding authority may have under the contract. The awarding authority shall note any such termination in the evaluation form to be filed by the awarding authority pursuant to the provisions of section 44D of chapter 149."

6. Payment of Subcontractors (M.G.L. c. 30, s. 39F)

The CM shall make payments to Subcontractors in accordance with M.G.L c.30, s. 39F which is quoted in this section below. For the purposes of this Contract, the word "forthwith" appearing in paragraph (1)(a) of the quoted provision shall be deemed to mean "within five (5) business days."

"I (a) Forthwith after the general contractor receives payment on account of a periodic estimate, the general Contractor shall pay to each subcontractor the amount paid for the labor performed and the materials furnished by that subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.

(b) Not later than the sixty-fifth day after each subcontractor substantially completes his work in accordance with the Plans and Specifications, the entire balance due under the subcontract less amounts retained by the City of Worcester as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subcontractor; and the Awarding Authority shall pay that amount to the general contractor. The general contractor shall forthwith pay to the subcontractor the full amount received from the Awarding Authority less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.

(c) Each payment made by the Awarding Authority to the general contractor pursuant to subparagraphs (a) and (b) of this paragraph for the labor performed

and the materials furnished by a subcontractor shall be made to the general contractor for the account of that subcontractor; and the Awarding Authority shall take reasonable steps to compel the general contractor to make each such payment to each such subcontractor. If the Awarding Authority has received a demand for direct payment from a subcontractor for any amount which has already been included in a payment to the general contractor or which is to be included in a payment to the general contractor for payment to the subcontractor as provided in subparagraphs (1) and (2) the Awarding Authority shall act upon the demand as provided in this section.

(d) If, within seventy days after the subcontractor has substantially completed the subcontract work, the subcontractor has not received from the general contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount retained by the Awarding Authority as the estimated cost of completing the incomplete and unsatisfactory items of work, the subcontractor may demand direct payment of that balance from the Awarding Authority. The demand shall be by a sworn statement delivered to or sent by certified mail to the Awarding Authority, and a copy shall be delivered to or sent by certified mail to the general contractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the seventieth day after the subcontractor has substantially completed the subcontract work. Within ten days after the subcontractor has delivered or so mailed the demand to the Awarding Authority and delivered or so mailed a copy to the general contractor, the general contractor may reply to the demand. The reply shall be by a sworn statement to or sent by certified mail to the Awarding Authority and a copy shall be delivered to or sent by certified mail to the subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor and of the amount due for each claim made by the general contractor against the subcontractor.

(e) Within fifteen days after receipt of the demand by the Awarding Authority, but in no event prior to the seventieth day after substantial completion of the subcontract work, the Awarding Authority shall make direct payment to the subcontractor of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount (i) retained by the Awarding Authority as the estimated cost of completing the incomplete or unsatisfactory items of work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the general contractor in the sworn reply; provided that the Awarding Authority shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The Awarding Authority shall make further direct payments to the subcontractor forthwith after the removal of the basis for deduction from direct payments made as provided in parts (i) and (ii) of this subparagraph.

- (f) The Awarding Authority shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (5) in an interest-bearing joint account in the names of the general contractor and the subcontractor in a bank in Massachusetts selected by the Awarding Authority or agreed upon by the general contractor and the subcontractor and shall notify the general contractor and the subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the general contractor and the subcontractor or as determined by decree of a court of competent jurisdiction.*
- (g) All direct payments and all deductions from demands for direct payments deposited in an interest bearing account or accounts in a bank pursuant to subparagraph (6) shall be made out of amounts payable to the general contractor at the time of receipt of a demand for direct payment from a subcontractor and out of amounts which later become payable to the General contractor and in the order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the Awarding Authority to the general contractor to the extent of such payment.*
- (h) The Awarding Authority shall deduct from payments to a General contractor amounts which, together with the deposits in interest bearing accounts pursuant to subparagraph (6) are sufficient to satisfy all unpaid balances of demands for direct payment received from subcontractors. All such amounts shall be earmarked for such direct payments, and the subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the general contractor.*
- (i) If the subcontractor does not receive payment as provided in subparagraph (1) or if the general contractor does not submit a periodic estimate for the value of the labor or materials performed or furnished by the subcontractor and the subcontractor does not receive payment for same when due less the deductions provided for in subparagraph (1), the subcontractor may demand direct payment by following the procedure in subparagraph (4) and the general contractor may file a sworn reply as provided in that same subparagraph. A demand made after the first day of the month following that for which the subcontractor performed or furnished the labor and materials for which the subcontractor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a periodic estimate from the general contractor. Thereafter the Awarding Authority shall proceed as provided in subparagraph (e), (f), (g) and (h)."*
- (2) Any assignment by a subcontractor of the rights under this section to a surety company furnishing a bond under the provisions of section twenty-nine of chapter one hundred forty-nine shall be invalid. The assignment and subrogation rights of the surety to amounts included in a demand for direct payment which are in the possession of the Awarding Authority or which are on deposit pursuant to subparagraph (6) shall be subordinate to the rights of all subcontractors who are entitled to be paid under this section and who have not been paid in full.*
- (3) "subcontractor" as used in this section (I) for contracts awarded as provided in sections forty-four A to forty-four L, inclusive, of chapter one hundred forty-nine shall mean a person who files a sub-bid and received a subcontract as a result of that filed*

sub-bid or who is approved by the Awarding Authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, (ii) for contracts awarded as provided in paragraph (1) of section thirty-nine M of chapter thirty shall mean a person approved by the Awarding Authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, and (iii) for contracts with the commonwealth not awarded as provided in sections forty-four A to forty-four L, inclusive, of chapter one hundred forty-nine shall also mean a person contracting with the general contractor to supply materials used or employed in a public works project for a price in excess of five thousand dollars.

(4) A general contractor or a subcontractor shall enforce a claim to any portion of the amount of a demand for direct payment deposit as provided in subparagraph (6) by a petition in equity in the superior court against the other and the bank shall not be a necessary party. A subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided in subparagraph (6) by a petition in equity in the superior court against the Awarding Authority and the general contractor shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. Sections fifty-nine and fifty-nine B of chapter two hundred thirty-one shall apply to such petitions. The court shall enter an interlocutory decree upon which execution shall issue for any part of a claim found due pursuant to sections fifty-nine and fifty-nine B and, upon motion of any party, shall advance for speedy trial the petition to collect the remainder of the claim. Any party aggrieved by such interlocutory decree shall have the right to appeal therefrom as from a final decree. The court shall not consolidate for trial the petition of any subcontractor with the petition of one or more subcontractors or the same general Contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a subcontractor filing a demand for direct payment for which no funds due the general contractor are available for direct payment shall have a right to file a petition in court of equity against the Awarding Authority claiming a demand for direct payment is premature and such subcontractor must file the petition before the Awarding Authority has made a direct payment to the subcontractor and has made a deposit of the disputed portion as provided in part (iii) of subparagraph (5) and in subparagraph (6).

(5) In any petition to collect any claim for which a subcontractor has filed a demand for direct payment the court shall, upon motion of the general contractor, reduce by the amount of any deposit of a disputed amount by the Awarding Authority as provided in part (iii) of subparagraph (5) and in subparagraph (6) any amount held under a trustee writ or pursuant to a restraining order or injunction. ”

7. Final Payment: Release of Claims by CM

Upon Final Acceptance of the Work the CM shall be entitled to payment of the balance of the Contract Price. Final payment shall be as provided in this Article above and in accordance with any process set forth in the Contract Documents. The CM agrees to execute a Certificate of Final Inspection, Release (with CM's own exceptions listed thereon) and Acceptance as a condition precedent to Final Payment. The acceptance by the CM of the Final Payment made as aforesaid, or the execution of the Certificate of Final Acceptance by the CM, shall constitute a release of the Owner, the City of Worcester, the Designer, and every member and agent of any of them, from all claims of and liability to the CM for anything done or furnished for or relating to the Work, or for any act or neglect of the Owner, the Designer, or of any person relating to or affecting the Work, except the claim against the Owner or the Designer for the remainder, if any there be, of the amounts set forth by the CM in the Certificate of Final Inspection, Release and Acceptance. Final Acceptance shall not relieve CM of the requirements of Articles IX, XIV, and XV of these General Conditions of the Contract, or of other provisions of this Contract, to the extent that the same are intended to survive Final Acceptance.

ARTICLE IX
GUARANTEES AND WARRANTIES

1. General Warranty

If at any time during the period of one (1) year from the date of the issuance of the Certificate of Agency Use and Occupancy by the City of Worcester or the date of Final Acceptance, whichever occurs first, any part of such Work shall in the reasonable opinion of the City of Worcester be defective or require replacing or repairing, or damage to other property of the Owner is caused by any defect in the Work, the City of Worcester shall notify the CM in writing to make the required repairs or replacements and repair such damage. If the CM shall neglect to commence such repairs or replacements to the satisfaction to the City of Worcester within ten (10) days from the date of the giving of such notice, then the City of Worcester may employ other persons to make the same. The CM agrees, upon demand, to pay to the City of Worcester all amounts which it expends for such repairs, replacements, and/or damages. During this one-year guarantee period any corrective work shall be performed under all the applicable terms of this Contract, and if Change Orders are issued in accordance with the terms of this Contract, the CM shall be entitled to compensation for special insurance, as required. This one-year guarantee shall not limit any express guaranty or warranty provided elsewhere in the Contract.

2. Special Guarantees and Warranties

A. The CM's obligation to correct Work as set forth in paragraph 1 above is in addition to, and not in substitution of, such guarantees or warranties as may be required in the various sections of the Specifications.

B. Guarantees and warranties required in the various sections of the Specifications must be delivered to the Designer before final payment to the CM may be made, or in the case of guarantees and warranties which originate with a subcontractor's section of the

Work, before final payment for the amount of that subcontract or for the phase of Work to which the guarantee or warranty relates.

C. The failure to deliver a required guarantee or warranty shall constitute a failure to fully complete the Work in accordance with the Contract Documents.

ARTICLE X

MISCELLANEOUS LEGAL REQUIREMENTS

1. CM to be Informed

The CM shall inform itself of all existing and future Laws in any manner affecting those engaged or employed in the Work, or the materials used or employed in the Work, or in any way affecting the conduct of the Work, and of all orders and decrees of bodies or tribunals having any applicable jurisdiction or authority over the Work.

2. Compliance with all Laws

The CM shall cause all persons employed in the performance of the Work to comply with, all existing and future Laws, including but not limited to those set forth below:

A. Corporate Disclosures. The CM, if a foreign corporation, shall comply with M.G.L. c. 181, s.3 and s. 5, and M.G.L. c. 30, s.39L.

B. Veterans Preference. In the employment of mechanics and apprentices, teamsters, chauffeurs, and laborers in the performance of Work in the Commonwealth, preference shall first be given to citizens of the Commonwealth who have been residents of the Commonwealth for at least six months at the commencement of their employment and who are veterans as defined M.G.L. c.4, s.7 (34), and who are qualified to perform the work to which the employment relates; and secondly, to citizens of the Commonwealth generally who have been residents of the Commonwealth for at least six months at the commencement of their employment, and if they cannot be obtained in sufficient numbers, then to citizens of the United States.

C. Prevailing Wages. The CM shall comply with M.G.L. c. 149, s. 26- 27H. The prevailing wage schedule is found in Exhibit C to the Owner-CM Agreement, listing the prevailing minimum wage rates that must be paid to all workers employed in the Work. the City of Worcester is not responsible for any errors, omissions, or misprints in the said schedule. Such Schedule shall continue to be the minimum rate wages payable to workers employed in the Work throughout the term of this Contract, subject to the exceptions provided in M.G.L c.149, s. 26-27H. The CM shall not have any claim for extra compensation from the Owner if the actual wages paid to workers employed in the Work exceeds the rates listed on the schedule or as otherwise provided by law. The CM shall cause a copy of said Schedule to be kept in a conspicuous place at the Site during the term of the Contract. If reserve police officers are employed by the CM, they shall be paid the prevailing wage of regular police officers. (See M.G.L c.149, s.34B).

D. Payroll Records and Statement of Compliance. The CM shall comply and shall cause its Subcontractors to comply with Massachusetts General Law c. 149, s. 27B, which requires that a true and accurate record be kept of all persons employed on the a project for which the prevailing wage rates have been provided. The CM and all Subcontractors shall keep these records and preserve them for a period of three years from the date of completion of the Contract. Such records shall be open to inspection by

any authorized representative of the Owner at any reasonable time, and as often as may be necessary. The CM shall, and shall cause its Subcontractors to, submit weekly copies of their weekly payroll records to the City of Worcester. In addition, the CM and each Subcontractor shall furnish to the Executive Department of Labor within fifteen days after completion of its portion of the Work a signed statement in the form required by the City of Worcester.

E. Vehicle operators. If the Director of the Department of Labor and Workforce Development has established a Schedule of wage rates to be paid to the operators of trucks, vehicles or equipment for the Work, the CM shall be obligated to pay such operators at least the minimum wage rate contained on such Schedule. (See M.G.L. c.149, s.26-27H).

F. Eight Hour Day. The CM shall comply with M.G.L. c. 149, s. 30, 34 and 34A which provide that no laborer, workman, mechanic, foreman or inspector working within the Commonwealth in the employ of the CM, subcontractor or other person doing or contracting to do the whole or part of the Work shall be required or permitted to work more than eight hours in any one day or more than forty-eight hours in any one week, or more than six days in any one week, except in cases of extraordinary emergency.

G. Timely Payment of Wages. The CM shall comply with, and shall cause its Subcontractors to comply with M.G.L. c. 149, s. 148 which requires the weekly or biweekly payment of employees within six days of the end of the pay period during which wages were earned if employed for five or six days of a calendar week, and within other periods of time under certain circumstances as set forth therein.

H. Lodging, etc. The CM shall comply with, and shall cause its Subcontractors to comply with, M.G.L. c. 149, s. 25 which provides that every employee under this Contract shall lodge, board and trade where and with whom he elects, and neither the CM nor his agents or employees shall, either directly or indirectly, require as a condition of the employment of any person that the employee shall lodge, board or trade at a particular place or with a particular person.

I. Truck Rates. The use by the CM of trucks or other motor vehicles hired from either common or contract motor carriers in the course of performance of this Contract is subject to such minimum rates and charges, and rules and regulations as may from time to time be promulgated by the Department of Public Utilities of the Commonwealth of Massachusetts or other agency of the State or Federal government which may be authorized by law to set rates or otherwise regulate the use of such vehicles. The CM expressly assumes the risk of any additional expense that may arise by reason of any change in such minimum rates and charges, and rules and regulations, and shall be entitled to no additional compensation or reimbursement by reason thereof.

J. Anti-Boycott Covenant (Executive Order #130). The CM warrants, represents and agrees that during the time this Contract is in effect, neither it or any affiliated company, as hereafter defined, participates in or cooperates with an international boycott, as defined in Section 999(b) (3) and (4) of the Internal Revenue Code of 1954, as amended, or engages in conduct declared to be unlawful by M.G.L. c. 151E, s. 2. If there shall be a breach in the warranty, representation or agreement contained in this paragraph, then without limiting such other rights as it may have the Awarding Authority shall be entitled to rescind this contract. As used herein, an affiliated company shall be any business entity of which at least 51% of the ownership interests are directly or indirectly owned by the CM or by a person or persons or business

entity or entities directly or indirectly owning at least 51% of the Ownership interests of the CM; or which directly or indirectly owns at least 51% of the Ownership interests of the CM.

K. CM's Agreements with Suppliers--Anti-Boycott Provisions. (1) The CM shall not purchase or rent any materials, equipment, machinery, vehicles, or supplies for or in connection with the Work from any person or entity who does not sign, under pains and penalties of perjury, a certificate that recites: "The undersigned warrants, represents and agrees that during the time its agreement with {insert CM's name} is in effect for materials, supplies or equipment to be used in connection with the {insert the name of the Awarding Authority} Project No. {insert project number}, neither the undersigned or any affiliated company, as hereafter defined, participates in or cooperates with an international boycott, as defined in Section 999(b)(3) and (4) of the Internal Revenue Code of 1954, as amended, or engages in conduct declared to be unlawful by Section 2 of Chapter 151E of the Massachusetts General Laws. As used herein, an affiliated company shall be any business entity of which at least 51% of the ownership interests are directly or indirectly owned by the undersigned or by a person or persons or business entity or entities directly or indirectly owning at least 51% of the ownership interests of the undersigned; or which directly or indirectly owns at least 51% of the ownership interests of the undersigned."

- (1) The Awarding Authority shall not be obligated to pay the CM for the cost of any materials, supplies, or equipment purchased or rented from any individual or entity from whom the CM has not previously obtained and delivered to the Awarding Authority the certificate that the previous paragraph requires. The CM will immediately terminate its contract with any supplier who breaches the warranty, representation and agreement contained in the previous paragraph.
- (2) The CM shall include in the CM's agreement with any person or entity from whom the CM intends to purchase or rent any materials, equipment, machinery, vehicles or supplies for or in connection with the Work, (a) a notice that this Contract obligates the CM to terminate the supply contract upon discovery of such breach of the sworn certificate delivered under subparagraph (1) and such termination shall be without liability to the CM or the Awarding Authority and (b) a provision which states: "The Governor or his designee, the secretary of administration and finance, and the state auditor or his designee shall have the right at reasonable times and upon reasonable notice to examine the books, records and other compilations of the undersigned vendor which pertain to the performance and requirements of this agreement to provide materials of any nature to the undersigned Contractor [CM] in connection with State Project No. (insert project number)."

L. Access to CM's Records (Executive Order #195). The Governor or his designee, the secretary of administration and finance, and the state auditor or his designee shall have the right at reasonable times and upon reasonable notice to examine the books, records and other compilations of data of the CM which pertain to the performance and requirements of this Contract.

ARTICLE XI

CM'S ACCOUNTING METHOD REQUIREMENTS (M.G.L. c. 30, s. 39R)

1. Definitions

The words defined herein shall have the meaning stated below whenever they appear in this Article XI:

Contractor means the CM.

Contract means any Contract awarded, which is for an amount or estimated amount greater than one hundred thousand dollars.

Independent Certified Public Accountant means a person duly registered in good standing and entitled to practice as a certified public accountant under the laws of the place of his/her residence or principal office and who is in fact independent. In determining whether an accountant is independent with aspect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the City of Worcester.

Records means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.

Audit, when used in regard to financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressing a certified opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons, or other person or persons primarily responsible for the financial and operational policies and practices of the Contractor.

Accounting terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principles and auditing standards.

2. Record Keeping

A. The Contractor shall make, and keep for at least six years after final payment, books, records, and accounts that in reasonable detail accurately and fairly reflect the transactions and dispositions of the Contractor.

B. Until the expiration of six years after final payment, the Inspector General, the City of Worcester, and the City of Worcester shall have the right to examine any books, documents, papers or records of the Contractor and Subcontractors that directly pertain to, and involve transactions relating to the Contractor and Subcontractors. Any request for a change in the provisions of this Contract submitted by the CM must be made in writing and in accordance with the provisions of this Contract, including the procedures of the City of Worcester.

C. The Contractor shall describe any change in the method of maintaining records or recording transactions which materially affects any statements filed with the City of Worcester including the date of the change and reasons therefor, and shall accompany said description with a letter from the Contractor's independent certified public accountant approving or otherwise commenting on the changes.

D. The Contractor represents that it has, prior to the execution of the Contract, filed a statement of management on internal accounting controls as set forth in Section 3 below.

E. The Contractor represents that it has, prior to the execution of the Contract, filed an audited financial statement for the most recent completed fiscal year as set forth in section 4 below and will continue to file such statement annually during the term of the Contract.

3. Statement of Management Controls

A. The Contractor shall file with the City of Worcester a statement of management as to whether the system of internal accounting controls of the Contractor and its subsidiaries reasonably assures that:

- (1) transactions are executed in accordance with management's general and specific authorization;
- (2) transactions are recorded as necessary to: (a) to permit preparation of financial statements in conformity with generally accepted accounting principles, and (b) to maintain accountability for assets;
- (3) access to assets is permitted only in accordance with management's general or specific authorization; and
- (4) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.

B. The Contractor shall file with the City of Worcester a statement prepared and signed by an independent certified public accountant, stating that the accountant has examined the statement of management on internal accounting controls, and expressing an opinion as to:

- (1) whether the representations of management in response to subparagraph 3 above are consistent with the results of management's evaluation of the system of internal accounting controls; and
- (2) whether such representations of management are reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial statement.

4. Annual Financial Statement

A. Every Contractor awarded a contract shall annually file with the City of Worcester during the term of the Contract a financial statement prepared by an independent certified public accountant on the basis of an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report.

B. The office of Inspector General and the City of Worcester shall have the right to enforce the provisions of this Article. A Contractor's failure to satisfy any of the requirements of this section may be grounds for debarment pursuant to M.G.L. c. 149, s. 44C.

5. Bid Pricing Materials

The Contractor shall save the written calculations, pricing information, and other data that the Contractor used to calculate the bid that induced the City of Worcester to enter

into this Contract (the "Bid Pricing Materials") for at least six years after the City of Worcester makes final payment under this Contract.

ARTICLE XII
**EQUAL EMPLOYMENT OPPORTUNITY,
NON-DISCRIMINATION AND AFFIRMATIVE ACTION PROGRAM**

This Contract includes all provisions of the City of Worcester's "Equal Employment Opportunity, Non-Discrimination, and Affirmative Action Program" appearing in Appendix A to these General Conditions of the Contract attached hereto and incorporated herein by reference.

ARTICLE XIII
**GOALS FOR PARTICIPATION BY
MINORITY BUSINESS ENTERPRISES
AND WOMEN BUSINESS ENTERPRISES
(EXECUTIVE ORDER 390)**

This Contract includes all provisions of the City of Worcester's program relating to Goals for Participation by Minority Business Enterprises and Women Business Enterprises attached appearing in Appendix B to these General Conditions of the Contract attached hereto and incorporated herein by reference.

ARTICLE XIV
INSURANCE REQUIREMENTS

1. Insurance Generally

A. The CM shall take out and maintain the insurance coverages listed in this Article with respect to the operations as well as the completed operations of this Contract. This insurance shall be provided at the CM's expense and shall be in full force and effect for the full term of the Contract or for such longer period as this Article requires.

B. All policies shall be written on an occurrence basis and be issued by companies authorized to write that type of insurance under the laws of the Commonwealth and rated in Best's Insurance Guide (or any successor thereto or replacement thereof) as having a general policy holder rating of "A" or better and a financial rating of at least "9" or otherwise acceptable to the City of Worcester.

C. CM shall submit three originals of each certificate of insurance, acceptable to the City of Worcester, simultaneously with the execution of this Contract. Certificates shall show the City of Worcester and the Owner as an additional insured as to all policies of liability insurance and shall state that CM has paid all premiums and that none of the coverages shall be cancelled, terminated, or materially modified unless and until 30 days prior notice is given in writing to the City of Worcester. Contractor shall submit updated certificates prior to the expiration of any of the policies referenced in the certificates so that

the City of Worcester shall at all times possess certificates indicating current coverage. Certificates shall indicate that the contractual liability coverage, and Contractor's Protective Liability coverage is in force. Certificates shall include specific acknowledgment that the following coverages are included in the policies:

- Contractual liability
- Contractor's protective
- Owner as additional insured by form CG2010 (11/85 ed.) to the general liability
- Owner as additional insured to automobile liability, umbrella liability, and pollution liability
- General Liability is endorsed with CG2404, Waiver of Subrogation, in favor of the Owner
- Builder's Risk or Installation Floater includes Owner, CM and subcontractors of any tier as named insureds. Builder's Risk or Installation Floater is on an All Risk basis including earthquake and flood.

D. The CM shall file one certified copy of all policies with the City of Worcester within sixty days after Contract award. If the City of Worcester or the Owner is damaged by the CM's failure to maintain such insurance and to comply with the terms of this Article, then the CM shall be responsible for all costs and damages to the Owner attributable thereto.

E. Termination, cancellation, or material modification of any insurance required by this Contract, whether by the insurer or the insured, shall not be valid unless written notice thereof is given to the City of Worcester at least thirty days prior to the effective date thereof, which shall be expressed in said notice

2. CM's Commercial General Liability

A. The CM shall provide the following minimum general liability coverage with respect to the operations performed by CM and any employee, subcontractor, or supplier, unless a higher coverage is specified in Exhibit A to the Owner-CM Agreement, in which case the CM shall provide the additional coverage:

Bodily Injury	\$1,000,000 each occurrence
Property Damage	\$2,000,000 general aggregate, per project
Products & Completed Operations	\$1,000,000 annual aggregate
Personal & Advertising Injury	\$1,000,000 each occurrence
Medical Expenses	\$10,000
Fire Damage Liability	\$100,000

B. This policy shall include coverage relating to explosion, collapse, and underground property damage.

C. This policy shall include contractual liability coverage.

D. The completed operations coverage shall be maintained for a period of three (3) years after Substantial Completion.

E. If the Work includes work to be performed within 50 feet of a railroad, any exclusion for liability assumed under contract for work within 50 feet of a railroad shall be deleted.

F. This policy shall include endorsement CG2010 (10/85 edition), *Owner as Additional Insured* and CG2404 (11/85 edition) *Waiver of Subrogation in Favor of Owner*.

3. **Vehicle Liability**

A. The CM shall provide the following minimum coverage with respect to the operations of any employee, including coverage for owned, non-owned, and hired vehicles, unless a higher coverage is specified in Exhibit A to the Owner-CM Agreement, in which case the CM shall provide the additional coverage:

Combined Single Limit \$1,000,000

B. The policy shall include a CA9948 Pollution Endorsement and shall name the Owner as an Additional Insured.

4. **Pollution Liability**

The CM shall provide coverage for bodily injury and property damage resulting from liability arising out of pollution related exposures such as asbestos abatement, lead paint abatement, tank removal, removal of contaminated soil, etc. the City of Worcester and the Owner shall be named as an additional insured and coverage must be on an occurrence basis. The amount of coverage shall be \$1,000,000 per occurrence and \$3,000,000 in the aggregate unless a higher amount is specified in Exhibit A to the Owner-CM Agreement, in which case the CM shall provide the additional coverage.

5. **Worker's Compensation**

A. The CM shall provide the following coverage in accordance with M.G.L. c.149 §34A and c.152 as amended, unless a higher coverage is specified in Exhibit B to the Owner-CM Agreement, in which case the CM shall provide the higher coverage:

Worker's Compensation

Part One: Provide Statutory Minimum

Employer's Liability — \$ 500,000 each accident

Part Two: \$ 500,000 disease per employee

\$500,000 disease policy aggregate

B. If specified in Exhibit A to the Owner-CM Agreement the policy must be endorsed to cover United States Longshoremen & Harborworkers Act (USLHW), Maritime Liability for \$1,000,000/\$1,000,000, or Federal Employer's Liability Act liability.

6. **Builder's Risk/Installation Floater/Stored Materials**

A. The CM shall provide coverage against loss or damage on all Work included in this Contract in an amount equal to the GMP. Such coverage shall be written on an all risks basis or equivalent form and shall include, without limitation, insurance against perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood (if the project is not in an "A" or a "V" flood Zone), windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and

CM's services and expenses required as a result of such insured loss. This policy and/or installation floater shall indicate if Stored Materials coverage is provided as required below.

B. When Work will be completed on existing buildings owned by the Owner, the CM shall provide an installation floater, in the full amount of the Contract Price. Such coverage shall be written on an all risks basis or equivalent form and shall include, without limitation, insurance against perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood (if the project is not in an "A" or a "V" flood Zone), windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's, Program Manager's and CM's services and expenses required as a result of such insured loss. This policy and/or installation floater shall indicate if Stored Materials coverage is provided as required below.

C. The CM shall maintain insurance on delivered and/or stored material designated to be incorporated in the Work against fire, theft or other hazards. Any loss or damage of whatever nature to such material while stored at some approved off Site location shall be forthwith replaced by the CM at no expense to the City of Worcester.

D. The policy or policies shall specifically state they are for the benefit of and payable to the City of Worcester, the CM, subcontractors and all persons furnishing labor or labor and materials for the Contract Work, as their interests may appear. The policy or policies shall list the City of Worcester, the CM, and Subcontractors of any tier as named insureds.

E. Coverage shall include any costs for work performed by the Designer or any consultant as the result of a loss experienced during the term of this Contract.

F. Coverage shall include temporary occupancy and waiver of subrogation.

7. Umbrella Coverage

The CM shall provide Umbrella Coverage in form at least as broad as primary coverages required by Sections 2, 3 and 5 of this Article in the following amount unless a higher amount is specified in Exhibit A to the Owner-CM Agreement, in which case the CM shall provide the higher amount:

<u>Umbrella Coverage</u>	<u>GMP Amount</u>
Under \$1,000,000	\$ 2,000,000
\$1,000,000 -- \$5,000,000	\$ 5,000,000
\$5,000,001-- \$10,000,000	\$ 10,000,000
\$10,000,001 and over	\$ 25,000,000

8. Additional types of Insurance and Deductibles

The CM shall provide such other types of insurance as may be required by Exhibit A to the Owner-CM Agreement. If the policies required herein contain deductible amounts, the CM shall be responsible for such deductible amounts, unless the City of Worcester specifically provides a written waiver to the CM.

ARTICLE XV **INDEMNIFICATION**

1. Generally

To the fullest extent permitted by law, the CM shall indemnify, defend (with counsel subject to the supervision of the Attorney General of the Commonwealth of Massachusetts as required by M.G.L. c. 12, s. 3) and hold harmless the City of Worcester and their officers, agents, divisions, agencies, employees, representatives, successors and assigns from and against all claims, damages, losses and expenses, including but not limited to court costs and attorneys' fees, arising out of or resulting from the performance of the Work, including but not limited to those arising or resulting from:

- labor performed or furnished and/or materials used or employed in the performance of the Work;
- violations by CM, any Subcontractor, or by any person directly or indirectly employed or used by any of them in the performance of the Work or anyone for whose acts any of them may be liable (CM, subcontractor and all such persons herein collectively called "CM's Personnel") of any Laws;
- violations of any provision of this Contract by CM or its subcontractors, suppliers or any other person or firm providing labor and/or materials for the work.;
- injuries to any persons or damage to any property in connection with the Work; or
- any act, omission, or neglect of CM's Personnel.

The CM shall be obligated as provided above, regardless of whether or not such claims, damages, losses and/or expenses, are caused in whole or in part by the actions or inactions of a party indemnified hereunder. In any and all claims by CM's Personnel against parties indemnified hereunder, the CM's indemnification obligation set forth above shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the CM or any subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this Article XV.

2. Designer's Actions

The obligations of the CM under Section 1 above shall not extend to the liability of the Designer, its agents or employees, arising out of (i) the preparation or approval of maps, Drawings, opinions, reports, surveys Change Orders, designs or Specifications, or (ii) the giving of or the failure to give directions or instructions by the Designer, its agents to employees provided such giving or failure to give is the primary cause of the injury or damage.

3. Survival

The provisions of this Article XV are intended to survive Final Acceptance and/or any termination of this Contract.

ARTICLE XVI **PERFORMANCE AND PAYMENT BONDS**

1. CM Bonds

A. The CM shall provide performance and payment (labor and materials) bonds in the form provided by the City of Worcester, executed by a surety licensed by the

Commonwealth of Massachusetts Division of Insurance. Each such bond shall be in the amount of the GMP.

B. If at any time prior to final payment to the CM, the Surety:

- is adjudged bankrupt or has made a general assignment for the benefit of its creditors;
- has liquidated all assets and/or has made a general assignment for the benefit of its creditors;
- is placed in receivership;
- otherwise petitions a state or federal court for protection from its creditors; or
- allows its license to do business in Massachusetts to lapse or be revoked;
- then the CM shall, within 21 days of any such action listed above, provide the City of Worcester with new performance and payment bonds as described in Paragraph A above. Such bonds shall be provided solely at the CM's expense.

2. Subcontractor Bonds

A. If the CM provided in its Guaranteed Maximum Price or other Proposal, that any or all subcontractors shall provide the CM with payment and performance bonds for the full amount of their respective Subcontracts, then the costs for said bonds shall be the responsibility of the CM. Irrespective of whether the CM requests payment and performance bonds from their respective Subcontractors, the CM understands that if the Subcontractor defaults or is terminated, the CM shall have full responsibility for all costs and expenses related to said default or termination.

B. If the CM provided in its General Bid that Subcontractors shall provide bonds, and subsequently waives the requirement, the CM shall give the City of Worcester a written certification that the CM understands that if the Subcontractor defaults or is terminated, the CM shall have full responsibility for all costs and expenses related to said default or termination.

ARTICLE XVII **TERMINATION OF CONTRACT**

1. Termination for Cause

A. the City of Worcester may without prejudice to any other right or remedy deem this Contract terminated for cause if any of the following defaults shall occur and not be cured within three (3) days after the giving of written notice thereof by the City of Worcester to the CM and any surety that has given bonds in connection with this Contract:

- (1) The CM has filed a petition, or a petition has been filed against the CM with its consent, under any federal or state law concerning bankruptcy, reorganization, insolvency or relief from creditors, or if such a petition is filed against the CM without its consent and is not dismissed within sixty (60) days; or if the CM is generally not paying its debts as they become due; or if the CM becomes insolvent; or if the CM consents to the appointment of a receiver, trustee, liquidate, custodian or the like of the CM or of all or any substantial portion of its assets and such appointment or possession is not terminated within sixty (60) days; or if the CM makes an assignment for the benefit of creditors;
- (2) The CM refuses or fails, except in cases for which extension of time is provided under this Contract's express terms, to supply enough properly skilled workers or

proper materials to perform its obligations under this Contract, or the City of Worcester has determined that the rate of progress required for the timely completion of the Work is not being met;

- (3) The CM fails to make prompt payment to Subcontractors or for materials, equipment, or labor;
- (4) All or a part of the Work has been abandoned;
- (5) The CM has sublet or assigned all or any portion of the Work, the Contract, or claims thereunder, without the prior written consent of the Owner, except as expressly permitted in this Contract;
- (6) The CM has failed to comply with Laws;
- (7) The CM fails to maintain, or provide to the City of Worcester evidence of the insurance or bonds required by this Contract, or
- (8) The CM has failed to perform the Work or any portion thereof as required by this Contract or has otherwise breached any material provision of this Contract.

B. the City of Worcester shall give the CM and any surety notice of such termination for cause, but the giving of notice of such termination shall not be a condition precedent or subsequent to the termination's effectiveness. In the event of such termination, and without limiting any other available remedies, the City of Worcester may, at its option:

- (1) hold the CM and its sureties liable in damages for a breach of Contract;
- (2) notify the CM to discontinue all work, or any part thereof, and the CM shall discontinue all work, or any part thereof, as the Owner may designate;
- (3) complete the Work, or any part thereof, and charge the expense of completing the Work or part thereof, to the CM;
- (4) require the surety or sureties to complete the Work and perform all of the CM's obligations under this Contract.
- (5) take such other lawful action as is deemed by the City of Worcester to be in the best interest of the Commonwealth.

If the City of Worcester elects to complete all or any portion of the Work as specified in (3) above, it may take possession of all materials, equipment, tools, machinery, implements at or near the Site owned by the CM and finish the Work at the CM's expense by whatever means the City of Worcester may deem expedient; and the CM shall cooperate at its expense in the orderly transfer of the same to a new contractor or to the City of Worcester as directed by the City of Worcester. In such case the City of Worcester shall not make any further payments to the CM until the Work is completely finished. The Owner shall not be liable for any depreciation, loss or damage to said materials, machinery, implements or tools during said use and the CM shall be solely responsible for their removal from the Site after the Owner has no further use for them. Unless so removed within fifteen days after notice to the CM to do so, they may be sold at public auction, after publication of notice thereof at least twice in any newspaper published in the county where the Work is being performed, and the proceeds credited to the CM's account; or they may, at the option of the City of Worcester, be stored at the CM's expense subject to a lien for the storage charges.

C. Damages and expenses incurred under paragraph B above shall include, but not be limited to, costs for the Designer's extra services required, in the opinion of the City of Worcester, to successfully inspect and administer the construction contract through final completion of the Work.

D. Expenses charged under paragraph B above may be deducted and paid by the City of Worcester out of any moneys then due or to become due the CM under this Contract.

E. All sums damages, and expenses incurred by the Owner to complete the Work shall be charged to the CM. In case the damages and expenses charged are less than the sum that would have been payable under this Contract if the same had been completed by the CM, the CM shall be entitled to receive the difference. In case such expenses shall exceed the said sum, the CM shall pay the amount of the excess to the Owner.

2. Termination for Convenience

A. the City of Worcester may terminate this Contract for convenience even though the CM is not in default by giving notice to the CM specifying in said notice the date of termination.

B. In case of such termination without cause, the CM shall be paid:

(1) all sums due and owing under this Contract through the date of termination, including any retainage withheld to the date of termination, less any amount which the City of Worcester determines is necessary to correct or complete the Work performed to the date of termination; plus (2) a reasonable sum to cover the expenses which CM would not have incurred but for the early termination of the Contract, such as demobilization of the work force, restocking charges, termination fees payable to Subcontractors.

C. Lost profits shall not be payable. The payment provided in paragraph B above shall be considered to fully compensate the CM for all claims and expenses and those of any consultants, Subcontractors, and suppliers, directly or indirectly attributable to the termination.

3. CM's Duties upon Termination for Convenience

Upon termination of this Contract for convenience as provided in Section 2 of this Article, the CM shall: (1) stop the Work; (2) stop placing orders and Subcontracts in connection with this Contract; (3) cancel all existing orders and Subcontracts; (4) surrender the Site to the City of Worcester in a safe condition; (5) transfer to the City of Worcester all materials, supplies, work in process, appliances, facilities, equipment and machinery of this Contract, and all plans, Drawings, Specifications and other information and documents used in connection with this Contract.

ARTICLE XVIII **MISCELLANEOUS PROVISIONS**

1. No Assignment by CM

The CM shall not assign by power of attorney or otherwise, or sublet or subcontract, the Work or any part thereof, without the previous written consent of the City of Worcester and shall not, either legally or equitably, assign any of the moneys payable under this Contract, or CM's claims hereunder, unless with the like consent of the City of Worcester, whether said assignment is made before, at the time of, or after the execution of the Contract. The CM shall remain responsible for satisfactory performance of all Work sublet or assigned complying with all applicable requirements of the Contract. Consent of the City of Worcester shall not be deemed to constitute a representation or waiver of any right hereunder by the City of Worcester as to the qualifications or the responsibility of the CM or Subcontractor(s).

2. Non-Appropriation

The Commonwealth certifies that at the time of the execution of this Contract, sufficient appropriations exist and shall be encumbered to fund the Contract Price. Payments are subject to appropriation and shall be made only for work performed in accordance with the terms of this Contract. The CM shall not be obligated to perform, and shall not perform, work outside the scope of this Contract without an appropriate amendment to this Contract, and a sufficient appropriation(s) to support such additional work. The Commonwealth may immediately terminate or suspend this Contract in the event that the appropriation(s) funding this Contract is eliminated or reduced to an amount which will be insufficient to support anticipated future obligations under this Contract. Such termination shall be deemed a termination for convenience subject to the provisions of paragraph 2 of Article XVII of this Contract.

3. Claims by Others Not Valid

No person other than the CM and the surety on any bond given pursuant to the terms of this Contract shall acquire any interest in this Contract or any claim against the City of Worcester hereunder, and no claim by any other person shall be valid except as provided in M.G.L. c. 30, s. 39F of the General Laws.

4. No Personal Liability of Public Officials

No public official, employee, or agent of the City of Worcester shall have any personal liability for the obligations of the City of Worcester set forth in this Contract.

5. Severability

The provisions of this Contract are severable, and if any of these provisions shall be held unconstitutional or unenforceable by any court of competent jurisdiction, the decision of such court shall not affect or impair any of the other provisions of this Contract.

6. Choice of Laws

This Contract shall be governed by the laws of the Commonwealth of Massachusetts for all purposes, without regard to its laws on choice of law. All proceedings under this Contract or related to the Project shall be brought in the courts of the Commonwealth of Massachusetts.

7. Standard Forms

Unless directed otherwise in writing by the City of Worcester, CM shall use the standard forms in use by the Division of Capital Asset Management and Maintenance appearing in Appendix E to these General Conditions of the Contract.

8. No Waiver of Subsequent Breach

No waiver of any breach or obligation of this Contract shall constitute a waiver of any other or subsequent breach or obligation.

9. Remedies Cumulative

All remedies of the City of Worcester provided in this Contract shall be construed as cumulative and may be exercised simultaneously or in any order as determined by the

City of Worcester in its sole discretion. the City of Worcester shall also be entitled as of right to specific performance and equitable relief including the right to an injunction against any breach of any of the provisions of this Contract

10. Notices

Notices to the CM shall be deemed given when hand delivered to the CM's temporary field office at or near the Site, or when deposited in the U.S. mail addressed to the CM at the CM's address specified in the Owner-CM Agreement, or when delivered by courier to either location. Unless otherwise specified in writing by the City of Worcester, notices and deliveries to the City of Worcester shall be effective only when delivered to the City of Worcester at the address specified in the Owner-CM Agreement and date-stamped at the reception desk or for which a receipt has been signed by the agent or employee designated by the City of Worcester to receive official notices.

END OF SECTION 00200

DOCUMENT 00 72 01

CITY OF WORCESTER SUPPLEMENTAL GENERAL CONDITIONS

(CITY OF WORCESTER DOCUMENT 00300)

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CITY OF WORCESTER

SUPPLEMENTARY GENERAL CONDITIONS

STATUTORY PROVISIONS FOR MASSACHUSETTS
PUBLIC CONSTRUCTION CONTRACTS

TABLE OF ARTICLES

Paragraph	Subject	Statute or Executive Order
ARTICLE 1 - PAYMENT, CONTRACT ADMINISTRATION, ETC.		
1.1	"Or Equal" Clause	M.G.L. Chapter 30, Section 39M(b)
1.2	Delays	M.G.L. Chapter 30, Section 39 O
1.3	Deviations	M.G.L. Chapter 30, Section 39 I
1.4	Finality of Decisions	M.G.L. Chapter 30, Section 39 J
1.5	Differing Site Conditions	M.G.L. Chapter 30, Section 39N
1.6	Timely Decisions	M.G.L. Chapter 30, Section 39P
1.7	Certificate of Appropriation	M.G.L. Chapter 44, Section 31C
1.8	Method of Payment (Public Building Projects)	M.G.L. Chapter 30, Section 39K
1.9	Method of Payment (Public Works Projects)	M.G.L. Chapter 30, Section 39G
1.10	Direct Payment	M.G.L. Chapter 30, Section 39F
1.11	Discharge or Release of Bonds	M.G.L. Chapter 30, Section 40

ARTICLE 2 - WAGES AND EMPLOYMENT PRACTICES

2.1	Preference to Veterans and Citizens	M.G.L. Chapter 149, Section 26
2.2	Determination of Wage Rates	M.G.L. Chapter 149, Section 27
2.3	Employment Records	M.G.L. Chapter 149, Section 27B
2.4	Wages Paid to Operators of Trucks and Other Equipment	M.G.L. Chapter 149, Section 37F
2.5	Reserve Police Officers	M.G.L. Chapter 149, Section 34B
2.6	Eight-Hour Day, etc.	M.G.L. Chapter 149, Sections 30, 34, 34A
2.7	Lodging, etc.	M.G.L. Chapter 149, Section 25
2.8	Access to Contractor's Records	Executive Order No. 195
2.9	Worker's Compensation Insurance	M.G.L. Chapter 149, Section 34

ARTICLE 3 - CONTRACTOR'S ACCOUNTING METHODS

3.1	Construction Managers's Accounting Method Requirements	M.G.L. Chapter 30, Section 39R
3.2	Construction Managers's Accounting Method Requirements	M.G.L. Chapter 30, Section 39R
3.3	Construction Managers's Accounting Method Requirements	M.G.L. Chapter 30, Section 39R
3.4	Construction Managers's Accounting Method Requirements	M.G.L. Chapter 30, Section 39R
3.5	Construction Managers's Accounting Method Requirements	M.G.L. Chapter 30, Section 39R

ARTICLE 4 - MISCELLANEOUS

4.1	Weather Protection	M.G.L. Chapter 149, Section 44F(1)
4.2	Form for Sub-Contract	M.G.L. Chapter 149, Section 44F(4)(c)
4.3	Foreign Corporations	M.G.L. Chapter 181, Section 3,5; Chapter 30, Section 39L
4.4	Shoring	M.G.L. Chapter 149, Section 129A
4.5	Compliance with Tax Laws	M.G.L. Chapter 62C Section 49A
4.6	Verification of Construction Debris Disposal	1996 Worcester Revised Ordinances, Chapter 8, Section 7
4.7	Responsible Employer Ordinance	1996 Worcester Revised Ordinances, Chapter 2, Section 35
4.8	Regulation of Construction Noise	1996 Worcester Revised Ordinances, Chapter 8, Section 34



CITY OF WORCESTER

SUPPLEMENTARY GENERAL CONDITIONS

**STATUTORY PROVISIONS FOR MASSACHUSETTS
PUBLIC CONSTRUCTION CONTRACTS**

The following provisions are required by or are intended to be consistent with requirements of Massachusetts's statutes governing public construction contracts in the Commonwealth of Massachusetts (hereinafter referred to as the "Commonwealth"). Any other provisions required by statute to be included herein shall be deemed to be so included. In addition, the parties recognize that other rights, duties, and obligations with respect to public construction contracts are provided for by statute, notwithstanding the fact that they are not provided for in the Contract Documents. In case of conflict between the provisions of these Supplementary General Conditions and other provisions in the Contract Documents, the provisions of these Supplementary General Conditions shall govern. In case of conflict between the provisions of these Supplementary General Conditions and the provisions of any applicable statute, the statutory provisions shall govern. Where the term "Awarding Authority" appears in the following paragraphs, it shall be taken as meaning the Owner.

ARTICLE 1 - PAYMENT, CONTRACT ADMINISTRATION, etc.

- 1.1** "Or Equal" Clause: (Statutory reference: M.G.L. Chapter 30, Section 39M(b)). This Paragraph 1.1 applies to every contract for the construction, reconstruction or repair of any public work or for the purchase of any material by the Commonwealth, any political subdivision thereof, or any county, city, town, district or housing authority (above certain dollar limits, as stated in the statute), and to contracts awarded pursuant to M.G.L. Chapter 149, Sections 44A through 44H. The said Sections 44A through 44H apply to every contract for the construction, reconstruction, installation, demolition, maintenance or repair of any building by a department, agency, board, commission, authority, or other instrumentality or the Commonwealth or political subdivision thereof, or two or more subdivisions thereof, but not including the Massachusetts Bay Transportation Authority, estimated to cost more than a dollar amount set forth in M.G.L. Chapter 149, Section 44A.
- 1.1.1** Where products or materials are prescribed by manufacturer name, trade name, or catalog reference, the words "or approved equal" shall be understood to follow. An item shall be considered equal to the item so named or described if, in the opinion of the Architect:
- (1) It is at least equal in quality, durability, appearance, strength, and design;
 - (2) It performs at least equally the function imposed in the general design for the work;
 - (3) It conforms substantially, even with deviations, to the detailed requirements for the items as indicated by the specifications.

- 1.1.2** Any structural or mechanical changes made necessary to accommodate substituted equipment under this paragraph shall be at the expense of the Contractor or Subcontractor responsible for the work item. See other paragraphs of General and Supplementary Conditions for procedures to be used in determining compliance with the standards of this paragraph.
- 1.2** Delays: (Statutory reference: Chapter 30, Section 39O). This Paragraph 1.2 applies to every contract subject to M.G.L. Chapter 30, Section 39M and to every contract subject to Chapter 149, Sections 44A through 44H.
- 1.2.1** Except as otherwise provided by law and by this Paragraph 1.2, the Contractor shall not be entitled to damages on account of any hindrances or delays, avoidable or unavoidable; but if such delay be occasioned by the Awarding Authority, the Contractor may be entitled to an extension of time only, in which to complete the work, to be determined by the Architect.
- (1) The Awarding Authority may order the Contractor in writing to suspend, delay, or interrupt all or any part of the work for such period of time as it may determine to be appropriate for the convenience of the Awarding Authority; provided, however, that if there is a suspension, delay or interruption for fifteen days or more or due to a failure of the Awarding Authority to act within a time as may be otherwise specified in this contract and without the fault or negligence of the Contractor, the Awarding Authority shall make an adjustment in the contract price for any increase in the cost of performance of this contract but shall not include any profit or overhead to the Contractor on such increase; and provided further, that the Awarding Authority shall not make any adjustment in the contract price under this provision for any suspension, delay, interruption or failure to act to the extent that such is due to any cause for which this contract provides for an equitable adjustment of the contract price under any other contract provisions.
- (2) The Contractor must submit the amount of a claim under provision (a) to the Awarding Authority in writing as soon as practicable after the end of the suspension, delay, interruption or failure to act and, in any event, not later than the date of final payment under this contract, and except for costs due to a suspension order, the Awarding Authority shall not approve any costs in the claim incurred more than twenty days before the Contractor notified the Awarding Authority in writing of the act or failure to act involved in the claim.
- (a) In the event a suspension, delay, interruption or failure to act of the Awarding Authority increases the cost of performance of any Subcontractor, that Subcontractor shall have the same rights against the Contractor for payment for an increase in the cost of his performance as provisions (a) and (b) give the Contractor against the Awarding Authority, but nothing in provisions (a) and (b) shall in any way change, modify or alter any other rights which the Contractor or the Subcontractor may have against each other.
- 1.3** Deviations: (Statutory reference: M.G.L. Chapter 30, Section 39I). This Paragraph 1.3 applies to every contract for the construction, alteration, maintenance, repair or demolition of, or addition to, any public building or public works for the Commonwealth or any political subdivision thereof.

- 1.3.1** The Contractor shall perform all the work required by this contract in conformity with the Drawings and Specifications contained herein. No willful and substantial deviation from said Drawings and specifications shall be made unless authorized in writing by the Awarding Authority or by the Engineer or Architect in charge of the work who is duly authorized by the Awarding Authority to approve such deviations. In order to avoid delays in the prosecution of the work required by such contract, such deviation from the Drawings or Specifications may be authorized by a written order of the Awarding Authority or such Engineer or Architect so authorized to approve such deviation. Within thirty (30) days thereafter, such written order shall be confirmed by a certificate of the Awarding Authority stating: (1) If such deviation involves any substitution or elimination of materials, fixtures or equipment, the reasons why such materials, fixtures or equipment were included in the first instance and the reasons for substitution or elimination, and, if the deviation is of any other nature, the reasons for such deviation, giving justification therefore (2) that the specified deviation does not materially injure the project as a whole; (1) that either the work substituted for the work specified is the same cost and quality, or that an equitable adjustment has been agreed upon between the Awarding Authority and the Contractor and the amount in dollars of said adjustment; and (4) that the deviation is in the best interest of the Awarding Authority.
- 1.3.2** Such certificate shall be signed under the penalties of perjury and shall be a permanent part of the file record of the work contracted for.
- 1.4** Finality of Decisions by Awarding Authority or Architect: (Statutory reference: M.G.L. Chapter 30, Section 39J). This Paragraph 1.4 applies to every contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building or public works by the Commonwealth or by any county, city, district, board, commission, or other public body, when the amount of the contract exceeds the amount stated in M.G.L. Chapter 30, Section 39J.
- 1.4.1** Notwithstanding any contrary provision of this contract, no decision by the Awarding Authority or by the Architect on a dispute, whether of fact or of law, arising under said contract shall be final or conclusive if such decision is made in bad faith, fraudulently, capriciously, or arbitrarily, is unsupported by substantial evidence, or is based upon error of law.
- 1.5** Differing Site Conditions: (Statutory reference: M.G.L. Chapter 30, Section 39N). This Paragraph 1.5 applies to every contract subject to M.G.L. Chapter 30, Section 39M and to every contract subject to M.G.L. Chapter 149, Sections 44A through 44H.
- 1.5.1** If, during the progress of the work, the Contractor or the Awarding Authority discovers that the actual subsurface or latent physical conditions encountered at the site differ substantially or materially from those shown on the Drawings or indicated in the Contract Documents, either the Contractor or the Awarding Authority may request an equitable adjustment in the contract price of the contract applying to work affected by the differing site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a Contractor, or upon its own initiative, the Awarding Authority shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the

Drawings or indicated in the Contract Documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Drawings and Contract Documents and are such a nature as to cause an increase or decrease in the cost of the work, the Awarding Authority shall make an equitable adjustment in the contract price and the contract shall be modified in writing accordingly.

- 1.6** Timely Decision by Awarding Authority: (Statutory reference: M.G.L. Chapter 30, Section 39P). This Paragraph 1.6 applies to every contract subject to M.G.L. Chapter 30, Section 39M, and to every contract subject to M.G.L. Chapter 149, Sections 44A through 44H.
- 1.6.1** In every case in which this contract requires the Awarding Authority, any Official, its Architect or Engineer to make a decision on interpretation of the specifications, approval of equipment, material or any other approval, or progress of the work, the decision shall be made promptly and, in any event, no later than thirty (30) days after the written submission for decision; but if such decision requires extended investigation and study, the Awarding Authority, the Official, Architect or Engineer shall, within thirty (30) days after the receipt of the submission, give the party making the submission written notice of the reasons why the decision cannot be made within the thirty (30) day period and the date by which the decision will be made.
- 1.7** Certificate of Appropriation: (Statutory reference: M.G.L. Chapter 44, Section 31C). This Paragraph 1.7 applies to contracts for construction, reconstruction, alteration, remodeling, repair or demolition of any public building or public work by any city or town costing more than the amount set forth in M.G.L. Chapter 44, Section 31C.
- 1.7.1** This Contract shall not be deemed to have been made until the auditor or accountant or other officer of the city or town having similar duties has certified thereon that an appropriation in the amount of this contract is available therefore and that an officer of the city, town, or Awarding Authority has been authorized to execute said contract and approve all requisitions and change orders. No order to the Contractor for a change in or addition to the work, whether in the form of a drawing, plan, detail or any other written instruction, unless it is an order which the Contractor is willing to perform without any increase in the contract price, shall be deemed to be given until the auditor or accountant, or other officer of the Awarding Authority having similar duties, has certified thereon that an appropriation in the amount of such order is available therefore; but such certificate shall not be taken as an admission by the Awarding Authority of its liability to pay for such work. The certificate of the auditor or accountant or other officer of the Awarding Authority having similar duties, that an appropriation in the amount of this contract or in the amount of such order is available shall bar any defense by the Awarding Authority on the ground of insufficient appropriation.
- 1.8** Method of Payment: (Statutory reference: M.G.L. Chapter 30, Section 39K). This Paragraph 1.8 applies to every contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building by the Commonwealth, or by any county, city, town, district, board, commission or other public body, when the amount is more than two thousand dollars (\$2,000).

- 1.8.1** Within fifteen (15) days after receipt from the Contractor, at the place designated by the Awarding Authority if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the awarding authority will make a periodic payment to the Contractor for the work performed during the preceding month and for the materials not incorporated in the work but delivered and suitably stored at the site (or at some location agreed upon in writing) to which the Contractor has title or to which a Subcontractor has title and has authorized the Contractor to transfer title to the Awarding Authority, less (1) a retention based on its estimate of the full value of its claims against the Contractor and less (2) a retention for direct payments to Subcontractors based on demands for same in accordance with the provisions of Paragraph 1.10 of these Supplementary General Conditions, and less (3) a retention not exceeding five (5) percent of the approved amount of the periodic payment. After the receipt of a periodic estimate requesting final payment and within sixty-five (65) days after (a) the Contractor fully completes the work or substantially completes the work so that the value of the work remaining to be done is, in the estimate of the Awarding Authority, less than one percent of the original contract price, or (b) the Contractor substantially completes the work and the Awarding Authority takes possession for occupancy, whichever occurs first, the Awarding Authority shall pay the contractor the entire balance due on the contract less (1) a retention based on its estimate of the fair value of its claims against the Contractor and of the cost of completing the incomplete and unsatisfactory items of work and less (2) a retention for direct payments to Subcontractors based on demands for same in accordance with the provisions of Paragraph 1.10 of these Supplementary General Conditions, or based on the record payments by the Contractor to the Subcontractors under this contract if such record of payment indicates that the Contractor has not paid Subcontractors as provided in Paragraph 1.10. If the Awarding Authority fails to make payment as herein provided, there shall be added to each such payment daily interest at the rate of three (3) percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston commencing on the first day after said payment is due and continuing until the payment is delivered or mailed to the contractor; provided, that no interest shall be due, in any event, on the amount due on a periodic estimate for final payment until fifteen (15) days after receipt of such periodic estimate from the Contractor, at the place designated by the awarding authority if such a place is so designated. The Contractor agrees to pay to each Subcontractor a portion of any such interest paid in accordance with the amount due each Subcontractor.
- 1.8.2** The Awarding Authority may make changes in any periodic estimate submitted by the Contractor, and the payment due on said periodic estimate shall be computed in accordance with the change so made, but such changes or any requirement for a corrected periodic estimate shall not affect the due date for the periodic payment or the date for the commencement of interest charges on the amount of the periodic payment computed in accordance with the changes made, as provided herein; provided, that the Awarding Authority may, within seven (7) days after receipt, return to the Contractor for correction, any periodic estimate which is not in the required form or which contains computations not arithmetically correct and, in that event, the date of receipt of such periodic estimate shall be the date of receipt of the corrected periodic estimate in proper form and with arithmetically correct computations. The date of receipt of a periodic estimate received on a Saturday shall be the first working day thereafter.

- 1.8.3** All periodic estimates shall be submitted to the Awarding Authority, or to its designee as set forth in writing to the Contractor, and the date of receipt by the Awarding Authority or its designee shall be marked on the estimate. All periodic estimates shall contain a separate item for each subtrade and each sub-subtrade, listed in the sub-bid form as required by the specifications, and a column listing the amount paid to each subcontractor and sub-subcontractor as of the date the periodic estimate is filed. The person making payment for the Awarding Authority shall add the daily interest provided for herein to each payment for each day beyond the due date based on the date of receipt marked on the estimate.
- 1.8.4** A certificate of the Architect to the effect that the Contractor has fully or substantially completed the work shall, subject to the provisions of Paragraph 1.4 of these Supplementary General Conditions, be conclusive for the purposes of this Paragraph 1.8.
- 1.8.5** Notwithstanding the provisions of this section, at any time after the value of the work remaining to be done is, in the estimation of the awarding authority, less than 1 per cent of the adjusted contract price, or the awarding authority has determined that the contractor has substantially completed the work and the awarding authority has taken possession for occupancy, the awarding authority may send to the general contractor by certified mail, return receipt requested, a completed and final list of all incomplete and unsatisfactory work items, including, for each item on the list, a good faith estimate of the fair and reasonable cost of completing such item. The general contractor shall then complete all such work items within 30 days of receipt of such list or before the contract completion date, whichever is later. If the general contractor fails to complete all incomplete and unsatisfactory work items within 45 days after receipt of such items furnished by the awarding authority or before the contract completion date, whichever is later, subsequent to an additional 14 days' written notice to the general contractor by certified mail, return receipt requested, the awarding authority may terminate the contract and complete the incomplete and unsatisfactory work items and charge the cost of same to the general contractor and such termination shall be without prejudice to any other rights or remedies the awarding authority may have under the contract. The awarding authority shall note any such termination on the evaluation form to be filed by the awarding authority pursuant to the provisions of section 44D of chapter 149.
- 1.9** Method of Payment: (Statutory reference: M.G.L. Chapter 30, Section 39G). This Paragraph 1.9 applies to every contract for the construction, reconstruction, alteration, remodeling, repair or improvement of public ways; including bridges and other highway structures, sewers and water mains, airports and other public works entered into with the Commonwealth, or any agency or political subdivision thereof.
- 1.9.1** Upon substantial completion of the work required by a contract with the Commonwealth, or any agency or political subdivision thereof, for the construction, reconstruction, alteration, remodeling, repair or improvement of public ways, including bridges and other highway structures, sewers and water mains, airports and other public works, the contractor shall present in writing to the Awarding Authority its certification that the work has been substantially completed. Within twenty-one (21) days thereafter, the Awarding Authority shall present to the contractor either a written declaration that the work has been substantially completed or an itemized list of incomplete or unsatisfactory work items required by the contract sufficient to demonstrate that the work has not been substantially completed. The Awarding Authority may include with such list a notice

setting forth a reasonable time, which shall not in any event be prior to the contract completion date, within which the contractor must achieve substantial completion of the work. In the event that the Awarding Authority fails to respond, by presentation of a written declaration or itemized list as aforesaid, to the contractor's certification within the twenty-one (21) day period, the contractor's certification shall take effect as the Awarding Authority's declaration that the work has been substantially completed.

- 1.9.2** Within sixty-five (65) days after the effective date of a declaration of substantial completion, the Awarding Authority shall prepare and forthwith send to the contractor for acceptance a substantial completion estimate for the quality and price of the work done and all but one (1) per cent retainage on that work, including the quantity, price and all but one (1) percent retainage for the undisputed part of each work item and extra work item in dispute but excluding the disputed part thereof, less the estimated cost of completing all incomplete and unsatisfactory work items and less the total periodic payments made to date for the work. The Awarding Authority also shall deduct from the substantial completion estimate an amount equal to the sum of all demands for direct payments filed by subcontractors and not yet paid to subcontractors or deposited in joint accounts pursuant to Section 1.10, but no contract subject to said Section 1.10 shall contain any other provision authorizing the Awarding Authority to deduct any amount by virtue of claims asserted against the contract by subcontractors, material suppliers or others.
- 1.9.3** If the Awarding Authority fails to prepare and send to the contractor any substantial completion estimate required by section 1.9.2, on or before the date herein above set forth, the Awarding Authority shall pay to the contractor interest on the amount which would have been due to the contractor pursuant to such substantial completion estimate, at the rate of three (3) percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston from such date to the date on which the Awarding Authority sends that substantial completion estimate to the contractor for acceptance or to the date of payment therefore, whichever occurs first. The Awarding Authority shall include the amount of such interest in the substantial completion estimate.
- 1.9.4** Within fifteen (15) days after the effective date of the declaration of substantial completion, the Awarding Authority shall send to the contractor by certified mail, return receipt requested, a complete list of all incomplete or unsatisfactory work items, and unless delayed by causes beyond his control, the contractor shall complete all such work items within forty-five (45) days after the receipt of such list or before the then contract completion date, whichever is later. If the contractor fails to complete such work within such time, the Awarding Authority may, subsequent to seven (7) day's written notice to the contractor by certified mail, return receipt requested, terminate the contract and complete the incomplete or unsatisfactory work items and charge the cost of same to the contractor.
- 1.9.5** Within thirty (30) days after receipt by the Awarding Authority of a notice from the contractor stating that all of the work required by the contract has been completed, the Awarding Authority shall prepare and forthwith send to the contractor for acceptance, a final estimate for the quantity and price of the work done and all retainage on that work less the payments made to date, unless the Awarding Authority's inspection shows that work items required by the contract remain incomplete or unsatisfactory, or that documentation required by the contract has not been completed. If the Awarding

Authority fails to prepare and sends to the contractor the final estimate within thirty (30) days after receipt of notice of completion, the Awarding Authority shall pay to the contractor interest on the amount which would have been due to the contractor pursuant to such final estimate at the rate hereinabove provided from the thirtieth (30th) day after such completion until the date on which the Awarding Authority sends the final estimate to the contractor for acceptance or the date of payment therefore, whichever occurs first, provided that the Awarding Authority's inspection shows that no work items required by the contract remain incomplete or unsatisfactory. Interest shall not be paid hereunder on amounts for which interest is required to be paid in connection with the substantial completion estimate as hereinabove provided.

- 1.9.6** The Awarding Authority shall pay the amount due pursuant to any periodic substantial completion or final estimate within thirty-five (35) days after receipt of written acceptance for such estimate from the contractor and shall pay interest on the amount due pursuant to such estimate at the rate hereinabove provided from that thirty-fifth (35) day to the date of payment. In the case of periodic payments, the Awarding Authority may deduct from its payment a retention based on its estimate of the fair value of its claim against the contractor, a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of Section 1.10, and a retention to secure satisfactory performance of the contractual work not exceeding five (5) percent of the approved amount of any periodic payment, and the same right to retention shall apply to bonded subcontractors entitled to direct payment under Section 1.10; provided, that a five percent value of all items that are planted in the ground shall be deducted from the periodic payments until final acceptance.
- 1.9.7** No periodic, substantial completion or final estimate or acceptance or payment thereof shall bar a contractor from reserving all rights to dispute the quantity and amount of, or the failure of the Awarding Authority to approve a quantity and amount of, all or part of any work item or extra work item.
- 1.9.8** Substantial completion, for the purpose of this Paragraph 1.9, shall mean either that the work required by the contract has been completed except for work having a contract price of less than one (1) percent of the then adjusted total contract price, or substantially all of the work has been completed and opened to public use except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the work required by the contract.
- 1.10** Direct Payment: (Statutory reference: M.G.L. Chapter 30, Section 39F). This Paragraph 1.10 applies to every contract awarded pursuant to M.G.L. Chapter 149, Sections 44A through 44H, and (with the exception of Subparagraph 1.10.9) to every contract awarded pursuant to M.G.L. Chapter 30, Section 39M.
- 1.10.1** Forthwith after the Contractor receives payment on account of a periodic estimate, the Contractor shall pay to each subcontractor the amount paid for the labor performed and the materials furnished by that Subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the Subcontractor by the Contractor.
- 1.10.2** Not later than the sixty-fifth day after each Subcontractor substantially completes the work in accordance with the Drawings and Specifications, the entire balance due under

the subcontract, less amounts retained by the Awarding Authority as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the Subcontractor; and the Awarding Authority shall pay that amount to the Contractor. The Contractor shall forthwith pay to the Subcontractor the full amount received from the Awarding Authority less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the Subcontractor by the Contractor.

- 1.10.3** Each payment made by the Awarding Authority to the Contractor pursuant to Subparagraphs 1.10.1 and 1.10.2 of this Paragraph 1.10 for the labor performed and the materials furnished by a Subcontractor shall be made to the Contractor for the account of that Subcontractor; and the Awarding Authority shall take reasonable steps to compel the Contractor to make each such payment to each such Subcontractor. If the Awarding Authority has received a demand for direct payment from a Subcontractor for any amount which has already been included in a payment to the Contractor or which is to be included in a payment to the Contractor for payment to the Subcontractor as provided in Subparagraphs 1.10.1 and 1.10.2, the Awarding Authority shall act upon the demand as provided in this Paragraph 1.10.
- 1.10.4** If, within seventy (70) days after the Subcontractor has substantially completed the subcontract work, the Subcontractor has not received from the Contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the Contractor, less any amount retained by the Awarding Authority as to the estimated cost of completing the incomplete and unsatisfactory items of work, the Subcontractor may demand direct payment of that balance from the Awarding Authority. The demand shall be by a sworn statement delivered to or sent by certified mail to the Awarding Authority, and a copy shall be delivered to or sent by certified mail to the Contractor at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the seventieth day after the Subcontractor has substantially completed the subcontract work. Within ten (10) days after the Subcontractor has delivered or so mailed the demand to the Awarding Authority and delivered or so mailed a copy to the Contractor, the Contractor may reply to the demand. The reply shall be a sworn statement delivered to or sent by certified mail to the Awarding Authority, and a copy shall be delivered to or sent by certified mail to the Subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract, including any amount due for extra labor and materials furnished to the Contractor and of the amount due for each claim made by the Contractor against the Subcontractor.
- 1.10.5** Within fifteen (15) days after receipt of the demand by the Awarding Authority, but in no event prior to the seventieth day after substantial completion of the subcontract work, the Awarding Authority shall make direct payment to the Subcontractor of the balance due under the subcontract, including any amount due for extra labor and materials furnished to the Contractor, less any amount (i) retained by the Awarding Authority as the estimated cost of completing the incomplete or unsatisfactory items of work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the Contractor in the sworn reply; provided that the Awarding Authority shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by Subparagraph 1.10.4.

The Awarding Authority shall make further direct payments to the Subcontractor forthwith after the removal of the basis for deduction from direct payments made as provided in parts (I) and (ii) of this Subparagraph.

- 1.10.6** The Awarding Authority shall forthwith deposit the amounts deducted from a direct payment as provided in part (iii) of Subparagraph 1.10.5 in an interest-bearing joint account in the names of the Contractor and the Subcontractor in a bank in Massachusetts selected by the Awarding Authority or agreed upon by the Contractor and the Subcontractor and shall notify the Contractor and the Subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the Contractor and the Subcontractor or as determined by decree of a court of competent jurisdiction.
- 1.10.7** All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to Subparagraph 1.10.6 shall be made out of amounts payable to the Contractor at the time of receipt of a demand for direct payment from a Subcontractor and out of amounts which later become payable to the Contractor and in the order or receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the awarding authority to the Contractor to the extent of such payment.
- 1.10.8** The Awarding Authority shall deduct from payments to a Contractor amounts, which together with the deposits in interest-bearing accounts pursuant to Subparagraph 1.10.6, are sufficient to satisfy all unpaid balances of demands for direct payments received from Subcontractors. All such amounts shall be earmarked for such direct payments, and the Subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the Contractor.
- 1.10.9** If the Subcontractor does not receive payment as provided in Subparagraph 1.10.1 or if the Contractor does not submit a periodic estimate for the value of the labor or materials performed or furnished by the Subcontractor and the Subcontractor does not receive payment for same when due less the deductions provided for in Subparagraph 1.10.1, the Subcontractor may demand direct payment by following the procedure in Subparagraph 1.10.4 and the Contractor may file a sworn reply as provided in that same Subparagraph. A demand made after the first day of the month following that for which the Subcontractor performed or furnished the labor and materials for which the Subcontractor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a periodic estimate from the Contractor. Thereafter the Awarding Authority shall proceed as provided in Subparagraphs 1.10.5, 1.10.6, 1.10.7 and 1.10.8.
- 1.10.10** Any assignment by a Subcontractor of the rights under this Section to a Surety company furnishing a bond under the provisions of M.G.L. Chapter 149, Section 29 shall be invalid. The assignment and subrogation court against the Awarding Authority and the Contractor shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. M.G.L. Chapter 231, Sections 59 and 59B shall apply to such petitions. The Court shall enter an interlocutory decree upon which execution shall issue for any part of a claim found due pursuant to Sections 59 and 59B and, upon motion of any party, shall advance for speedy trial the petition to collect the remainder of the claim. Any party aggrieved by such interlocutory decree shall have the right to appeal therefrom as from a final decree. The

court shall not consolidate for trial the petition of any Subcontractor with the petition of one or more Subcontractors or the same general contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such price in equity in the superior court against the other and the bank shall not be a necessary party. A Subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided in Subparagraph 1.10.6 by a petition in equity in the superior court against the Awarding Authority and the Contractor shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. M.G.L. Chapter 231, Sections 59 and 59B shall apply to such petitions. The Court shall enter an interlocutory decree upon which execution shall issue for any part of a claim found due pursuant to Sections 59 and 59B and, upon motion of any party, shall advance for speedy trial the petition to collect the remainder of the claim. Any party aggrieved by such interlocutory decree shall have the right to appeal there from as from a final decree. The court shall not consolidate for trial the petition of any Subcontractor with the petition of one or more Subcontractors or the same general contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a Subcontractor filing a demand for direct payment for which no funds due the Contractor are available for direct payment shall have a right to file a petition in a court of equity against the Awarding Authority claiming a demand for direct payment is premature, and such Subcontractor must file the petition before the Awarding Authority has made a direct payment to the Subcontractor and has made a deposit of the disputed portion as provided in part (iii) of Subparagraph 1.10.5 and in Subparagraph 1.10.6.

1.10.11 "Subcontractor" as used in this Paragraph 1.10 (I) for contracts awarded as provided in M.G.L. Chapter 149, Sections 44A-44H, inclusive, shall mean a person who files a sub-bid and receives a subcontract as a result of that filed sub-bid or who is approved by the Awarding Authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the Contractor, and (ii) for contracts awarded as provided in M.G.L. Chapter 30, Section 39M(a), shall mean a person approved by the Awarding Authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor.

1.10.12A Contractor or a Subcontractor shall enforce a claim to any portion of the amount of a demand for direct payment deposited as provided in Subparagraph 1.10.6 by a petition in equity in the superior court against the other and the bank shall not be a necessary party. A Subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided in Subparagraph 1.10.6 by a petition in equity in the superior court against the Awarding Authority and the Contractor shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. M.G.L. Chapter 231, Sections 59 and 59B shall apply to such petitions. The Court shall enter an interlocutory decree upon which execution shall issue for any part of

a claim found due pursuant to Sections 59 and 59B and, upon motion of any party, shall advance for speedy trial the petition to collect the remainder of the claim. Any party aggrieved by such interlocutory decree shall have the right to appeal there from as from a final decree. The court shall not consolidate for trial the petition of any Subcontractor with the petition of one or more Subcontractors or the same general contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a Subcontractor filing a demand for direct payment for which no funds due the Contractor are available for direct payment shall have a right to file a petition in a court of equity against the Awarding Authority claiming a demand for direct payment is premature, and such Subcontractor must file the petition before the Awarding Authority has made a direct payment to the Subcontractor and has made a deposit of the disputed portion as provided in part (iii) of Subparagraph 1.10.5 and in Subparagraph 1.10.6.

1.10.13 In any petition to collect any claim for which a Subcontractor has filed a demand for direct payment the court shall, upon motion of the Contractor, reduce by the amount of any deposit of a disputed amount by the Awarding Authority as provided in part (iii) of Subparagraph 1.10.5 and in subparagraph 1.10.6 any amount held under a trustee writ or pursuant to a restraining order or injunction.

1.11 Discharge or Release of Bonds (Statutory reference: M.G.L. Chapter 30, Section 40). This Paragraph 1.11 applies to every contract awarded for the construction or repair of public buildings or other public works.

1.11.1 Bonds given to the Commonwealth, any county, city, town or political subdivision to secure the performance of contracts for the construction or repair of public buildings or other public works may be discharged or released by the Awarding Authority, upon such terms as it deems expedient, after the expiration of one (1) year from the time of completion, subject to Section 39 K, of the work contracted to be done; provided that no claim filed under said bond is pending, and provided further, that no such bonds shall be discharged or released prior to the expiration of all special guarantees provided for in the contract unless new bonds in substitution therefore specifically relating to the unexpired guarantees shall be taken.

ARTICLE 2 - WAGES AND EMPLOYMENT PRACTICES

2.1 Preference To Veterans and Citizens In Public Works; Rate of Wages: (Statutory reference: M.G.L. Chapter 149, Section 26) This Paragraph 2.1 applies to every contract or subcontract for the construction of public works by the Commonwealth or by a county, town or district.

2.1.1 In the employment of mechanics and apprentices, teamsters, chauffeurs and laborers, preference shall first be given to citizens of the Commonwealth who have been residents of the Commonwealth for at least six (6) months at the commencement of their employment, who are veterans as defined in M.G.L. Chapter 4, Section 7, Clause 43, and who are qualified to perform the work to which the employment relates; and secondly, to

citizens of the Commonwealth generally who have been residents of the Commonwealth for at least six (6) months at the commencement of their employment, and if they cannot be obtained in sufficient numbers, then to citizens of the United States, and every contract for such work shall contain a provision to this effect. Each county, town or district in the construction of public works, or persons contracting or subcontracting for such works, shall give preference to veterans and citizens who are residents of such county, town or district.

- 2.1.2** The rate per hour of the wages paid to said mechanics and apprentices, teamsters, chauffeurs and laborers in the construction of public works shall not be less than the rate or rates of wages to be determined by the Commissioner of Labor and Industries as hereinafter provided; provided that the wages paid to laborers employed on said works shall not be less than those paid to laborers in the municipal service of the town or towns where said works are being constructed; provided further, that where the same public work is to be constructed in two (2) or more towns, the wages paid to laborers shall not be less than those paid to laborers in the municipal town paying the highest rate; provided further, that if, in any of the towns where the works are to be constructed, a wage rate or wage rates have been established in certain trades and occupations by collective agreements or understandings between organized labor and employers, the rate or rates to be paid on said works shall not be less than the rates so established; provided further, that in towns where no such rate or rates have been established, the wages paid to mechanics, teamsters, chauffeurs and laborers on public works shall not be less than the wages paid to the employees in the same trades and occupations by private employers engaged in the construction industry. This section shall also apply to regular employees of the Commonwealth or a county, town or district, when such employees are employed in the construction, addition to or alteration of public buildings for which special appropriations of more than one thousand (\$1,000.00) dollars are provided. Payments by employers to health and welfare plans, pension plans and supplementary unemployment benefit plans under collective bargaining agreements or understandings between organized labor and employers shall be included for the purpose of establishing minimum wage rates as herein provided.
- 2.2** List of Jobs; Classifications; Determination of Rate of Wages; Schedule: (Statutory reference: M.G.L. Chapter 149, Section 27). This Paragraph 2.2. applies to every contract or subcontract for the construction of public works by the Commonwealth, or by a county, town or district.
- 2.2.1** The Commissioner of Labor and Industries shall prepare, for the use of such public officials or public bodies whose duty it shall be to cause public works to be constructed, a list of the several jobs usually performed on various types of public works upon which mechanics and apprentices, teamsters, chauffeurs and laborers are employed. The Commissioner shall classify said jobs, and he may revise such classifications from time to time, as he may deem advisable. Prior to awarding a contract for the construction of public works, said public official or public body shall submit to the Commissioner a list of the jobs upon which mechanics and apprentices, teamsters, chauffeurs and laborers are to be employed, and shall request the Commissioner to determine the rate of wages to be paid on each job. The Commissioner, subject to the provisions of Paragraph 2.1 of these Supplementary General Conditions, shall proceed forthwith to determine the same, and shall furnish said official or public body with a schedule of such rate or rates of wages as soon as said determination shall have been made. In advertising or calling for bids for

said works, the Awarding Authority or public body shall incorporate said schedule in the advertisement or call for bids by an appropriate reference thereto, and shall furnish a copy of said schedule without cost, to any person requesting the same. Said schedule shall be made a part of the contract for said works and shall continue to be the minimum rate or rates of wages for said employees during the life of the contract. Any person engaged in the construction of said works shall cause a legible copy of said schedule to be kept posted in a conspicuous place at the site of said works during the life of the contract. The aforesaid rates of wages in the schedule of wage rates shall include payments by employers to health and welfare plans, pension plans and supplementary unemployment benefit plans as provided in the previous section, and such payments shall be considered as payments to persons under this section performing work as herein provided. Any employer engaged in the construction of such works who does not make payments to a health and welfare plan, a pension plan and supplementary unemployment benefit plan, where such payments are included in said rates of wages, shall pay the amount of said payments directly to each employee engaged in said construction. Note: The Awarding Authority does not guarantee the accuracy of any schedule of wage rates furnished to the Contractor hereunder, and the Contractor shall be responsible for ascertaining the prevailing wages in the area where the work will be performed.

- 2.3** Employment Records To Be Kept By Contractor, Subcontractors; Statement of Compliance: (Statutory reference: M.G.L. Chapter 149, Section 27B). This Paragraph 2.3 applies to every contract or subcontract for the construction of public works by the Commonwealth, or by a county, town or district.
- 2.3.1** Every Contractor, Subcontractor or public body engaged in said public works to which Paragraph 2.3 of these Supplementary General Conditions applies shall keep a true and accurate record of all mechanics and apprentices, teamsters, chauffeurs and laborers employed thereon, showing the name, address and occupational classification of each such employee and shall furnish to the Commissioner of Labor and Industries, upon his request, a copy of said record, signed by the employer or his authorized agent under the penalties of perjury. Such records shall be open to inspection by any authorized representative of the Department of Labor and Industries at any reasonable time, and as often as may be necessary.
- 2.3.2** Each such Contractor, Subcontractor or public body shall preserve its payroll records for a period of three (3) years from the date of completion of the contract.
- 2.3.3** Each such Contractor, Subcontractor or public body shall furnish to the Commissioner of Labor and Industries within fifteen (15) days after completion of its portion of the work a statement, executed by the Contractor, Subcontractor, or public body who supervises the payment of wages, in the following form.

STATEMENT OF COMPLIANCE

I _____
(Name of Signatory Party) (Title)

Do hereby state:

That I pay or supervise the payment of the persons employed by

(Contractor, Subcontractor or Public Body)

On the _____ and that all mechanics
(Building or Project)

And apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of Sections 26 and 27 of Chapter 149 of the General Laws.

Signature _____

Title _____

The above-mentioned copies of payroll records and statements of compliance shall be available for inspection by any interested party filing a written request to the Contractor for such inspections.

2.4 Wages Paid to Operators of Trucks and Other Equipment: (Statutory reference: M.G.L. Chapter 149, Section 27F). This Paragraph 2.4 applies to every contract for the construction of public works by the Commonwealth, or by a county, city, town or district.

2.4.1 Prescribed rates of wages, as determined by the Commissioner of Labor and Industries, shall be paid to the operators of all trucks, vehicles or equipment employed on the Project. Said rates of wages shall be requested of said Commissioner by the Awarding Authority and shall be furnished by the Commissioner in a schedule containing the classification of jobs, and the rate of wage to be paid for each job. Said rates of wages shall include payments to health and welfare plans, or, if no such plan is in effect between employers and employees, the amount of such payments shall be paid directly to said operators.

2.5 Reserve Police Officers: (Statutory reference: M.G.L. Chapter 149, Section 34B). This Paragraph 2.5 applies to every contract for the construction, alteration, maintenance, repair or demolition of, or addition to, any public works for the Commonwealth or any political subdivision thereof.

2.5.1 The contractor shall pay to any reserve police officer employed by him in any city or town the prevailing rate of wages paid to regular police officers in such city or town.

- 2.6** Eight-Hour Day, etc.: (Statutory reference: M.G.L. Chapter 149, Sections 30, 34, and 34A). This Paragraph 2.6 applies only to contracts, which are subject to the provisions of the aforesaid Sections of the Massachusetts General Laws.
- 2.6.1** No laborer, worker, mechanic, foreman or inspector working within this Commonwealth in the employ of the Contractor, Subcontractor or other person doing or contracting to do the whole or part of the work contemplated by the contract, shall be required or permitted to work more than eight (8) hours in any one (1) day or more than forty-eight (48) hours in any one (1) week, or more than six (6) days in any one (1) week, except in cases of extraordinary emergency.
- 2.7** Lodging, etc.: (Statutory reference: M.G.L. Chapter 149, Section 25). This paragraph 2.7 applies to every contract for the doing of public work with the Commonwealth, a county, city or town, or with a department, board, commission, or officer acting therefore.
- 2.7.1** Every employee under this contract shall lodge, board and trade where and with whom he elects, and neither the Contractor nor his agents or employees shall, either directly or indirectly, require as a condition of the employment of any person that the employee shall lodge, board or trade at a particular place or with a particular person.
- 2.8** Access to Contractor's Records: (Executive Order No. 195). This Paragraph 2.8 applies to every contract for the purchase of services or materials by any agency, bureau, board, commission, institution, or department of the Commonwealth or a municipal contract funded, in whole or in part, by the Commonwealth.
- 2.8.1** The Governor or his Designee, the Secretary of Administration and Finance, and the State Auditor or his Designee shall have the right at reasonable times and upon reasonable notice to examine the books, records and other compilations of data of the Contractor which pertain to the performance and requirements of this contract.
- 2.9** Worker's Compensation Insurance: (Statutory reference: M.G.L. Chapter 149, Section 34). This Paragraph 2.9 applies to every contract for the construction, alteration, maintenance, repair or demolition of, or addition to, any public building or other public works for the Commonwealth or any political subdivision thereof.
- 2.9.1** The Contractor shall, before commencing performance of the contract, provide by insurance for the payment of and the furnishing of other benefits under M.G.L. Chapter 152 to all persons to be employed under the contract, and the Contractor shall continue such insurance in full force and effect during the term of the contract. Sufficient proof of compliance with this Paragraph 2.9 must be furnished at the time of execution of this contract. Failure to provide and continue in force such insurance as aforesaid shall be deemed a material breach of the contract and shall operate as an immediate termination thereof. No cancellation of such insurance, whether by the insurer or by the insured, shall be valid unless written notice thereof is given by the party proposing cancellation to other party and to the Awarding Authority at least fifteen (15) days prior to the intended effective date thereof, which date shall be expressed in said notice.

ARTICLE 3 - CONTRACTOR'S ACCOUNTING METHOD REQUIREMENTS

- 3.1** (Statutory reference: M.G.L. Chapter 30, Section 39R). This Article 3 applies to "Contracts" and "Contractors", as defined in Subparagraph 3.1.1 and 3.1.2, below.
- 3.1.1** "Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a contract pursuant to Section 39M of Chapter 30, Sections 44A-44J inclusive, of Chapter 149, and Sections 30B-30P, inclusive, of Chapter 7.
- 3.1.2** "Contract" means any contract awarded or executed pursuant to Sections 30B-30P, inclusive, of Chapter 7, and any contract awarded or executed pursuant to Section 39M of Chapter 30, or Sections 44A-44H, inclusive, of Chapter 149, which is for an amount or estimated amount that exceeds the dollar amount set forth in M.G.L. Chapter 30, Section 39R.
- 3.1.3** "Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.
- 3.1.4** "Independent Certified Public Accountant" means a person duly registered in good standing and entitled to practice as a certified public accountant under the laws of the place of his/her residence or principal office who is in fact independent. In determining whether an accountant is independent with respect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the Awarding Authority.
- 3.1.5** "Audit", when used in regard to financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressing a CERTIFIED opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons.
- 3.1.6** "Accountant's Report", when used in regard to financial statements, means a document in which an independent certified public accountant indicates the scope of the audit which he/she has made and sets his/her opinion regarding the financial statements taken as a whole with a listing of noted exceptions and qualifications, or an assertion to the effect that an overall opinion cannot be expressed. When an overall opinion cannot be expressed, the reasons therefore shall be stated. An accountant's report shall include as a part thereof a signed statement by the responsible corporate officer attesting that management has fully disclosed all material facts to the independent certified public accountant, and that the auditing financial statement is a true and complete statement of the financial condition of the Contractor.
- 3.1.7** "Management", when used herein, means the chief executive officers, partners, principals or other person or persons primarily responsible for the financial and operational policies and practices of the Contractor.

- 3.1.8** Accounting terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principles and auditing standards.
- 3.2** Subparagraph 3.1.2 hereof notwithstanding, every agreement or contract awarded or executed pursuant to Sections 30B-30P, inclusive, of Chapter 7, and pursuant to Section 39M of Chapter 30 or to Sections 44A-44H, inclusive, of Chapter 149, shall provide that:
- 3.2.1** The Contractor shall make, and keep for at least six (6) years after final payment, books, records, and accounts, which in reasonable detail accurately and fairly reflect the transactions and dispositions of the Contractor.
- 3.2.2** Until the expiration of six (6) years after final payment, the Awarding Authority, office of inspector general, and the Deputy Commissioner of Capital Planning and Operations shall have the right to examine any books, documents, papers or records of the Contractor or his/her Subcontractors that directly pertain to, and involve transactions relating to, the Contractor or his/her Subcontractors.
- 3.2.3** If the agreement is a contract as defined herein, the Contractor shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the Awarding Authority, including in his/her description the date of the change and reasons therefore, and shall accompany said description with a letter from the Contractor's independent certified public accountant approving or otherwise commenting on the changes.
- 3.2.4** If the agreement is a contract as defined herein, the Contractor has filed a statement of management on internal accounting controls as set forth in Paragraph 3.3 below prior to the execution of the contract.
- 3.2.5** If the agreement is a contract as defined herein, the Contractor has filed prior to the execution of the contracts and will continue to file annually, an audited financial statement for the most recent completed fiscal year as set forth in Paragraph 3.5 below.
- 3.3** Every Contractor awarded a contract shall file with the Awarding Authority a statement of management as to whether the system of internal accounting controls of the Contractor and its subsidiaries reasonably assures that:
- 3.3.1** Transactions are executed in accordance with management's general and specific authorization;
- 3.3.2** Transactions are recorded as necessary;
- (1) To permit preparation of financial statements in conformity with generally accepted accounting principles, and
- (2) To maintain accountability for assets;
- 3.3.3** Access to assets is permitted only in accordance with management's general or specific authorization;

- 3.3.4** The recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.
- 3.4** Every Contractor awarded a contract shall also file with the Awarding Authority a statement prepared and signed by an independent certified public accountant, stating that he/she has examined the statement of management on internal accounting controls, and expressing an opinion as to:
- 3.4.1** Whether the representations of management in response to this paragraph and Paragraph 3.2 above are consistent with the result of management's evaluation of the system of internal accounting controls; and
- 3.4.2** Whether such representations of management are, in addition, reasonable with respect to transactions and assets in amounts, which would be material when measured in relation to the applicant's financial statements.
- 3.5** Every Contractor awarded a contract by the Commonwealth or by any political subdivision thereof shall annually file with the Awarding Authority during the term of the contract a financial statement prepared by an independent certified public accountant on the basis of an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report.

ARTICLE 4 - MISCELLANEOUS

- 4.1** Weather Protection: This Paragraph 4.1 applies to every contract subject to M.G.L. Chapter 149, Section 44A.
- 4.1.1** The Contractor shall install weather protection and provide adequate heat in the protected area from November 1 to March 31, as required by M.G.L. Chapter 149, Section 44F(1).
- 4.2** Form for Sub-contract: This Paragraph 4.2 applies to every contract subject to M.G.L. Chapter 149, Section 44A.
- 4.2.1** The Contractor when sub-contracting with sub-bidders filed pursuant to M.G.L. Chapter 149, Section 44F shall use the form for sub-contract in Chapter 149, Section 44F(4)(c).
- 4.3** Foreign Corporations: This Paragraph 4.3 applies to every contract with the Commonwealth, a county, city, town, district, board, commission, or other public body for the construction, reconstruction, alteration, remodeling, repair, or demolition of any public building or other public works.
- 4.3.1** The Contractor, if a foreign corporation, shall comply with M.G.L. Chapter 181, Sections 3 and 5, and Chapter 30, Section 39L.
- 4.4** Shoring: (Statutory reference: M.G.L. Chapter 149, Section 129A). This Paragraph 4.4 applies to every construction project carried on by any city, town, county, or other subdivision of the Commonwealth in which a trench is to be dug to a depth of six and one-half (6 ½) feet which will be open less than forty-eight (48) hours, and except for digging of graves.

- 4.4.1** Trenches shall be shored and braced in conformity with rules and regulations relating thereto, adopted and enforced by the Department of Labor and Industries.
- 4.5** Certification of Compliance with Tax Laws: (Statutory reference: M.G.L. Chapter 62C, Section 49A). This Paragraph 4.5 applies to contracts for goods or services furnished by any department, board, commission, division, authority, district or other agency of the Commonwealth or any subdivision of the Commonwealth, including a city, town or district.
 - 4.5.1** By executing this contract, the Contractor certifies, under penalties of perjury, that to the best of his information, knowledge and belief he has complied with all laws of the Commonwealth relating to taxes.
- 4.6** Verification of Construction Debris Disposal: Worcester Revised Ordinances, Chapter 8, Section 7. This Paragraph 4.7 shall apply to every contract entered into by the City of Worcester for the demolition, renovation, rehabilitation, or alteration of a building or structure.
 - 4.6.1** In furtherance of the requirements set forth in M.G.L. Chapter 40, Section 54, and Section 114.1.3 of the Massachusetts State Building Code, the Code Director shall require any person who obtains a permit for the demolition, renovation, rehabilitation, or alteration of a building or structure to provide verification that the debris resulting from such activities was disposed of at the licensed solid waste facility named in conjunction with the permit application.
 - 4.6.2** The verification required under sub-section (a.), above, shall consist of the following:
 - 4.6.2.1** A dated receipt, signed by the owner/operator of the licensed solid waste disposal facility where the debris was deposited.
 - 4.6.2.2** The receipt shall contain a description of the debris disposed of, and its weight, or volume.
 - 4.6.2.3** The permit holder shall also provide the Code Director with an affidavit that the receipt submitted is true and accurate to the best of the permit holder's knowledge.
 - 4.6.2.4** If the permit holder cannot dispose of the debris at the location indicated, it shall be the permit holder's obligation to obtain an amendment to the permit reflecting the new disposal location. The Code Director shall be so notified, and the permit amended, prior to the disposal of the debris at the new disposal location.
 - 4.6.3** This Section shall not apply to the construction of a new building or structure.
- 4.7** Responsible Employer Ordinance: (Worcester Revised Ordinances, Chapter 2, Section 35) This paragraph shall apply to every contract entered into by the City of Worcester for the construction, reconstruction, installation, demolition, maintenance or repair of any building, where the contract amount is more than one hundred thousand dollars (\$100,000).

4.7.1 The city council hereby finds and determines that the failure of certain construction firms awarded contracts funded by the city to include and enforce provisions requiring compliance with state laws governing the payment of prevailing wages, the provision of workers compensation coverage, and the proper classification of individuals as employees and not as independent contractors, as well as provisions concerning health insurance coverage and state-certified apprenticeship programs, is injurious to the life, health and happiness of individuals employed by such firms and is deleterious to the quality of life in the city where most of such individuals reside.

4.7.2 Every contract awarded by the city under G.L. c. 149, § 44A(2) where the amount of the contract is more than one-hundred thousand dollars, and any subcontract awarded in connection with any such general contract where the amount of such subcontract is more than twenty-five thousand dollars, shall be deemed to incorporate by reference the provisions of sub-parts (1) through (6) of this subsection together with the provisions of subsections (c), (d) and (e) of this section.

4.7.2.1 The bidder and all subcontractors under the bidder shall comply with the city residents jobs ordinance codified as § 32 of chapter two of the Revised Ordinances of 1996;
(Compliance with the City Residents Jobs Ordinance is currently suspended)

4.7.2.2 The bidder and all subcontractors under the bidder shall comply with the requirements of G.L. c. 149 concerning the payment of prevailing wage rates to their employees;

4.7.2.3 The bidder and all subcontractors under the bidder must maintain and participate in a bona fide apprentice training program as defined by G.L. c. 23, §§ 11H & 11I for each apprenticeable trade or occupation represented in its workforce that is approved by the division of apprentice training of the Department of Labor and Industries of the Commonwealth and must abide by the apprentice to journeymen ratio for each trade prescribed therein in the performance of the contract; COMPLIANCE WITH APPRENTICE TRAINING PROVISIONS OF THE RESPONSIBLE EMPLOYER ORDINANCE IS CURRENTLY SUSPENDED.

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4.7.2.5 The bidder and all subcontractors under the bidder must maintain appropriate industrial accident insurance coverage in accordance with G.L. c. 152 for all individuals employed on the project;

4.7.2.6 The bidder and all subcontractors under the bidder must properly classify individuals employed on the project as employees rather than independent contractors and comply with all laws concerning workers' compensation insurance coverage, unemployment taxes, social security taxes and income taxes as respects all such employees.

4.7.3 All bidders and all subcontractors under such bidders who are awarded, or otherwise obtain, contracts from the city on projects governed by G.L. c. 149, § 44A(2), shall

comply with the obligations described in sub-parts (1) through (6) of subsection (b) of this section for the entire duration of their work on the project, and an officer of each such bidder or subcontractor under the bidder shall certify under oath and in writing on a weekly basis that they are in compliance with these obligations.

4.7.4 Any bidder or subcontractor under the bidder who fails to comply with any of the obligations described in sub-parts (1) through (6) of subsection (b) of this section for any period of time or fails to comply with the weekly certification obligations described in subsection (c) of this section shall be subject to any or all of the following sanctions:

4.7.4.1 Temporary suspension of work on the project until compliance is obtained; or,

4.7.4.2 Withholding by the city of payment due under the contract until compliance is obtained; or,

4.7.4.3 Permanent removal from any further work on the project; or,

4.7.4.4 Recovery by the city from the general contractor of 1/10 of 1 % of the general contract or one thousand dollars (\$1000.00), whichever is greater, in the nature of liquidated damages assessed for each week that the general contractor is in non-compliance or, if a subcontractor is in non-compliance, the recovery by the City from the general contractor as a back-charge against the subcontractor of 1/10 of 1% of the subcontract price, or \$400.00, whichever is greater, in the nature of liquidated damages assessed for each week that the subcontractor is in non-compliance.

4.7.5 In addition to these sanctions a general bidder or contractor shall be equally liable for any violation of the obligations described in sub-parts (1) through (6) of subsection (b) of this section committed by any of its subcontractors or sub-bidders, excepting only those violations which arise from work performed by subcontractors with subcontracts governed by G.L. c. 149, § 44F. Any contractor or subcontractor who has been determined to have violated any of the provisions of subsections (b) or (c) of this section shall be barred from performing any work on any future contracts awarded by the city for six (6) months for the first violation, three (3) years for the second violation, and permanently for a third violation.

4.7.6 The provisions of this section shall not apply to construction projects for which the low general bid was less than one-hundred thousand dollars, (\$100,000) or to work performed pursuant to subcontracts governed by G.L. 149, §44F where the bid for such subcontract was less than twenty-five thousand dollars (\$25,000).

4.8 Regulation of Construction Noise: (Worcester Revised Ordinances, Chapter 8, Section 34). This paragraph 4.8 shall apply to anyone operating powered construction equipment or delivering construction equipment and/or supplies at any construction site or project within the city of Worcester.

4.8.1 It shall be unlawful for any person, firm, corporation, partnership, or other entity to warm up or operate powered construction equipment or to build, erect, construct, demolish, alter, repair, excavate or engage in hoisting, grading, site work, including tree and brush removal, dredging or pneumatic hammering, or to deliver construction equipment and/or supplies to the site on any building, road, tower, parking lot, machine, pipe, sewer,

sidewalk, or any other construction project (hereafter collectively the “construction project”), except between the hours of 7:00 a.m. and 9:00 p.m. on weekdays and Saturday, and between the hours 9:00 a.m. and 7:00 p.m. on Sundays except for “emergency work” which is performed in the interest of public safety or welfare and for which a permit has been issued by the commissioner of Code Enforcement (the Commissioner).

4.8.2 Emergency work permits may be issued in:

- 4.8.2.1** Cases of urgent necessity and for the interests of health, safety and convenience of the public. The Commissioner shall consider whether the reasons given for the urgent necessity are valid and reasonable, and whether the health, safety and convenience of the public will be protected or better served by granting the permit requested and whether the manner and amount of loss or inconvenience to the party in interest imposes a significant hardship; or,
- 4.8.2.2** Cases where because the location and nature of the work the noise caused by said work will not be heard by anyone not working on the project. The Commissioner shall consider whether supplying machinery and/or materials to the construction project site will cause unreasonable noise along the routes to the construction project site, and whether such activity will impact residential neighborhoods, and shall not grant any emergency work permit unless unreasonable noise in residential areas will be prevented.
- 4.8.2.3** Emergency work permits may be issued to the general contractor on a blanket basis that applies to all of the contractors working on the job, or may be issued to specific contractors on the construction project, at the discretion of the Commissioner. Emergency work permits may be issued for not more than one week at a time, and may be renewed for additional one-week periods at the discretion of the Commissioner.
- 4.8.2.4** Prior to issuing or reissuing said emergency work permit the Commissioner shall review the work being conducted and all attendant circumstances, and shall prescribe whatever limitations possible to minimize the generation of noise, and to minimize the impact of noise on the neighbors to the construction project.
- 4.8.2.5** Emergency repair work performed by the Department of Public Works and/or any public utility is exempt from this section.
- 4.8.2.6** The fee for each such Emergency work permits issued under this section shall be set in accordance with Chapter 2, § 24 of these ordinances.
- 4.8.2.7** On any project for the construction, construction, installation, demolition, maintenance or repair of any building, or public work, to be funded in whole or in part by city funds, or funds which, in accordance with a federal or state grant, program, or otherwise, the city expends or administers, or any such project to which the city is a signatory to the contract therefore, the provisions of this section shall apply and the same shall be referenced in every invitation to bid for such project and, the following paragraphs shall be contained in every resulting contract there from:
- (1) “It shall be a material breach of this contract if the contractor and each subcontractor on shall not at all times adhere to the provisions of § 34 of chapter eight of the

Revised Ordinances of the city, by limiting their on-site, noise producing construction and related work to the hours specified by the Ordinance.

- (2) A waiver from the above requirements may, in certain circumstances, be granted in accordance with subsections (b), (c) and (d) of § 34 of chapter eight of the Revised Ordinances of the city.”

4.8.2.8 The Commissioner of the Department of Code Enforcement shall have the authority to adopt any rules and regulations he or she deems necessary to implement this section.

4.8.2.9 Nothing in this section shall be deemed to prevent an individual from performing work on his or her own property, so long as the work is being done by the owner of the property or by direct relatives of the owner, and said work is not being done for profit.

4.8.2.10 This ordinance may be enforced by any Building Inspector and/or Health and Code Inspector assigned by the Commissioner of the Departments of Public Health and Code Enforcement and the Police Department.

4.8.2.11 Any violation of this ordinance by any person, firm, corporation, partnership, or other entity, shall be individually punished with a fine of \$100.00. Each day upon which a violation of this ordinance occurs shall be considered a separate violation. Employers shall be deemed the violator for violations committed by their employees.

END OF SECTION 00300

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

Section 00 73 00

SUPPLEMENTARY INSTRUCTIONS TO
BIDDERS

These Supplementary Instructions to Bidders are intended to assist bidders in establishing items of work required as part of performance of their scope of work and shall be considered by trade contractors and non-trade contractors alike in the preparation of bids.

The items listed in this section are not intended to represent a complete list of work items to be performed under the referenced subcontractor's scope of work, rather they are intended to supplement language already included in the specifications and provide additional information to assist subcontractors in the preparation of bids.

The Construction Manager is Fontaine/W.T. Rich, but Fontaine Bros. will serve as the operating partner for the joint venture. Therefore, Fontaine/W.T. Rich, FBI, and Fontaine Bros., CM are used interchangeably throughout and all refer to Fontaine/W.T. Rich in its role as construction manager.

Should any subcontractor require further clarification prior to submission of a bid, forward a Request for Information to Fontaine/W.T. Rich immediately.

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- 1. General Requirements and Inclusions for ALL Subcontractors**
- 2. Procedures and Requirements for Submission of Bids**
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- 6. Safety**
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- 8. Change Orders**
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- 12. Mockups**
- 13. Closeout**
- 14. Trade Specific Scope Notes**

- 1. General Requirements and Inclusions for ALL Subcontractors (Trade and Non-Trade).**

1. All components of these Supplementary Instructions to Bidders shall apply to all subcontractors. Provisions to comply with these conditions shall be included in bids.
2. In the Contract Documents, the word "Contractor", "General Contractor", "Trade Contractor" or "Subcontractor" shall mean and shall be interpreted as being the "Subcontractor" or "Trade Contractor" whose scope of work includes that portion of the work or specifications. In the event that work of a specification section is spread over several "scopes of work", each requirement shall apply to the subcontractor in regard to work being performed under their scope of work.
3. Subcontractors are responsible for complete and comprehensive review of contract drawings and specifications. Bid prices are assumed to include labor, materials, insurance, taxes, fees, and all other costs associated with delivering the complete

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

- scope of work in proper working order in accordance with the contract documents.
4. If a conflict exists between the drawings and specifications or within either document itself, the better quality or greater quantity of work shall be included in the subcontractor's bid. An RFI should be submitted immediately upon discovery of any such conflict. If an RFI is not submitted and work is commenced, this is done at the subcontractor's risk.
 5. Whenever the contract documents require a professional engineer's stamp, review or report, it shall be understood to mean a Professional Engineer licensed and registered in the Commonwealth of Massachusetts.
 6. Subcontractors shall be responsible for all permits, including associated fees, to complete their work (except the General Building Permit) and shall be responsible for coordinating, scheduling, and completing the associated inspections within the time period allotted for construction of their trade on the project schedule. Inspections shall be coordinated and completed in advance of contract dates when possible and at no extra cost at the direction of Fontaine/W.T. Rich. Participate with the inspection walk throughs as required by the contract and as requested by the Construction Manager. Provide suitable access for inspectors to perform all tests or inspections. Contractor supplied temporary ladders and lifts to perform their work are to be available for the use of all parties.
 7. Subcontractors shall be responsible for all local hot work permits, fire watch details, and police details as may be required for their own work. Welders to obtain City of Worcester Welding Certificates. Subcontractors requiring a hot work permit must provide proof of completed training. Training shall be approved by the State Fire Marshal.
 8. Project communications, during both the bid and construction stages, shall be directed to Fontaine/W.T. Rich. Direct communication with the design team, owner, owner's project manager etc. is prohibited.
 9. All employees on the worksite must have completed OSHA 10 Training.
 10. Theft or vandalism of tools, equipment, materials, etc. are not the responsibility of Fontaine/W.T. Rich.
 11. Subcontractors shall provide offsite storage of all materials until installation, unless previously authorized by Fontaine/W.T. Rich. to deliver and store materials on site. Materials brought to site must be palletized for ease of relocation at the direction of the CM to facilitate construction activities.
 12. Subcontractors whose scope of work includes the installation of materials shall include ALL fasteners, adhesives, and other components necessary for the complete and functional installation of materials within their scope of work UNLESS any of these components are specifically designated to another scope of work.
 13. CM to provide access to electronic documents, including CAD files after waiver is signed and returned. Subcontractor shall be responsible for procurement/maintenance of hard copy and electronic drawings, specifications, and shops drawings.
 14. CM to provide access to Procore project site, subcontractor to monitor project information and communications to identify and respond to all information including changes affecting their scope of work.
 15. All subcontractors are responsible for layout, CM will provide control points.
 16. All cutting/patching in masonry is by Masonry Subcontractor. All cutting/patching in other surfaces is by the subcontractor requiring the surfaces to be cut. All holes through structural steel noted on the contract set shall be located by subcontractors as part of the coordination documents for fab/install by steel subcontractor.
 17. All fire caulking and acoustical sealant at mechanical penetrations is by subcontractor requiring penetrations. All fire caulking and acoustical sealant not at mechanical penetrations is by drywall subcontractor. Mechanical subcontractors shall include Fire Protection, Plumbing, HVAC, Electrical subcontractors and their sub subcontractors.

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

- All fire caulking shall be installed by a certified installer. Proof of certification must be included in fire caulking submittal by each contractor.
18. All subcontractors shall coordinate hangers, clips, attachments, track, embeds, etc. with the fireproofing subcontractor. All items shall be installed prior to fireproofing. Should any items be installed after fire proofing, the installing contractor shall be responsible for removal and replacement/patching of fireproofing.
 19. Subcontractor shall provide mock ups per specifications; subcontractor shall provide standalone mockups unless in place mockups are expressly permitted.
 20. There will be a mockup classroom completed inside of the building. Construction of the mockup room will be completed out of sequence and will be used for quality review and standard for all future construction.
 21. Subcontractors are responsible for provision of power for their equipment if equipment cannot be powered by available on-site sources. Electrical subcontractor responsible for hooking up all equipment including special equipment such as masonry saws, grinders, and temporary heat equipment.
 22. Subcontractors shall be responsible for any water required to operate their equipment that is not readily available on site. Temporary water may be used as available.
 23. Subcontractors shall be responsible for providing their employees with drinking water.
 24. All trades shall provide suspension systems/hangers/supports/seismic restraints as required for their respective equipment and work.
 25. Subcontractors shall provide their own task lighting required to complete their scope of work. Temporary construction lighting/power meeting or exceeding OSHA standards and as dictated in the specifications shall be provided by the electrical subcontractor.
 26. Deliveries shall be coordinated with Fontaine/W.T. Rich's site Superintendent a minimum of 48 hours in advance.
 27. Subcontractor work hours shall be between 7:00 AM and 3:30 PM, Monday through Friday. Work shall not begin prior to 7:00 or continue past 5:00 PM Monday through Saturday nor shall work be performed on Saturday or Sunday without previous permission from Fontaine/W.T. Rich. and the City of Worcester. Work hours shall not be changed unless unusual circumstances require adjustment.
 28. Consideration will be given to all SOMWBA certified subcontractors, materials suppliers, fabricators, and service providers on this project.
 29. Review job conditions as soon as they become available and prior to commencing work. Advise Fontaine/W.T. Rich of any unacceptable conditions with adequate notice to make any required repairs prior to scheduled start of work; commencement of work indicates subcontractor accepts job conditions.
 30. Contractual warranties shall commence upon the date that the CM receives a Certificate of Occupancy for the building or date of final acceptance of system by OWNER, whichever is later. Subcontractor shall provide all necessary extended warranties to account for the time period from the completion of their work through July 1, 2021 or substantial completion, whichever is later. Site/ Landscape warranty will begin August 1, 2022 or substantial completion of Phase 3, whichever is later.
 31. Subcontractor shall provide Construction Daily Reports detailing daily manpower, activities and locations for subcontractor's work, and work of all employees and subcontractors for which this contractor is responsible. Reports shall be filled out and emailed to Fontaine/W.T. Rich daily.
 32. The CM shall have the right to assemble subcontractor personnel for orientation, quality, and safety related matters at no additional cost.
 33. Each subcontractor shall keep a sign-in book for their workers. Each worker must sign in and out daily and copies of the daily logs must be submitted to Fontaine/W.T. Rich. on a weekly basis.
 34. Subcontractor shall provide any power required to perform work outside of the building. Outside power will not be provided by the Owner/Construction Manager.

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

35. Each subcontractor is required to adhere to, participate in, and provide all items as described in the Indoor Air Quality Management Plan. Strict adherence to this plan is required by each subcontractor. Subcontractors shall take date stamped photos documenting compliance with such measures such as protection of absorptive materials, protection of ductwork, and source separation.
36. Each subcontractor is responsible for provision of, coordination of, and installation of sleeving/penetrations required for their work in foundation walls, decking, slabs, walls and the like. Subcontractor whose system requires sleeving/penetrations shall be responsible for any coring, cutting, patching required for installation of your work if sleeving is not coordinated with other subcontractor at appropriate time. Sleeving required in early release package installations that is required to be furnished/installed prior to procurement of appropriate trades shall be furnished/installed by early release subcontractor whose assembly requires sleeving/coring. Subcontractors must coordinate to sleeves/cores located by early release subcontractor or provide new sleeves/cores in an alternate location. Abandoned sleeves/cores must be repaired/patched by the subcontractor abandoning the penetration. Subcontractors are responsible for all coring associated with completing their scope of work. Holes greater than 4" shall not be cored without prior approval by CM. All sleeves, penetrations, holes, cores, cutting, patching, etc shall be submitted to the design team for review and approval before work commences.
37. Fontaine/W.T. Rich shall have discretion and authority to terminate subcontracts without recourse if, in the discretion of Fontaine/W.T. Rich, the subcontractor in question is not fulfilling contract obligations including meeting schedule, manpower, material procurement or other goals/criteria.
38. Site subcontractor shall include an allowance for snow removal and sanding for access to the building and access to staging and storage area as directed by Fontaine/W.T. Rich, including hand removal at OPM/CM trailers/entrances etc, for the duration of the project. Each subcontractor is responsible for their own snow removal to access their work and at any subcontractor trailer/laydown areas if made available on site.
39. Costs for material escalation shall be included in bid proposals. Costs for material escalation including asphalt, drywall, etc. shall be at the risk of the subcontractor.
40. All subcontractors shall take precautions against damaging the work of other trades including roofing. In the event that work is performed on the roof, subcontractors shall provide protection of the roof membrane to ensure that their work/material does not puncture the roof membrane. In the event that subcontractors fail to provide protection or damage the roofing membrane, costs for repairs shall be borne by the offending subcontractor(s).
41. All subcontractors shall make provisions to provide a working computer for their foreman on site. Computer shall have access to the internet and shall also provide access to BIM model in the event that subcontractors are of MEPFP trades. Subcontractors shall use computer to access shop drawings, submittals, etc. as necessary. Subcontractors shall provide and pay for their own internet access.
42. Manufacturer, supplier, and or subcontractor requirements that must be met prior to material delivery, installation, or fabrication must be made available to CM for review prior to acceptance of subcontractor's bid. Requirements not spelled out in the contract documents that are brought to the attention of the CM at a later date will not be considered. These include requirements having to do with building climate, warranties, and project specific conditions. If requirements are not brought to the CM's attention prior to material delivery, the installing contractor shall be required to meet all of the manufacturer's requirements.
43. No person shall perform testing on site or related to the project without the prior direction and permission of the project team.
44. There shall be no deliveries or vehicles entering or exiting the site during busy hours

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

- at the school. Subcontractors shall adhere to a "blackout period" between 7:00 am and 7:30 am and between 1:30 pm and 2:30 pm while school is in session. CM has the discretion to modify the blackout hours as necessary to facilitate work.
45. Subcontractors shall not park on Apricot Street, the South Community High School parking lots, the Sullivan Middle School parking lots, or any streets adjacent to the project site. Offsite parking and shuttling, if required, shall be paid for and arranged by subcontractors.
 46. References to any project other than **South Community High School** are understood to be errors. Subcontractor shall assume to all references in specification apply to **South Community High School**, located in Worcester, MA.
 47. All subcontractor personal working on site will be required to complete a Criminal Offender Record Information (CORI) check. Employment on site is subject to results of the CORI check. All CORI applications shall be submitted two weeks prior to starting on site.
 48. All references in the contract documents to the Construction Manager/General Contractor as performing any field work or providing services in connection with any aspect of the work shall be understood to mean the subcontractor.

2. Procedures and Requirements for Submission of Bids

1. Subcontractors shall submit bids for the project on the bid forms provided by Fontaine/W.T. Rich or the owner and in accordance with the instructions to bidders in the specifications. Bids shall include the complete scope of work included in each subcontractors bid package, exclusions shall not be considered.
2. By submitting a bid, subcontractor certifies that they have included provisions for complying with these supplementary instructions to bidders. Furthermore, subcontractor agrees to abide by these supplementary instructions to bidders. Subcontractor understands that execution of a contract certifies acceptance of these supplementary instructions to bidders.
3. Subcontractors submitting bids shall hold their bids for a minimum of 90 days.

3. Submittals

1. This project will utilize Procore for document distribution and processing. Subcontractors will be given access to Procore upon contract award, and shall be furnished either instructions for use or given access to online training sessions regarding operation of the Procore website. All project communications must be submitted through Procore. Subcontractors shall be given access to Procore and shall pay no fee for access.
2. It is the intent of the project team to process and distribute documents electronically to the fullest extent possible. Subcontractors shall provide shop drawings, submittals, product data sheets, MSDS sheets, etc. in electronic format acceptable to the project team. In the event that shop drawings are large format, such as structural steel, millwork, etc., subcontractor shall provide up to (4) hard copies of each submission at no additional cost to the project. Hard copies of approved/corrected shop drawings shall be provided upon request by the CM at no additional cost. Charts, physical samples, etc. shall be delivered with a transmittal and photo of each sample uploaded to Procore as a means to track the sample approval and/or color selection.
3. The Construction Manager shall maintain a database of electronic files available for access by subcontractors on the Procore website; subcontractors shall be responsible for reviewing electronic documents and taking appropriate action to ensure the incorporation of all project documents including RFI's, ASI's, etc. into their work. In addition, the construction manager may elect to utilize a Bluebeam Studio of electronic files available for access by subcontractors; subcontractors shall be

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

responsible for reviewing electronic documents and taking appropriate action to ensure the incorporation of all project documents including RFI's, PR's, ASI's, etc. into their work.

4. Within (14) days of written notice of intent, subcontractor shall provide via email to Fontaine/W.T. Rich a submittal schedule for their work. Submittal schedule shall be in the format provided by Fontaine/W.T. Rich. Failure to provide submittal schedule within (14) days of notice of intent shall result in payments to subcontractor being held until satisfactory submittal schedule is provided.
5. Within (14) days of written notice of intent, subcontractor shall provide via email to Fontaine/W.T. Rich a list of Long Lead Items to be procured under the scope of the subcontractor. Long Lead Items shall be defined as any item that requires more than (30) days from the time the item is approved and ordered until the item is delivered on site. Failure to provide a list of Long Lead Items within (14) days of intent shall result in payments to subcontractor being held until satisfactory list of Long Lead Items is provided.
6. Submittals for all contractors shall be due no later than 4 weeks from the date of notice of intent to award subcontractor.
 - a. Submittals for roof top units, air handling units, and other equipment requiring coordination with the steel subcontractor, shall be due no later than 6 weeks from the date of notice of intent to award to subcontractor. Resubmittals for all subcontractors shall be due within 1 week after submittal is returned for revision.
 - b. All samples for finishes requiring color selection by the design team shall be submitted within 4 weeks of notice of intent to award. Physical samples shall include the full range of colors available for each product and as outlined in the construction documents. Samples must be labeled with specification section, color number, manufacturer, material, size, Procore submittal number, etc. A minimum of 3 sets of each physical sample are required. Sample sets will not be returned.

4. Schedule

1. Time is of the essence on this project, and subcontractors shall provide adequate manpower necessary to complete their scope of work within schedule durations outlined on Fontaine/W.T. Rich's construction schedule included within these bid documents. By submitting a bid, subcontractors acknowledge that they have reviewed the project schedule and included in their bids adequate manpower including overtime as may be necessary to achieve these durations.
2. Any overtime required to meet scheduled completion dates shall be provided at subcontractor's expense.
3. Subcontractors shall provide three week look ahead schedules in advance of weekly foremen's meeting on site. Subcontractors shall be responsible for reviewing schedules with Fontaine/W.T. Rich management and adhering to schedules. Subcontractors shall make adjustments to better schedules if possible and at the direction of Fontaine/W.T. Rich management. Three week look ahead schedules shall be formatted per CM requirements.
4. Subcontractor shall perform all work within their scope in full cooperation with other trades and coordinate the schedule and sequence of work with all other trades under the direction of Fontaine/W.T. Rich's management team. When so directed, subcontractor shall temporarily omit, or perform certain portions of the work out of normal sequence, in order to accommodate schedule requirements. Claims for additional monies as a result of out of sequence work shall not be considered by Fontaine/W.T. Rich.
5. All mobilizations necessary to complete the work are to be included as part of the subcontractor's bid.

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6. The subcontractor acknowledges that adjustments to the schedule may be required by all parties as construction progresses. Subcontractor agrees to accomplish adjustments at no increase in price.
7. It is understood that multiple crews will be required to perform concurrent work in different areas.
8. It is understood that utility shutdowns may have to be scheduled outside the normal work day. Any and all costs for this shall be included in bids.
9. No extension of time shall be granted because of seasonal or abnormal variations in temperature, humidity, or precipitation, which conditions shall be wholly at the risk of the subcontractor, whether occurring within the time originally scheduled for completion or within the period of any extension granted. There shall be no increase in the contract sum on account of any additional costs of operations or conditions resulting there from.
10. In the event of inclement weather, subcontractors shall make a determination as to whether they will require their tradespeople to report to work. There will be no compensation for such lost work days, and, at no cost to the owner/CM, the subcontractor shall make up the lost time through overtime, additional crews, or by other means necessary.

5. Meetings

1. Fontaine/W.T. Rich, at their discretion, may conduct multiple "kick-off" meetings including, but not limited to, a Green Building Kick-Off Meeting, a Project Schedule Kick-Off Meeting, a Safety Kick-Off Meeting, and others deemed appropriate. Subcontractors shall arrange for a representative of their firm authorized to make binding commitments to be present at these meetings. Subcontractors shall be notified a minimum of two days prior to these meetings, and attendance is required unless otherwise directed by the Construction Manager.
2. Fontaine/W.T. Rich, at their discretion and in conjunction with the architect/OPM/Cx etc, shall hold preconstruction meetings for individual trades/work items. Subcontractors notified of meetings shall be required to attend as a prerequisite to starting or in some cases continuing work. When requested, subcontractors shall arrange for a representative of their firm authorized to make binding commitments to be present at these meetings. Attendance at these meetings is mandatory.
3. Fontaine/W.T. Rich shall conduct weekly meetings to review schedule, safety, logistics, and other relevant construction issues. At least once per week, each subcontractor notified by Fontaine/W.T. Rich shall arrange for a project manager responsible for the subcontractor's operations and able to make binding commitments to be present on site for a meeting. In addition to this project manager, subcontractor foreman shall attend this weekly meeting.
4. The subcontractor foreman shall attend a weekly subcontractor meeting while on site and, if not mobilized to the site, when requested by the CM.
5. In the event that a subcontractor is notified of their required attendance at an onsite meeting, and the subcontractor fails to provide a project manager or foreman as required, Fontaine/W.T. Rich shall issue a written notice of non-compliance. In the event that a subcontractor fails a second time, Fontaine/W.T. Rich shall issue a fine of \$500. Fontaine/W.T. Rich shall issue a fine of \$500 for each subsequent failure, and these fines shall not be subject to appeal.

6. Safety

1. Fontaine/W.T. Rich's Site-Specific Safety Program shall be strictly enforced. Subcontractors are responsible for reviewing the Safety Program provided in these documents and complying with the plan and OSHA standards.

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2. All workers shall review new employee orientation requirements and sign, date and return a completed new employee orientation form to Fontaine/W.T. Rich site superintendent prior to commencing work on site.
3. Subcontractors shall provide (3) copies of their written safety plan on site at all times. (1) copy shall be maintained in the Fontaine/W.T. Rich Field Office, (1) copy shall be maintained in the subcontractor field office, and (1) copy shall be kept on site/in the building for the foreman to reference as construction progresses. It is the responsibility of each subcontractor to provide their written safety plan before commencing work on site.
4. A fall protection system that meets or exceeds OSHA Regulations is to be provided and maintained by each subcontractor at all times. Details of the fall protection program must be included in the written safety plan. All components of fall protections systems for each trade including anchors, lanyards, and harnesses are to be furnished, installed, maintained, and removed by each individual trade utilizing the fall protection system.
5. All subcontractors shall comply with 6' fall protection rules. All fall protection equipment, including tie off points, shall be furnished and installed by subcontractors and shall be supplied by each employer.
6. Subcontractors shall provide appropriate SDS sheets to Fontaine/W.T. Rich's superintendent whenever delivering materials to the site. A complete SDS book shall be kept on site at all times, containing SDS sheets for all materials that are stored or being used on site.
7. All tools & equipment powered by electricity used by subcontractors are required to have ground fault circuit interrupters, supplied and maintained by the respective subcontractors. When using permanent power supply, the GFCI protection must be supplied and maintained by respective subcontractors as necessary.
8. No radios will be allowed on site. No headphones shall be worn on site. Hearing protection is acceptable for safety purposes only. Hearing protection shall be supplied by subcontractors for their employees.
9. All employees on site shall wear hard hats and high visibility clothing at all times. All employees shall wear safety glasses for task specific hazard protection.
10. Employees working outside of the building shall wear reflective safety vests at all times.
11. Subcontractor shall supply their employees with all required safety material.
12. Subcontractors shall supply employees with personal protective equipment such as safety glasses, face shields, respirators, gloves, concrete boots, etc. to be worn when appropriate.
13. Subcontractor shall adhere to all applicable safety regulations and shall be responsible for complying with safety requirements as defined in Section 13 of the General Conditions of the CM at Risk Contract as it relates to subcontractors' work on site.
14. Subcontractors shall furnish, install, maintain and remove tie downs and harnesses etc. for work that requires them. Roofer shall be responsible for patching holes in roof after tie downs are removed.
15. All workers shall check in at the CM trailer on their first day on site for orientation and issuance of ID sticker.

7. Payments and Requisitions

1. Subcontractors shall submit a schedule of values to Fontaine/W.T. Rich within (14) days of receipt of subcontract/purchase order. Schedule of values shall be broken down to separate labor and material costs and shall reference either work components (i.e. reception desk for millwork), or work areas (i.e. Brick Veneer, CL 1-3/5/A5.1)

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

2. In addition to labor and material, each subcontractor Schedule of Values shall include line items for the following
 - a. Shop Drawings
 - b. Submittals
 - c. Coordination Drawings (if applicable)
 - d. LEED Compliance
 - e. Safety (3% of contract sum)
 - f. Daily Clean Up (3% of contract sum)
 - g. Closeout
 - h. Commissioning for applicable trades
3. If a mobilization line item is included, a demobilization line item of equal value shall be required.
4. Monthly Requisitions shall be emailed to Fontaine/W.T. Rich no later than 5:00 p.m. on **the third Thursday of each month**. Requisitions **must** be emailed to AP@FontaineBros.com , as well as to the Project Manager's email address. Requisitions not received by the third Thursday of the month to both email addresses may not be included in that month's requisition.
5. Stored materials shall be billed and paid for in accordance with the requirements of the project specifications.
6. Retainage of 5% shall be held in accordance with project specifications.
7. Requisition review and payment procedures shall be governed by applicable Mass General Laws.
8. Requisitions will be reviewed by the project team and in the event that the design team/owner determines not to pay a requisition or line item to the full value it has been billed, Fontaine/W.T. Rich will give notice to the subcontractor. Subcontractor shall send a revised requisition reflecting the change in values within 24 hours. Requisition shall be paid based upon this revised application for pay.
9. All subcontractor requisitions shall be formatted in Fontaine/W.T. Rich standard format for this project. All submitted requisitions shall be a searchable, not scanned, pdf file. Files shall meet Fontaine/W.T. Rich naming convention.

8. Change Orders

1. A change in the work may be initiated in one of three ways
 - a. CM may send a request for quotation with accompanying drawings, sketches, or details.
 - b. CM may receive formal notification from subcontractor via an RFI requesting CM and A/E review
 - c. In response to an RFI response or other project document that the subcontractor feels constitutes extra work, subcontractor may submit a request for a change order to CM.
2. In the event that Fontaine/W.T. Rich issues a request for quotation or subcontractor feels that an RFI response or field condition will require extra work, subcontractor must submit to Fontaine/W.T. Rich a formal change order request within (7) days. In the event that no change order request is received within this time frame, subcontractor shall waive rights to any additional compensation.
3. Subcontractor shall submit change order requests in a format acceptable to Fontaine/W.T. Rich. Breakdown shall include, at a minimum, direct labor costs, direct material costs, direct equipment costs, labor burden costs, bond costs, and any other significant cost associated with the work. Labor rates shall be as reflected in the prevailing wage rates included in this project manual plus applicable burden, or at direct union rates as appropriate. Labor rates shall not include small tools, travel, or other non-labor related items. Subcontractors shall also include written back-up for all materials purchased in conjunction with change order work.
4. Change order requests may include a markup for overhead and profit up to 15% on

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the direct cost of the work.

5. Once a potential change order is identified and pending, affected contractors shall not proceed with the related contract work or change order work until the change order is either approved or rejected in writing. The contractor shall notify the CM if any pending change orders are affecting schedule. Subcontractors shall only proceed with change order work when directed by the CM.

9. Housekeeping

1. Subcontractors shall be responsible for daily cleanup to an onsite dumpster. Dumpsters for Roofing and Masonry shall be provided by those subcontractors. Dumpsters for all other contractors will be provided by Fontaine/W.T. Rich. All costs related to daily cleanup, including hoisting, shall be carried by subcontractors.
2. Subcontractors are responsible for daily cleanup of all waste generated by their operations, including packing material, fasteners, razor blades, pallets, dunnage, cardboard boxes, paper products and food waste from breaks and lunch, snippets of wire, sheetmetal waste, excess studs, sheetrock, sawdust etc. Packing and crating materials shall be broken down into smaller pieces before being placed in the dumpster to conserve space.
 - a. Subcontractors shall separate waste on site as much as possible, including separating metal, concrete, wood, and cardboard products for disposal into segregated dumpsters.
 - b. Subcontractors shall comply with Fontaine/W.T. Rich's waste management plan and shall ensure that waste is separated on site into segregated dumpsters to the fullest extent possible. These segregated dumpsters include dumpsters for wood, metal, concrete, drywall, and general debris.
 - c. In the event that a subcontractor fails to complete daily cleanup to the satisfaction of Fontaine/W.T. Rich's field personnel, Fontaine/W.T. Rich shall issue a written notice to the subcontractor. Upon issuance of this written notice, said subcontractor shall have 24 hours to clean the area to the satisfaction of Fontaine/W.T. Rich's field personnel.
 - d. In the event that said subcontractor fails to complete cleanup to the satisfaction of Fontaine/W.T. Rich's field personnel within 24 hours of written notice, Fontaine/W.T. Rich shall have the right to
 - i. Stop the subcontractor from working until cleanup is complete.
 - ii. Undertake the obligations of the subcontractor via use of other labor forces and process a backcharge to the offending subcontractor's account with no further notice to the subcontractor. Costs for cleaning will be deducted from the next requisition and will not be subject to appeal.

10. Hoisting, Staging, Unloading

1. Subcontractors are responsible for provision of all hoisting, staging, bracing, scaffolding, and rigging required for completion of their work. Subcontractors shall comply with applicable laws and regulations regarding construction of staging, operation of lifts, and any other applicable requirements.
2. Subcontractors shall provide manpower and equipment necessary to accept delivery, unload, store as directed by Fontaine/W.T. Rich, protect, provide security, distribute, install in sequence directed by Fontaine/W.T. Rich, and clean any materials, systems and equipment furnished and installed by the subcontractor. Subcontractor shall provide the same except for the furnishing of materials to a common offloading point on site for any materials furnished by others and installed under the scope of work of subcontractor. Subcontractor shall document receipt of all materials, systems and

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- equipment on forms acceptable to Fontaine/W.T. Rich.
3. Subcontractors shall expect to leave out four areas on each floor to allow the load-in and load-out of materials. All work in this area will be performed out of sequence and near the completion of the project. Once the load-in areas are closed, subcontractors will be responsible for finding a suitable route to and from upper floors with materials. Elevators will not be made available.
 4. Take note of building access and make provisions to ensure that equipment and materials will fit through permanent doorways and or structure. Any work required to create openings such as removal of doors/windows or walls in areas where equipment will not fit through openings shall be paid for by the contractor requiring the opening/access.
 5. Shared staging will be provided in the auditorium for above ceiling work at an elevation determined by the CM for a maximum of 5 months. All above ceiling work shall be completed prior to scheduled scaffold removal date.
 6. Any contractor requiring a crane on site must have an FAA permit.

11. Logistics

1. Space constraints on site shall not allow for subcontractors to place storage trailers or job trailers on the site. Subcontractors shall store off site and hoist/handle materials at no extra cost. Site contractor shall construct limited laydown areas with stone as required at no extra cost.
 - a. Fontaine/W.T. Rich shall provide, at a minimum, guaranteed onsite parking for each subcontractor's foreman only. Costs for offsite parking/transportation to and from offsite parking shall be paid by individual subcontractors and shall be included in bids.
 - b. Subcontractors shall NOT park on Apricot Street, school parking lots, or any other surrounding street and shall not park on private property surrounding the project.
 - c. Space constraints on the site shall not allow for subcontractors to store raw material on the project site. Off-site storage shall be allotted for and provided as part of bids until the project is ready to accept the material and subcontractors are directed by Fontaine/W.T. Rich to deliver the material to the site.

12. Mockups

1. Stand-alone exterior mockups shall be constructed for testing and inspection per specifications. No work may commence on site until mockup is reviewed, tested, and inspected by the CM, design team, and Owner.
2. One classroom will be designated as a "mockup" classroom. Work in this mockup classroom including all finishes will be performed out of sequence and ahead of all other finish work. Materials for this room must be delivered to the site and installed at the direction of the CM. No work may commence on site until mockup classroom is reviewed and inspected by the CM, design team, and Owner.

13. Closeout

1. Subcontractor shall provide all closeout documentation in a searchable PDF and CAD format, no later than 30 days after completion of subcontractors work or 60 days before scheduled substantial completion, whichever is sooner. Draft warranties shall also be provided at this time for review of form if not provided during the submittal process, final dates shall be changed as appropriate. Hard copies of closeout documents shall be provided per project specifications and as coordinated through the CM.

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2. Subcontractors shall maintain as-builts during construction for monthly review and provide as-builts in both electronic and hard copy format as requested. Monthly payment shall be contingent upon monthly as-built review. All as-builts shall be submitted in CAD format.
3. Subcontractors shall create their own punchlist and complete remedial work **prior** to architect or CM creating and distributing a punchlist.
4. Punchlist work shall be complete as soon as possible after punchlist is issued, but no later than 14 days after punchlist is issued.
5. All punchlist work not completed prior to occupancy will be performed off-hours at the Sole discretion of the CM and Owner. No compensation will be provided for this work, and subcontractor may incur additional costs should CM or Owner expend labor supervising work.
6. Approximately 30 days prior to the warranty expiration period, the CM, along with the owner, will re-inspect the work to prepare a warranty repair list of items to be corrected by each subcontractor. This subcontractor shall make the repairs and/or replacements listed within 14 days of the issuance of this warranty repair list. Failure to do so will result in this work being performed by others at this subcontractor's expense.
7. At the completion of the project and as a prerequisite to release of retainage, subcontractor shall submit a letter of compliance. This compliance letter shall state that all work has been completed in accordance with the contract documents, that the installation has been performed in accordance with all applicable codes, and that all fire resistance characteristics, as required by the Fire Department, have been met. This letter must be signed by an officer of the company.
8. All subcontractors shall supply to the CM a complete list of attic stock for the work of their subcontract. Lists shall be aggregated and coordinated by the CM and subcontractors shall comply with specified process for delivery, receipt, and storage of material. All attic stock must be from the same production run as the materials applied on the project.
9. All subcontractors shall cooperate fully with commissioning agent and perform tasks required of their scope of work as directed by Fontaine/W.T. Rich, the Cx, and other project team members.

14. Trade Specific Scopes of Work

A. Abatement & Demolition

1. Abatement/demolition contractor shall be responsible for all work required to complete scope including obtaining permits and approvals, exposing hazardous materials, and removing/disposing of materials in compliance with all applicable guidelines.
2. Subcontractor shall provide as part of their bid all temporary utilities (ie. Water, power, etc.) and protection required to complete their work.
3. Contractor shall comply with NFPA 241 and requirements of the Worcester Fire Dept. to keep live any systems required during abatement.
4. Subcontractor shall coordinate with other trades as necessary and shall make all efforts necessary to be prudent in demolition of existing building.
5. Time is of the essence on this project for summer turnover of teacher parking. Provide adequate manpower necessary to complete this scope of work within schedule durations outlined on Fontaine/W.T. Rich's construction schedule included within these bid documents. Provide adequate manpower including multiple shifts and overtime as may be necessary to achieve these durations. Any overtime required to meet scheduled completion dates shall be provided at subcontractor's expense.

B. Enabling

1. Enabling Contractor shall prepare and submit a SWPPP plan within (10) days of notice of intent. Enabling contractor shall file or update all necessary notifications in a timely fashion to assure that work is able to start no later than June 18, 2018. In addition to SWPPP Plan specific to sitework activities, enabling contractor shall coordinate with SWPPP preparer to provide, at no additional cost to Fontaine/W.T. Rich, a SWPPP for general construction activities. This SWPPP is in addition to the SWPPP provided solely for the enabling contractor and shall be prepared in conjunction with Fontaine/W.T. Rich and paid for by the enabling contractor.
2. Enabling contractor shall construct and maintain entrances as shown on contract documents and laydown areas as shown on Fontaine/W.T. Rich logistics plans for phase 1.
3. Enabling contractor shall clean Apricot Street as necessary during the enabling phase to ensure that dirt from construction operations is not tracked onto adjacent roads.
4. Enabling contractor shall notify and coordinate with DigSafe, Worcester DPW, MA-DOT and all other relevant utility companies and regulatory agencies to identify and avoid existing utilities when performing this work. Expose utilities adjacent to work by hand before proceeding with any excavation.
5. Enabling contractor shall be responsible for snow removal for vehicle and pedestrian access and egress, parking areas, staging areas, and other areas within the construction site as directed by Fontaine/W.T. Rich during enabling construction period. This includes removal via machinery as well as hand shoveling at walks, entrances, trailers, offices, and other areas as directed by CM.
6. Enabling contractor to include dewatering, shoring, sheeting, dust control as necessary. Enabling contractor shall provide source of temporary power and fuel for temporary power for their equipment when temporary power is not available.
7. Enabling contractor shall provide police details as necessary to ensure that traffic flow to and from Apricot Street is not interrupted.
8. Enabling contractor shall provide and maintain site fence as indicated in specifications during enabling phase. Enabling contractor shall move/rearrange site fence as necessary to facilitate work at no additional cost. Site fence shall be maintained until work included in the enabling phase is complete and accepted by the Construction Manager. Include relocation of site fence prior to the start of the 2018 school year as necessary to meet phasing requirements. Include rental of the fence through July 1, 2021.
9. Enabling contractor shall furnish, install erosion control barriers. Maintain erosion control barriers through October 1, 2018. Erosion control barriers shown on the drawings are diagrammatic in nature and may not constitute all erosion control required to comply with regulatory guidelines. Enabling contractor shall provide all necessary erosion control as part of this contract at no additional cost.
10. Enabling contractor shall investigate site prior to submitting a bid to familiarize themselves with current conditions and to provide a complete and accurate bid. Enabling contractor shall verify extent of work required such as tree clearing, removal of site components, etc. and shall include in their bid price all labor and material necessary to complete these items of work as necessary to complete the project at no additional cost.
11. Protect inlets as shown, both inside and outside of limit of work lines shown on drawings.
12. Enabling contractor shall comply with all relevant regulations in regard to blasting. No dynamite shall be stored on site. Enabling contractor shall be responsible for conducting pre-blast survey.
13. Enabling contractor shall comply with the Order of Conditions issued by the City of Worcester and shall report on and document compliance through completion.

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14. Enabling contractor shall provide manpower, equipment, and materials necessary to respond to weather events prior to and while they are occurring. Enabling contractor shall not abandon site until authorized to do so by CM.
15. At limits of work adjacent to streets/sidewalks, provide 2 layers of erosion and sedimentation control or more as required to ensure that there is absolutely no runoff from the construction site to roadways, sidewalks etc.
16. Comply with MA-DOT Vehicular and Non-Vehicular access permit requirements.

C. Sitework

1. Sitework contractor shall prepare and submit a SWPPP plan within (10) days of notice of intent. Sitework contractor shall file or update all necessary notifications in a timely fashion to assure that work is able to start no later than October 15, 2018. In addition to SWPPP Plan specific to sitework activities, sitework contractor shall coordinate with SWPPP preparer to modify, maintain, and/or resubmit, at no additional cost to Fontaine/W.T. Rich, a SWPPP for general construction activities. This SWPPP is in addition to the SWPPP provided solely for the site contractor and shall be prepared in conjunction with Fontaine/W.T. Rich and paid for by the site contractor.
2. Site contractor shall maintain existing entrances from the enabling phase. Sitework contractor shall construct and maintain all additional entrances as shown on contract documents and laydown areas as shown on Fontaine/W.T. Rich logistics plan. In addition to areas shown on plan, site contractor shall construct additional laydown/staging areas as directed by Fontaine/W.T. Rich during the course of construction activities at no additional cost. Install and maintain tracking pads as required.
3. Sitework contractor shall clean Apricot Street as necessary during construction period to ensure that dirt from construction operations is not tracked onto adjacent roads.
4. Sitework contractor shall notify and coordinate with DigSafe, Worcester DPW, MA-DOT and all other relevant utility companies and regulatory agencies to identify and avoid existing utilities when performing this work. Expose utilities adjacent to work by hand before proceeding with any excavation.
5. Sitework contractor shall provide an allowance for snow removal for vehicle and pedestrian access and egress, parking areas, staging areas, and other areas within the construction fence as directed by Fontaine/W.T. Rich during entire construction period. This includes removal via machinery as well as hand shoveling at walks, entrances, trailers, offices, and other areas as directed by CM. Sitework contractor shall include any sanding required due to icing conditions in the allowance.
6. Sitework contractor shall pave areas as they become available and at the direction of Fontaine/W.T. Rich in order to provide a clean, safe work area. Sitework contractor shall not charge for additional mobilizations.
7. Sitework contractor shall excavate and backfill trenches for buried mechanical, plumbing, gas, fire protection and electrical utilities and pits for buried utility structures, inside and outside the building. Include all bedding and/or concrete slabs required.
8. Sitework contractor to include dewatering, shoring, sheeting, dust control as necessary. Sitework contractor shall provide source of temporary power and fuel for temporary power for their equipment when temporary power is not available.
9. Sitework contractor shall provide police details as necessary to ensure that traffic flow to and from Apricot Street is not interrupted.
10. Sitework contractor shall maintain site fence as indicated in specifications and on phasing drawings. Sitework contractor shall accept the condition of the site fence and move/rearrange site fence as necessary to facilitate work at no additional cost. Site

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- fence shall be maintained until such time that fence can be safely removed as directed by Fontaine/W.T. Rich. Sitework contractor shall have fence removed at that time.
11. Sitework contractor shall inspect and accept condition of erosion control barriers installed under the Site Enabling Bid Package prior to submitting a bid. Site Contractor shall furnish, install, and maintain erosion control barriers throughout the project. Erosion control barriers shown on the drawings are diagrammatic in nature and may not constitute all erosion control required to comply with regulatory guidelines. Sitework contractor shall provide all necessary erosion control as part of this contract at no additional cost.
 12. Sitework contractor shall investigate site prior to submitting a bid to familiarize themselves with current conditions and to provide a complete and accurate bid. Sitework contractor shall verify extent of work required such as tree clearing, removal of site components, etc. and shall include in their bid price all labor and material necessary to complete these items of work as necessary to complete the project at no additional cost.
 13. Protect inlets as shown, both inside and outside of limit of work lines shown on drawings. Clean silt sacks in all catch basins periodically and following every storm.
 14. Fontaine/W.T. Rich shall coordinate and direct work related to roadway construction inside and outside of the project limits. Work on roadways shall be completed so as to not disturb ongoing operations within the City and may have to be completed in a separate mobilization and/or off hours. Costs to complete this work as it is possible, and without disrupting traffic to the greatest extent possible, shall be included in this subcontractor's proposal. All traffic details and police costs shall be borne by this subcontractor.
 15. Sitework contractor understands that this project is being procured in phases and that underground piping to be completed by this subcontractor and other trades, including mechanical and electrical, may need to be completed out of sequence as the procurement process allows. Sitework contractor shall carry costs as necessary to complete this work when possible and shall do so using small equipment if the schedule dictates that such equipment may be necessary.
 16. Sitework contractor to provide E&B, filter fabric, compacted gravel, etc for concrete sidewalks, school sign, benches, stone dust and other site amenities.
 17. Sitework contractor shall provide all concrete work for material and equipment installed under this contract.
 18. Sitework contractor shall comply with all relevant regulations regarding blasting. No dynamite shall be stored on site. Sitework contractor shall be responsible for conducting pre-blast survey.
 19. Sitework contractor shall comply with the Order of Conditions issued by the City of Worcester and shall report on and document compliance through completion.
 20. Sitework contractor shall provide manpower, equipment, and materials necessary to respond to weather events prior to and while they are occurring including after hours and on weekends. Site contractor shall not abandon site until authorized to do so by CM.
 21. At limits of work adjacent to streets/sidewalks, provide 2 layers of erosion and sedimentation control or more as required to ensure that there is absolutely no runoff from the construction site to roadways, sidewalks etc.
 22. Construct temporary drainage, sedimentation and erosion controls as required to ensure that stormwater and sedimentation is controlled within site limits. No runoff to streets or sidewalks shall be acceptable. If runoff occurs, site contractor is to clean immediately and remediate at their expense.
 23. Provide temporary mounding, ramps, and paving for such activities as soil support installation, crane picks, concrete placement for footings and pier, concrete pump trucks, etc. and to provide clean access to and from building.

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24. Protect existing features to remain including trees and monuments in such fashion as to prevent damage and decay. Engage the services of an arborist to certify that protection and maintenance of trees to remain is sufficient.
25. Comply with MA-DOT Vehicular and Non-Vehicular access permit requirements.
26. Site contractor shall salvage, store, and protect existing monuments. Including re-installation of monuments as shown on contract drawings and as directed by the CM including all foundation work required.
27. Sitework contractor shall install light pole bases as part of base bid work. Subcontractor shall work in conjunction with electrical subcontractor to complete light pole bases as work becomes available and shall make no additional claims for compensation related to delays encountered in furnishing/installing light pole bases.
28. Provide turf field subbase mockup of finish layer material for inspection by turf installer and design team prior to placing material. Include any surveys required for review by turf field installer and landscape architect. Subbase tolerance required by turf manufacturer must be met. Include re-grading as required until acceptance by turf manufacturer.
29. Contractor shall designate and maintain a concrete washout area in accordance with environmental regulations. Coordinate washout location with Construction Manager. Remove and dispose of debris resulting from washing out of concrete trucks.
30. Sitework contractor shall complete work to coordinate with planting season required to establish all plantings prior to school's occupancy in July 2021 for all occupied spaces. All installed plantings on the portion of the site that will be occupied in Summer of 2021 shall be maintained by the site contractor until September 1, 2021.
31. All available recharge systems shall be installed following steel erection and prior to roof installation. Site contractor shall protect recharge systems from construction activities including construction vehicles and lifts. Roof leaders shall be tied to the recharge system when roofing is complete. Site Contractor shall maintain recharge system during construction and clean system prior to building turn over to the owner.
32. Sitework contractor shall provide all non-cast-in-place retaining walls. All site retaining walls shall be designed with a minimum factor of safety of 1.5 per Geotechnical report.
33. Provide excavation and backfill for exterior wall mockup foundations.
34. Provide excavation and backfill for stadium lighting.
35. Demo existing tennis courts. Install new tennis courts subbase and asphalt.

D. Concrete

1. Concrete subcontractor shall provide temporary power as necessary for completion of their work.
2. Concrete subcontractor shall provide a cold and hot weather concrete plans for review and approval prior to beginning work. Subcontractor shall adhere to these plans and provide labor, materials, equipment, and fuel for compliance with cold and hot weather concrete plans.
3. Concrete subcontractor shall not add water to concrete on site.
4. Provide all survey and layout required to complete this scope of work from control points established by others.
5. Provide a field verification as-built survey of all footings, foundations, slab edges, embeds, columns, slab elevations, shafts, floor openings, anchor bolts, etc. at the completion of each placement sequence.
6. Provide all slab depressions, pockets, slopes, box outs, etc. Refer to architectural structural, and MEP drawings. Where conflicts occur, the more expensive detail applies, unless directed otherwise by Fontaine/W.T. Rich.
7. Provide grouting for base plates, leveling plates, and elevator sill pocket assemblies, and include box outs for these items as required. Provide concrete infill after

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- installation.
8. Install embeded plates in concrete and masonry walls and grout for embeded plates. Provide concrete infill after installation.
 9. Contractor to clean all debris off metal decking, regardless of who created them, prior to placing concrete slab on deck. Contractor is responsible for removal of rain water from decking prior to pour.
 10. Provide concrete in fill for all steel stair pans and associated landings. Assume this will require separate mobilizations. Clean out all pans and landings prior to concrete placement. Seal seams prior to placement and/or clean any drips after placement. Clean concrete from steel at all stair risers, stringers, and the underside of stairs and landings no later than 24 hours after concrete placement. Request review with the Construction Manager upon completion of this activity.
 11. Provide thickened slab at all steel stairs ahead of slab on grade.
 12. Contractor shall clean up and dispose of all concrete drippings from overhead pours.
 13. Contractor shall designate and maintain a washout area in accordance with environmental regulations. Coordinate washout location with Construction Manager and Site Contractor. Remove and dispose of debris resulting from washing out of concrete trucks.
 14. Coordinate with Fontaine/W.T. Rich, OPM, and Testing Agency during all concrete work. Provide multiple curing boxes for test cylinders. Control temperature as necessary. Ensure field cylinders are cured per ACI requirements.
 15. Furnish, erect, maintain, and dismantle any staging required in the course of subcontractor's work.
 16. Provide daily cleanup to dumpster provided by CM.
 17. Perform anchor bolt survey prior to steel erection. Submit survey results to the engineer of record. Submit for review, any required repairs of misaligned anchor bolts in sufficient time for approval and remedial work so steel erection schedule is not impacted.
 18. Monitor materials testing reports (furnished by others) and verify that the concrete has reached 75% of its design strength prior to placement of structural steel.
 19. Identify any modifications to the anchor bolts that have been submitted and approved by the structural engineer of record for the project. This letter of verification shall be provided to the Construction Manager at least one week prior to the commencement of steel erection. This contractor shall be responsible for any repairs due to misalignment.
 20. Subcontractor shall be responsible for the flatness & levelness of finished slabs at time of finish floor application. Provide additional concrete and/or shoring as required to meet the slab flatness/levelness tolerance due to deflection. FF/FL tests performed per specifications do not relieve subcontractor of responsibility for flatness of slabs at time of finish floor application. Leveling, patching, grinding and flashing required to bring floors to within flooring manufacturers' required flatness tolerance shall be performed by this subcontractor as part of the work of this contract. This includes remediation of floors due to curling and settling that occurs after FF/FL testing and prior to finish floor application. This also includes work necessary to patch/grind/level at construction joints, control joints, box outs, and other discontinuous slab conditions. All work required to meet manufacturers' required tolerances shall be performed as part of this subcontract and shall be included in subcontractor's bid price.
 21. Concrete work around safety stanchions shall be smooth and level. Finish by hand as required. Provide all patching and chipping required at safety stanchions after removal.
 22. Subcontractor understands that foundations may be completed prior to mechanical coordination being completed in the building due to the early release of the concrete package. Subcontractor shall make box outs as necessary and furnish/install

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

- sleeving to allow for mechanical penetration when possible at no additional cost. Subcontractor shall return to infill boxouts following installation of pass through work and before backfill.
23. Subcontractor understands that underslab mechanical work cannot be guaranteed to be complete prior to steel erection and that slab work shall be performed at the convenience/discretion of Fontaine/W.T. Rich. Concrete subcontractor shall make no claims for additional monies as a result of sequence of underslab mechanical work/steel erection/slab placement and shall pour slabs as areas become available. Subcontractor understands that slabs may be placed in more mobilizations than is ideal for productivity in order to accelerate schedule. Subcontractor shall carry all costs for pumping and working within erected steel structure as part of base bid.
 24. Provide all housekeeping pads indicated in the contract documents. Refer to MEP drawings as well as all other drawings and specifications for pad locations/requirements. Submit shop drawings for approval of pad size and location.
 25. Provide all dowels and rebar required from concrete to masonry. Coordinate spacing and locations with the Masonry Contractor.
 26. Provide toe boards as required by OSHA at all perimeters and openings in elevated slabs immediately following placement of slab.
 27. Provide temporary guardrails and toe boards as required by OSHA at all cast-in-place concrete walls where the top of the wall is more than four feet above grade. Remove and replace as required to complete your work. Maintain rails for the duration of concrete work. Do not remove rails until hazard is eliminated.
 28. Provide concrete pad for a building exterior wall mockup in a location and size determined by the Construction Manager.
 29. Furnish and install all horizontal and vertical insulation under slabs and at foundation walls as shown in contract documents.
 30. At all exterior horizontal concrete, furnish and install DCI additives with 3.1 mix ratio.
 31. Furnish and install all detectable warning tiles.
 32. All SOG and SOD shall be wet curried, no dissipating curing compounds will be allowed.

E. Masonry

1. Furnish, erect, maintain, dismantle and remove scaffolding/lifts necessary to complete this scope of work in compliance with all OSHA requirements and Fontaine/W.T. Rich Safety Plan, whichever is more stringent.
2. Masonry contractor shall provide their own dumpster. Perform daily cleanup to the dumpster of all work areas.
3. Provide all layout to complete this scope of work. Provide layout of dowels from concrete to masonry where scheduled to be installed by concrete contractor. If layout is not provided, masonry subcontractor shall install dowels through method approved by the CM and Engineer of Record.
4. Patch and point any areas affected by anchorage of staging to building.
5. Temporary tarping, enclosure, and weather protection required to complete this scope of work shall be constructed, maintained, dismantled and removed by masonry contractor. Provide temporary heat and fuel within contained area. Provide carbon monoxide detectors.
6. Heating of sand, mortar, or similar shall be the responsibility of the masonry subcontractor.
7. Assemble and maintain a washout area in accordance with environmental regulations. Coordinate washout location with Construction Manager. Remove and dispose of debris resulting from washing out.
8. Mason shall grout all HM frames, sidelights, borrowed lights etc. provided and set by others.

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

9. Furnish and install all weldable rebar and welded couplers. Welding shall be performed by a certified welder.
10. Receive, inventory, store, and install all loose lintels furnished by misc. metal contractor.
11. Receive, inventory, store, and install all inserts, sleeves, rails, anchors, hoist beams, etc. as provided by misc. metal contractor and elevator subcontractor.
12. Furnish and install through wall flashing systems installed in masonry. Coordinate where necessary with roofer and AVB contractor for compatible material and correct assembly configuration.
13. Furnish and install all acoustical sealant and firestopping systems at the top and bottom of exterior and interior walls as indicated and required to achieve STC and/or fire rating.
14. Provide access to staging for work of other trades.
15. Mason shall provide complete washdown of installed work. Protect windows and glazing. Take special care to protect precast from acid and avoid etching/damage to precast finish.
16. Provide boxouts for all items to be installed in masonry walls including, but not limited to, MEPFP items, miscellaneous metals/steel, rough-in boxes, piping, ductwork, door hardware, specialties items, etc. Patch all boxouts following work of other trades.
17. Provide special shapes where noted on the drawings. Do not field cut shapes unless directed by the Construction Manager.
18. Provide grout at structural steel beam pockets. Include grouting of base plates at these locations.
19. Include the cost of all labor and materials to assist the testing agency in performing the required masonry testing.

F. Structural Steel, Metal Decking

1. Provide an OSHA approved two-line safety cable system at all deck penetrations and along the perimeter of the building in all locations where fall protection is required. Maintain this system. Provide additional turnbuckles at locations required by the Construction Manager to allow access for material loading on floors by other contractors. At openings, provide stanchions and anchoring that will allow perimeter work by others to be installed with the cabling system remaining in place. Top cable must be flagged at 6' intervals with brightly colored flags. Stanchions must be installed at a maximum spacing of 8' o.c.
2. Provide preparation and steel primer in accordance with the specifications and compatible with finish coatings. Coordinate steel not to be painted as specified. Field touch up, by this subcontractor, is included in this scope of work.
3. Provide temporary power including fuel for all equipment necessary to complete this scope of work.
4. Provide all required shop testing and inspections. Field testing is by owner. Accommodate onsite testing of your work by the Owner's testing agency. This contractor shall be responsible for any costs associated with re-inspection or re-testing required due to this contractor's non-compliance. Include the use of lifts or whatever means necessary to accommodate the Owner's testing agency.
5. Provide framed openings in steel and metal deck to accommodate mechanical, electrical, plumbing, and fire protection penetrations. Provide reinforcement of steel where necessary. Provide closure plate at metal deck where necessary. Protect all openings made by this bid package. Openings for ductwork, curbs, hatches, etc. are to be decked over until such time that the curbs, hatches, etc. are ready to be set. Include comeback operations to cut deck accordingly.
6. Provide all hoisting, staging, rigging, cranes required for this scope of work in compliance with all applicable OSHA regulations.

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

7. Comply with 6' tie off for all workers.
8. Provide PPE for all workers including, but not limited to, hard hats, glasses, harnesses, and vests.
9. Provide all temporary shoring and bracing as required. Remove temp bracing upon completion of shear walls, brace frames, and moment frames. Remobilize as required to complete this work.
10. Provide a separate detailing crew to work in conjunction with the erection crew to ensure building sections are turned over to the next trade to meet or better project schedule.
11. Provide engineered drawings and calculations and furnish and install the structural steel support system for the Parking Solar Canopy Structure. Final dimensions and support spacing shall be coordinated with the PV contractor. Drawings and calculations shall be stamped by an engineer registered in the Commonwealth of Massachusetts.
12. Structural Steel Drawing and Misc Metal Scope of Work Clarification: All work indicated on the Structural Drawings shall be furnished and installed by the Structural Steel Subcontractor unless specifically noted otherwise, for example but not limited too; Loose Lintels (per schedule), and all steel members inherently related to the Metal Stairs, Elevator Shaft L angles, C Channels, Area Grates, etc.

G. Miscellaneous Metal

1. Provide all miscellaneous metal not integral to structural steel.
2. Provide all staging, hoisting, rigging, lifts necessary to complete work of this subcontractor.
3. Provide temporary power including fuel for all equipment necessary to complete this scope of work.
4. Cost for any fire watches required to complete work will be the responsibility of misc. metal fabrications subcontractor. Hot work permits shall be per general requirements above.
5. Engineered, stamped shop drawings and calculations shall be submitted within 4 weeks of contract award.
6. Misc Metals contractor shall participate in BIM coordination. Reference BIM specification for requirements for coordination files.
7. Coordinate with CM and subcontractors to complete scope of work.
8. Provide all required certificates and qualifications required per spec prior to starting any fabrication or installation.
9. Misc metal subcontractor shall acquire necessary welding permits, shall coordinate and pay for required fire watches, and shall furnish install maintain and remove all required fire blankets.
10. Provide all exterior guardrails, handrails, ramp rails, and similar rails at other locations as required in the contract documents. Refer to architectural, civil, and landscape drawings for requirement. Provide a complete installation including sleeving, coring, grouting, etc.
11. Provide all bolted, slotted, hung, welded or otherwise adjustable support angles including but not limited to brick relieving angles. This contractor shall come back and align the hung lintels/relieving angles and complete welding during the erection of the masonry veneer. After the adjustment is complete, this contractor shall weld the item in place. Include remobilization to perform this work.
12. Protect all surrounding work. Removal of welding splatter, metal cuttings, shavings, and other debris from adjacent surfaces is the responsibility of this contractor.
13. Field measure for all items to be installed on or between existing surfaces prior to fabrication.
14. Furnish embedded items associated with this scope of work to the concrete and

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

masonry contractors in sufficient time to allow casting in place. This contractor shall be responsible for the cost of remedial/corrective work required due to the late delivery of embedded items.

15. Provide closure plates on top of stair stringers to close the gap between the stair stringer and the wall. Installation of closure plate will be comeback work and will be performed out of sequence.
16. Following welding of stair pans to stringers, scrape, clean, bondo and re-prime the entire stringer as necessary for a clean installation and as determined by the CM.
17. Stairs with Terrazzo treads shall be designed to accommodate deflection criteria for treads.
18. Structural Steel Drawing and Misc Metal Scope of Work Clarification: All work indicated on the Structural Drawings shall be furnished and installed by the Structural Steel Subcontractor unless specifically noted otherwise, for example but not limited too; Loose Lintels (per schedule), and all steel members inherently related to the Metal Stairs, Elevator Shaft L angles, C Channels, Area Grates, etc.

H. Rough Carpentry

1. Include all new wood blocking at windows as shown/specified. Include fire retardant wood at all locations.
2. Furnish and install of the in-wall blocking shall be the responsibility of the drywall contractor. Coordinate all blocking with other trades.
3. Furnish and install all roof blocking including dimensional lumber, plywood etc. at exterior roof edge, parapet walls, mechanical curbs, roof drains, roof accessories and any other place that blocking appears as part of drywall package.
4. Coordinate with other trades on locations and thickness required for all blocking to be installed.
5. Provide, maintain, and remove temporary wood fillers in treads once the stair framing is complete. Provide an maintain temporary rails at all stairs.

I. Finish Carpentry, Architectural Woodwork, Solid Surfacing Fabrications

1. Millwork subcontractor shall provide shop drawings within 6 weeks after subcontract. Millwork subcontractor shall update and field verify dimensions as framing is completed, and shall produce millwork as soon as reasonably possible. Millwork subcontractor shall make as many visits to field dimension as deemed necessary by the millwork installer or CM. Areas shall be field dimensioned as they become available.
2. It is understood that millwork subcontractor shall store millwork off site at the direction of Fontaine/W.T. Rich until building is ready to accept installation of millwork. Millwork subcontractor shall include cost of offsite storage, in a climate-controlled space, until acceptance of millwork by Fontaine/W.T. Rich.
3. Millwork shop shall not be required to maintain AWI Certification in order to provide millwork, however Fontaine/W.T. Rich reserves the right to reject any millwork that does not represent a high-quality product.
4. Millwork shall be delivered in such a sequence as to facilitate a continuous installation, either in sequence from room to room or area by area. Millwork shop shall meet with Fontaine/W.T. Rich and millwork installer (finish carpentry subcontractor) to determine sequence and shall produce millwork in desired sequence at no extra cost.
5. Millwork subcontractor shall provide any steel supports integral to the millwork. Millwork subcontractor shall provide aluminum wall brackets for countertops in sufficient time for the brackets to be installed within drywall walls where required.

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

6. Provisions shall be made within millwork for all required electrical and data outlets. Allow access for electrical contractor to perform rough in on-site.
7. Finish carpentry subcontractor responsible for receiving, inventorying, unloading, distributing, protecting, and installing all millwork and finish carpentry materials not specifically included within casework scope of work.
8. Finish carpentry subcontractor is responsible for all layout necessary for installation.
9. Finish carpentry subcontractor responsible for receiving, inventorying along with supplier, unloading, distributing, protecting, and installing all hollow metal and wood doors, and finish hardware (except that provided by aluminum entrances trade contractor).
10. Wood blocking located within wall assemblies will be provided by the drywall contractor. All other blocking and blocking exterior to wall assemblies and required for the work of this bid package shall be provided by this contractor. If in wall blocking is required, provide detailed shop drawings identifying locations and type of blocking needed. Failure to identify needed in wall blocking and or late submittal of blocking information shall result in this bid package providing the needed blocking and associated wall repair. Millwork subcontractor shall be responsible for reviewing all in wall blocking to receive millwork prior to closure of walls.
11. Finish carpentry subcontractor shall provide and maintain temporary carboard protection of all finished surfaces in a manner that keeps the protection in place until final cleaning.
12. Millwork subcontractor shall provide an inventory of finishes for field touch up including but not limited to stains, sealers, varnishes, etc.
13. Millwork subcontractor shall provide grommets for all millwork. Quantity and locations shall be per the owner's direction.
14. Millwork subcontractor shall be responsible for inventorying and turning over all keys associated with the millwork package. Coordinate keying with the owner prior to fabrication.

J. Waterproofing, Dampproofing and Caulking

1. Provide all lifts, staging, hoisting, rigging, etc. required to complete this scope of work.
2. Work in sequence with other trades and complete work as areas become available. Subcontractor understands that multiple mobilizations will be necessary to complete envelope as work is completed and that areas such as loading docks may be completed later than others.
3. Subcontractor shall provide labor, material, equipment etc. necessary to complete all work related to mock ups and as required to complete building envelope and window testing. Subcontractor shall complete remedial work required in the event that any testing fails at no additional cost. If retesting is necessary, costs for retesting shall be paid by this contractor.
4. Provide all tie offs, harnesses, and safety requirements necessary to complete this scope of work.
5. Subcontractor shall complete punch list work within 2 weeks of a punch list being issued for each area of work. In the event that multiple punch lists are issued at different times for different areas of the building, subcontractor shall remobilize to complete punch lists as they become available.
6. Assist Commissioning Agent with all activities related to building envelope commissioning including completion of installation checklists, providing photographs of work in process, providing access for inspections, etc.
7. Once masonry is complete, provide a temporary barrier at the top of all cavity walls.
8. Caulk all dissimilar materials whether shown or not shown, including but not limited to ceiling grid to walls, stair stringer to wall, etc.

K. Cement Fiber and Metal Wall Panels

1. Provide all lifts, staging, hoisting, rigging, etc. required to complete this scope of work.
2. Provide all layout required for this work. Coordinate location of all panel joints with openings and wall mounted items to allow for required panel sizes and edge distances.
3. Furnish and install system from outside of vapor barrier to finish, including rigid insulation, metal framing, and panels.
4. Work in sequence with other trades and complete work as areas become available.
5. Provide all tie offs, harnesses, and safety requirements necessary to complete this scope of work.
6. Provide off site storage for panels until they are required on site.
7. Provide all metal closures associated with the work of this bid package and between this bid package and adjacent construction.
8. Waterproof, seal, flash, any and all materials that pass through your wall system
9. Work will require several mobilizations.

L. Fireproofing

1. Protect all adjacent work prior to commencing work of this bid package. Remove protection and clean any over spray.
2. Immediately following installation of fire proofing, clean up overspray and fallout on the slabs. Remove all visible film from the slabs resulting from this work. Provide daily clean up and disposal to dumpsters provided by the CM of all surplus materials generated by this scope of work.
3. Provide all protection and/or tarping required to contain material within the building footprint during installation.
4. Properly control and contain the wash-out of all equipment so as not to allow run-off into adjacent areas.
5. This contractor shall advise the CM of any unacceptable substrate conditions prior to the start of work. The condition of the substrate shall be deemed acceptable once installation of work of this bid package commences. This contractor is responsible for the bond between the substrate and the fireproofing material.
6. Provide sprayed-on fireproofing of sufficient thickness and density so as to achieve the fire resistance ratings specified in the contract documents.
7. Coordinate application of spray fire proofing with other trade contractors to minimize the need for cutting and/or patching.
8. Remobilize as required to fireproof the seismic clip angles along the stops of CMU partitions and where fire proofing extends to the curtainwall system. This will be a comeback operation.
9. Provide exposed intumescent coating to achieve required fire ratings at exposed steel. Coordinate type of intumescent paint with steel primer to ensure compatibility. Intumescent coating with drips, slump, or excessive orange peel texture will not be acceptable.
10. Provide all sealers required for the work of this bid package.
11. Provide lath where required by UL and/or the manufacturer.
12. Provide patching at all areas where testing is performed by the Owner's testing company.
13. Perimeter safety cabling system will be installed by others. This contractor shall patch all areas required when safety cabling is removed. This will be a comeback operation.
14. Include all winter weather conditions required for the work of this bid package including heat, heat containment, and weather protection to maintain the schedule. There will be no additional compensation for winter protection associated with work of this bid package.

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15. This bid package shall provide their owner source of power to perform work.
16. Temporary water is available from one hydrant on site adjacent to the North West corner of the existing school parking lot. Provide all supplementary water supply, connections, hoses, etc which are required for the execution of this work.
17. Accommodate testing of your work by the Owner's independent testing laboratory. Provide testing agency all necessary ladders, lifts, and scaffolding necessary to perform inspections.
18. Protect work of other trades during installation of fireproofing.
19. Subcontractor shall provide all lifts, staging, hoisting, rigging, unloading, and distribution for this section. All material on site shall be palletized and moved at the CM's direction to accommodate other contractor's work.
20. Please include 30 additional patch "crew days" within the base bid and provide a daily crew rate.

M. Roofing and Flashing

1. Comply with 6' tie off for all workers. In addition, install and maintain a fall protection system such as a flagging system per OSHA guidelines. Provide a minimum of 1000 feet of Garlock temporary railing or equivalent located at the discretion of the construction manager. Return to the site at the request of the construction manager to remove Garlock when all trades have completed their work.
2. Roofing contractor shall provide their own dumpster.
3. Install, maintain, and relocate as necessary a minimum of (3) loading/receiving areas comprised of ballasted guardrails or comparable system at roof edge to be utilized by trades.
4. Furnish and install flat and tapered roofing insulation.
5. Furnish and install complete roofing system including all components.
6. Furnish and install flashing, counter flashing, roof edge coping, parapet covers, sheet metal including gutters, downspouts, snow guards, aluminum flashing, cap flashing systems complete.
7. Snow removal for work of this bid package will be completed by this contractor through an owner allowance as directed by CM.
8. Furnish and install all roof specialties.
9. Furnish and install prefabricated roof scuttles and elevator penthouse and louvers.
10. Install and flash mechanical equipment curbing provided by MEPFP and Kitchen contractors.
11. Furnish and install roof expansion joints.
12. Furnish and install roofing, flashing and trim required for mockup per specifications and mock up drawing.
13. The roofing subcontractor shall be responsible for their own fall protection system complying with OSHA standards and 6' fall rule.
14. Store roof material so as to protect roofing from damage and also from restricting access or egress.
15. Provide all lifts, hoisting, rigging, etc. required to complete this scope of work, except for setting of mechanical curbs via crane from truck on site.
16. Roofer must maintain a clean and safe work environment; daily cleanup of trash from roof to a dumpster provided by this contractor
17. If roofer fails to maintain a clean and safe work environment, Fontaine/W.T. Rich reserves the right to stop work until cleanup is completed, complete work against subcontractor's account, or hold payments to subcontractor.
18. Clean roof decks prior to installation of this work. Rough cleaning and removal of materials will be provided by trade working on the deck prior to your work.
19. Roofing subcontractor shall coordinate with all trades requiring roof penetrations and provide all material and labor required to seal any penetrations required by those trades.

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20. Roofing subcontractor shall include provisions within base bid to install temporary roofing at areas that roof top curbs and equipment have not been installed and shall not delay the overall scope of making the building weather tight contingent upon roof top information. It is anticipated that separate mobilizations for the installation of roof top curbs and equipment may be needed and that roofing subcontractor shall include provisions for this work.
21. Roofer shall provide provisions to temporarily secure the edge of the roof membrane until roof edge metal is installed.
22. Roofer shall take appropriate measures to protect roof during installation of system and after installation of system is complete including ensuring that foot traffic protection is provide in lieu of roof mats prior to installation of permanent roof mats.
23. Roofer shall provide and maintain fall protection system throughout the course of the project.
24. Roofer shall patch holes in roof created by installation of tie downs by other trades.
25. Assist Commissioning Agent with all activities related to building envelope commissioning including completion of installation checklists, providing photographs of work in process, providing access for inspections, etc.
26. Provide testing and inspection required by the specification. Provide inspections as required by the roofing manufacturer to achieve roof warranty.
27. Provide tie off stanchions or carts at all loading zone for use by trades while on the roof or by the roof edges.
28. Multiple mobilizations are required and shall be coordinated with the CM.
29. Provide infrared testing on roof toward the end of the project.
30. Temporary Roofing and Weather Protection
 - a. Provide all necessary management, planning, measures, temporary roofing and other provisions to prevent water infiltration through the roof for the full duration of any roof cutting, patching, removal or replacement operations. Special Note to Roofer to reference the MEP Drawings for coordination of Roofing and MEP Work.
 - b. This Trade Contractor shall install temporary protection pathways after the new roof has been installed and accepted, in order for other trades to walk and work on the roof without damaging the newly installed roof. Any damages and repairs will be the responsibility of this Trade Contractor. Base bid shall include 1,000'x6'.

N. Firestopping

1. All subcontractors shall complete firestopping and firesafing necessary to seal penetrations required within their scope of work. Subcontractors shall provide removable temporary firestopping and firesafing prior to final firestopping and firesafing.
2. There shall be one brand of firestop material for all firestopping work. The actual brand chosen shall be based upon a consensus of agreement between the successful bidders. The contractors will be required to provide fire stop systems as it applies to the individual scopes. The contractors shall also include fire stop/safe labeling and tagging each penetration or application with data including but not limited to installer, contractor, location, system used, and date. Also, the contractors shall provide data log entries for use in generating an as-built plan including location.
3. All trades shall ensure fire stopping in exposed areas is clean and neat to receive paint. It is at the discretion of the CM, architect, and/or owner to accept the final condition or have the fire stopping reinstalled until accepted.

O. Hollow Metal Doors and Frames, Wood Doors, Finish Hardware

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1. Provide submittals for scope of work within 2 weeks of subcontract award.
2. Wood doors to be UF Free and FSC Certified.
3. Wood doors to include all stops for glazing. Include allowance to replace 5% of glazing stops and fasteners at no additional charge. Doors shall be shipped to the site pre-glazed with glazing stop nail holes filled and finished.
4. All HM frames shall be welded.
5. HM Doors, Frames, Wood Doors, Finish Hardware, shall be purchased furnish only in one complete package. Supplier shall be responsible for coordinating with installing contractors.
6. All hollow metal frames, steel, and wood doors shall be permanently marked with the door number location designation from the contract drawings. Apply markings in a non-visible, consistent location on all doors. Markings are to be applied to the bottom edge and hinge location on all frames.
7. HM frames within masonry shall be set by drywall subcontractor and grouted in by masonry subcontractor. Drywall contractor shall block out frame with insulation or foam for hardware and install intermediate spreaders prior to the start of Masonry. Drywall contractor shall check the frame for plumb and level as the masonry contractor is building the wall and correct as necessary. HM frames within drywall partitions shall be installed by drywall subcontractor.
8. Wood and hollow metal doors shall be installed by finish carpentry subcontractor.
9. Finish hardware shall be supplied by this contractor for all doors including aluminum doors. Hardware in wood and hollow metals doors shall be installed by finish carpentry subcontractor. Finish hardware in Aluminum doors shall be install by the aluminum curtainwall/storefront contractor.
10. Installing subcontractors shall be responsible for labor associated with unloading and distributing doors, frames, hardware.
11. Prepare all doors and frames including pre-drilling, pre-cutting, raceways and reinforcing as required to receive all hardware including any electrical and or security equipment schedule.
12. Coordinate hardware schedule with architectural, electrical, and security drawings. Note any discrepancies prior to completion of submittals.
13. Hardware set and door opening numbers shall be marked on each individual box and on delivery slips. Provide hardware in original containers within individual hardware set boxes whenever possible. All hardware shall be prepared for proper door swing and handing. Hardware for aluminum doors shall be coordinated with and supplied to the installing contractor.
14. Supplier responsible for providing doors, frames, hardware shall be responsible for having a qualified representative on site to participate in inventorying doors, frames, and hardware as they arrive. Installing subcontractors shall take possession of materials and shall sign off on materials as they are delivered. Installing contractor shall make sure all doors are adjusted and hardware is working properly at the end of the project. Final acceptance shall be by the Owner.
15. Review schedule and coordinate all deliveries with the Construction Manager. Plan on phased deliveries by floor and/or area as directed by the CM. Masonry frames will be released early and ahead of other areas.
16. Cleanly cut, ground welds smooth, and remove and dispose of spreader at HM frames at direction of Fontaine/W.T. Rich. Frames damaged during removal of spreader shall be replaced at no added cost by subcontractor responsible for damaging frames. Fix all damage to the door frames caused by this contractor or the owner's sub-contractors. Prepare the frames so that they are ready for the painter including patching, sanding, and priming where required. Wood frames will need to be repaired or replaced if damaged at the discretion of the CM or Owner.
17. Provide fully tagged and labeled key cabinet set up for turnover to the owner. Provide

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a minimum of one full day of owner orientation training to the keying system.

P. Metal Windows, Aluminum-Framed Storefronts, Glazed Aluminum Curtain Walls, Aluminum Windows, Glazing

1. Provide all lifts, hoisting, staging, rigging, etc. required to complete this scope of work.
2. Subcontractor to install any and all hardware supplied by others to be installed within this scope of work.
3. Subcontractor to furnish and install all flashing, panning, sealants, minimally expanding foam, and exterior sealants required for complete weather tight installation of systems. Flashing that returns to the substrate needs to be tied into the vapor barrier with compatible materials and sealed to prevent leaks. Flashing shall be of the same material and color as the section to which it is being installed. Provide primary and secondary beads of sealant. Exposed sealant colors to be chose by the architect.
4. Include provisions for testing of windows in place and in mock up as indicated in specifications. This contractor shall provide their own water source for testing.
5. Work in harmony with other trades responsible for wiring doors for security, providing light fixtures within systems, and all other work that requires coordination between trades.
6. Provide final cleaning of the exterior of all systems installed by this subcontractor at the completion of the project when directed by Fontaine/W.T. Rich. Provide cleaning of interior panes of glass.
7. The requirements shall apply to all subcontractors performing work of these sections, regardless of how they are procured.

Q. Access Doors & Panels

1. Access doors and panels shall be provided by subcontractor whose work requires them for access. Location of all access doors and panels shall be noted in the coordination drawings and submitted for approval by the design team.
2. Access doors and panels shall be installed by subcontractor whose finish work the panels rest in i.e. drywall subcontractor in gypsum board partitions and gyp board ceilings, mason within CMU walls, and ceiling contractor within ACT Ceilings.
3. Access panel supplier is responsible for providing sizes and locations for installing subcontractor within 4 weeks of contract award. Subcontractor shall email a list of panels with size and locations to CM for distribution. Costs associated with rework of framing due to failure to provide correct size and location shall be borne by the subcontractor responsible for providing the doors and panels.
4. Inside of access panels should be marked with the providing contractors name and location. A drawing shall be provided to the installing contractors field foreman with the installation location and size clearly marked at the time of installation. Subcontractor providing access panels shall be responsible for the access panels until installing contractor has framed for the panels and accepts delivery.

R. Coiling Counter Doors, OH Coiling Doors, OH Coiling Grilles, Folding Doors

1. Subcontractor shall provide shop drawings, in electronic format, via Procore.
2. Subcontractor shall provide all lifts, staging, hoisting, rigging, unloading, and distribution for this section.
3. Subcontractor shall work in harmony with other trades providing components of complete system. Subcontractor shall provide shop drawings within 4 weeks of subcontract to allow for coordination with subcontractor providing blocking, electrician providing power and wiring, etc.
4. Electrical subcontractor shall furnish and install all line voltage and low voltage wiring

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for complete operation.

5. Provide access doors and panels as necessary to service motorized components. Coordinate location with the drywall and/or masonry contractor. Multiple mobilizations will be required for doors and access panels. Coordinate on site with all trades involved in the installation including electrical contractor and drywall contractor. Provide all misc. materials and labor required for a complete install including metal tube supports, plates, clips, anchors for various substrates, etc. Provide welding certificates if welding is required.
6. Coordinate steel support system with misc metals contractor. Provide sufficient information for misc metals contractor to fabricate and install support system prior to metal stud framing installation.

S. Drywall

1. Furnish/Install all wood blocking within the building as required for the project including but not limited to the items listed in the specifications. This blocking includes in wall blocking, roof blocking, MEP equipment blocking, window blocking, plywood backup for mounting and associated blocking, and other blocking as necessary. All blocking shall be coordinated with other trades and, at the roof, with tapered insulation shop drawings.
2. Comply with all **LEED** requirements including protection of absorptive materials; provide date stamped photos documenting compliance with these requirements.
3. Furnish and install ALL sheathing at exterior walls, including parapet sheathing.
4. Furnish and install ALL gypsum board assemblies, complete.
5. Coordinate and provide all framed openings in walls for all trades.
6. Subcontractor responsible for furnishing, delivering, unloading, dispersing, protecting, and installing all components of system within scope of work.
7. Subcontractor responsible for hoists, lifts, rigging, etc. required to complete scope of work.
8. Drywall subcontractor responsible for unloading, distributing, and installing HM frames within metal stud partitions. Install per manufacturer's instructions. Drywall subcontractor is also responsible for checking Hollow Metal Frames to be Plumb and Level as walls are being built.
9. Patch holes in partitions created or left open for temp systems including electric, water, propane, etc.
10. Drywall subcontractor responsible for unloading, distributing, and setting HM frames within masonry wall. Masonry subcontractor responsible for final installation/grouting of frames. Provide Styrofoam within jambs as necessary to allow for mounting of hardware on door frames. Monitor door frames during masonry construction to confirm they are maintained plumb and level.
11. Remove and replace perimeter protection cable system as necessary to access your work. Provide additional protection as required by OSHA and the project safety plan during your operations. Chip all areas level for patching by others.
12. Upon completion of steel erection, maintain perimeter safety cable until cable is no longer needed. At that time, in coordination with the Construction Manager, this contractor shall remove and dispose of the safety cable stanchions and cables. Concrete shall be chipped as necessary by this contractor to allow stanchions to be cut below the level of the finished floor and so floor can be patched level after stanchion removal.
13. Provide all field engineering for layout from control points provided by the construction manager. This contractor shall permanently mark all floors with wall locations and all door openings within the walls prior to erection of walls to allow layout and rough in by other trades. Permanent markings shall be confined to areas that will be covered by the wall construction. No markings may extend into areas where the floor finish is sealed concrete.

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14. Drywall subcontractor is responsible for all acoustical sealant to meet STC ratings. Provide acoustical sealing of all penetrations through gypsum walls. Include sealant at tops and bottoms of all walls.
15. Provide all firestopping and fire safing assemblies for this bid package at all walls noted as fire rated. Provide all head of wall firestopping, where required, at interior gypsum wall assemblies. Fire stopping within MEPFP sleeves/penetrations are by the trade whose work passes through the sleeve. Inspect and label all partitions with the appropriate UL label. Advise the construction manager of discrepancies found that would impact the rating of the system.

T. Louvers & Vents

1. Furnish and install work included in this section.
2. Subcontractors shall provide all lifts, staging, hoists, rigging, unloading, distribution for their work within this section.
3. Electrical subcontractor shall coordinate with louver supplier/installer to provide all necessary wiring and connections. Controls subcontractor shall furnish/install any required controls for mechanically operated louvers and vents.

U. Tile, Ceramic Tile, Quarry Tile

1. Provide shop drawings in electronic format via Procore. Clearly indicate areas where slab needs to be depressed and required slab depression.
2. Level, patch, clean, detail, or otherwise prepare substrate as necessary to ensure proper adhesion and finish prior to commencing installation. Fill and prepare slab shrinkage cracks and joints for floor finishes.
3. Subcontractor responsible for ensuring a smooth and level transition between various flooring types through flash-patching, reducers, transition strips, and/or any other means necessary.
4. Provide offsite storage for materials as necessary and directed by Fontaine/W.T. Rich.
5. Coordinate with other subcontractors to ensure a neat and flush interface.
6. Adhere to temporary protection and cleaning instructions per specifications.
7. Protect and maintain protection of all finished work. Remove and dispose of floor protection after substantial completion or as directed by the CM.
8. Inspect substrate of floors and walls as soon as they become available and with sufficient time to allow for repair without impacting project schedule. Notify the CM of any discrepancies.
9. Work will be performed out of sequence. Multiple mobilizations will be required.
10. Perform moisture testing as required by the specifications and manufacturer's recommendations.

V. Acoustical Ceilings

1. Subcontractor shall include provisions to install ceiling grid system prior to installation of tile. Subcontractor shall carry multiple mobilizations to complete cuts, device installation, and full tiles.
2. Subcontractor shall provide multiple crews if necessary to complete installation of grid and tiles in an expedient manner. Subcontractor understands that sequence of work for acoustical ceilings will not necessarily be contiguous and that compliance with project schedule will require multiple mobilizations and may require overtime.
3. Ceiling grid shall be seismically braced as indicated or required to meet or exceed specifications and code and shall hang independently from work of other trades.
4. Subcontractor to frame to and provide cutouts in the ceiling for other trades including lighting fixtures, mechanical equipment, projection screens, access panels,

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- expansion joints, and more.
5. Adhere molding to the wall with sealant and provide caulk between ceiling grid and walls per specifications.
 6. Provide touch up paint at cut ceiling tile edges exposed to view.
 7. Subcontractor to include an allowance of 240 hours of work completed at the direction of the CM for areas not damaged by ACT contractor including replacement of tiles around devices, cuts, etc. Subcontractor shall carry, in addition to labor, 80 boxes of various types of ACT and 1 box of mains and 6 boxes of assorted T's and accessories for work NOT damaged by ACT subcontractor.
 8. As a result of the coordination process, reflected ceiling plans may vary from original contract documents (light fixtures, diffusers, etc.). Attend and participate in the overhead coordination meetings. Participation in these meetings includes sign off on MEP coordination drawings. Adjustments to the ceiling assemblies to address layout of overhead equipment will be at no additional cost to the project. Bring to the attention of the CM any discrepancies in height or layout not noted during coordination. Confirm ceiling height or layout changes through shop drawings or RFIs to the design team.

W. Wood Strip and Plank Flooring, Wood Athletic Flooring, Stage Flooring

1. Subcontractor shall level, patch, clean, detail or otherwise prepare substrate to achieve proper flatness and levelness required by flooring manufacturer prior to commencing installation.
2. Provide and maintain ventilation as required to complete your work.
3. Control humidity for floor installation including the use of humidifiers or dehumidifiers as required.
4. Route out all floor boxes so that the finish is flush with the floor.
5. Install all required sleeves.
6. Provide gym floor line striping plan with submittals. Mobilize early to layout all sleeves as soon as gym equipment is in place.
7. Coordinate with bleacher installer for any required blocking under bleachers. Furnish and install if required.
8. Provide, Install, and maintain temporary protection of all finished surfaces. Remove and dispose of temporary protection at substantial completion or as directed by the CM.
9. Install volleyball sleeves, furnished by others.

X. Resilient Flooring, Resilient Base and Accessories

1. Provide resilient base at all areas indicated on contract documents.
2. Provide resilient flooring at areas indicated on contract documents and in patterns indicated in finish schedule/drawings. In the event of a conflict between drawings and finish schedule, subcontractor shall carry more expensive pattern/quantity.
3. Level, patch, clean, detail, or otherwise prepare substrate as necessary to ensure proper adhesion and finish prior to commencing installation. Inspect substrate as soon as it becomes available.
4. Subcontractor responsible for furnishing, delivering, hoisting, unloading, distributing and installing flooring materials.
5. Subcontractor responsible for ensuring a smooth and level transition between various flooring types through flash-patching, reducers, transition strips, and/or any other means necessary.
6. Provide, Install, and maintain temporary protection of all finished surfaces. Adhere to cleaning instructions per specifications, damage incurred as a result of lack of protection will be the responsibility of flooring subcontractor. Remove and dispose of

floor protection at substantial completion or as directed by the CM.

Y. Rubber Flooring

1. Level, patch, clean, detail, or otherwise prepare substrate as necessary to ensure proper adhesion and finish prior to commencing installation.
2. Subcontractor responsible for furnishing, delivering, hoisting, unloading, distributing, and installing flooring materials.
3. Subcontractor responsible for ensuring a smooth and level transition between various flooring types through flash-patching, reducers, transition strips, and/or any other means necessary.
4. Provide and maintain temporary protection of all finished surfaces. Adhere to cleaning instructions per specifications, damage incurred as a result of lack of protection will be the responsibility of flooring subcontractor. Remove and dispose of floor protection at substantial completion or at the direction of the CM.

Z. Carpeting and Tile Carpeting

1. Level, patch, clean, detail, or otherwise prepare substrate as necessary to ensure proper adhesion and finish prior to commencing installation.
2. Subcontractor responsible for furnishing, delivering, hoisting, unloading, distributing and installing flooring materials.
3. Subcontractor responsible for ensuring a smooth and level transition between various flooring types through flash-patching, reducers, transition strips, and/or any other means necessary.
4. Provide and maintain temporary protection of all finished surfaces. Adhere to cleaning instructions per specifications, damage incurred as a result of lack of protection will be the responsibility of flooring subcontractor. Remove and dispose of floor protection at substantial completion or at the direction of the CM.

AA.Epoxy Flooring

1. Level, patch, clean, detail, or otherwise prepare substrate as necessary to ensure proper adhesion and finish prior to commencing installation. Include any preparation required of concrete slab prior to placement including but not limited to shot blasting, grinding, patching, etc.
2. Subcontractor responsible for furnishing, delivering, hoisting, unloading, distributing and installing flooring materials.
3. Subcontractor responsible for ensuring a smooth and level transition between various flooring types through flash-patching, reducers, transition strips, and/or any other means necessary.
4. Provide and maintain temporary protection of all finished surfaces. Adhere to cleaning instructions per specifications, damage incurred as a result of lack of protection will be the responsibility of flooring subcontractor. Remove and dispose of floor protection at substantial completion or at the direction of the CM.

BB.Fabric Wrapped Panels, Acoustical Panels

1. Subcontractor shall coordinate blocking with installing subcontractor. Subcontractor shall provide locations and size of in-wall blocking required on shop drawings. Blocking that is installed after wallboard is installed shall be furnished and installed by Fabric Wrapped Panels subcontractor. Any patching and painting required for blocking installation shall be charged to fabric wrapped panels subcontractor.
2. Subcontractor shall provide all cutouts in panels for wall mounted devices.

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3. Field dimensions shall be completed as soon as areas become available to ensure timely installation.
4. Subcontractor responsible for furnishing, delivering, hoisting, unloading, distributing and installing material.

CC. Acoustical Insulation

1. Comply with LEED requirements including protection of absorptive materials and acoustical requirements. Provide date stamped photo documentation showing absorptive materials protected.

DD. Painting

1. Furnish and apply paint for interior and exterior surfaces.
2. Inspect and accept substrate prior to painting as soon as it becomes available. Notify the CM of any areas that do not meet specifications. Application of paint/primers constitutes acceptance of substrate.
3. Provide surface preparation prior to applying paint, including field primer if necessary. Prepare areas of field welds, remove bubbles, sand, bondo, re-prime if necessary, so that the end result is not flashing and has a smooth finish acceptable to the project.
4. Seal tops and bottoms of wood doors as required.
5. Fire rated labels shall not be painted or covered.
6. Protect surfaces not scheduled to receive paint from paint, including overspray. Paint on surfaces not scheduled to receive paint shall be removed by this subcontractor, using methods that do not damage the intended finish of such surfaces, at no additional cost to the project. In areas with dryfall paint, remove protection, sweep/vacuum and clean dryfall immediately after completion so that material is not tracked through the jobsite.
7. Properly dispose of excess materials and containers. Materials and containers that cannot be disposed of in general debris dumpsters shall be disposed of by the painting subcontractor. Create and maintain an approved washout area.
8. Paint/touch up areas where holes were created by temporary systems including temp electricity, water, propane, etc.
9. Include provisions for touchup of finish painted surfaces just prior to occupancy as directed by Fontaine/W.T. Rich.
10. Paint all access panels installed by other trades.
11. Provide stencils above ceiling at all fire rated walls.
12. Just prior to substantial completion or as directed by the CM, provide touchup material and 160 hours of patch and touchup paint.

EE. Markerboards

1. Provide off site storage for markerboards until directed to install by Fontaine/W.T. Rich.
2. Assume that separate mobilizations will be required to install mounting clips and to install markerboards.
3. Subcontractor responsible for furnishing, delivering, hoisting, unloading, inventorying, distributing and installing markerboards under this scope.
4. Provide shop drawings indicating location of any in-wall blocking required.
5. Coordinate marker board requirements with requirements of the projection system.
6. After substantial completion, return to the site to remove protective plastic and to clean boards per manufacturer's instructions.

FF. Toilet Compartments

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1. Indicate on shop drawings all locations of in-wall blocking required for installation by others.
2. Field verify all dimensions when drywall is installed and prior to ordering material.
3. Include all fasteners, joint sealants, adhesives required to complete this work.
4. Do not damage tile or epoxy finishes in the process of installation. Damage caused by installing subcontractor shall be repaired at installing subcontractor's expense.
5. Subcontractor responsible for furnishing, delivering, hoisting, unloading, inventorying, distributing and installing markerboards under this scope.
6. Vacuum clean all areas that tile has been drilled for installation of partitions.
7. After substantial completion, return to the site to clean all toilet compartments.

GG. Metal Lockers

1. Metal lockers subcontractor shall be responsible for furnishing, delivering, unloading, hoisting, inventorying, distributing, and installing metal lockers including fasteners, sloped tops, number tags, fillers, and hardware.
2. Metal lockers subcontractor is responsible for protecting metal lockers on site prior to installation. If necessary, store metal lockers offsite until just prior to installation. No claims shall be made for damage to metal lockers occurring prior to installation.
3. Provide all filler pieces and trim required to close any gaps greater than 1/4". Install lockers evenly in the openings.
4. Requirement for in-wall blocking shall be noted in shop drawings. This contractor shall provide blocking outside of the drywall behind the lockers as noted in the contract drawings. Ensure sloped top is fabricated to accommodate blocking.
5. Vacuum, clean, and wipe down lockers following installation. Provide protection of lockers. Remove and dispose of protection following substantial completion at the direction of the CM.

HH. Signage

1. Determine all existing conditions which conflict or prevent the complete installation of the signage as indicated in the Contract Documents and provide the CM with the details in sufficient time to allow the removal or repair of conflicting items. Remobilization or additional charges shall not be paid for work resulting from the failure to request the removal of conflicting items. Inspect substrates prior to the start of work and advise the CM of any unacceptable conditions.
2. Provide layout required to complete work. All signs shall be installed to meet code and ADA requirements.
3. All blocking not shown on the contract drawings but required by this contractor must be provided by this contractor.
4. Store and protect any equipment or material as it arrives on site and maintain protection as required until acceptance by the owner.
5. Provide proper protection of adjacent finished materials to prevent damage or stains during the installation of the work of this bid package.
6. Coordinate with the CM for all inspections.

II. Kitchen Equipment

1. Kitchen equipment subcontractor shall complete all required connections, testing, and work required to furnish and install a complete and operational system unless such work is explicitly specified as by others.
2. This contractor shall be responsible to check electrical, plumbing, HVAC, Fire Protection, etc. to ensure that items provided are sufficient to run and maintain equipment.
3. Kitchen equipment subcontractor shall submit shop drawings through Procore. Shop

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- drawings shall include "rough-in" drawings. Roughing-in contractors will not be responsible for interpreting catalog cuts to determine the rough-in requirements. Indicate on shop drawings all required in-wall blocking and all floor recesses for installation by others.
4. Submit shop drawings indicating slab preparation requirements for freezers/coolers.
 5. Field measure for all critical fit custom fabricated items.
 6. All equipment provided shall be installed by this Contractor. Provide all assembly of internal components to make kitchen equipment complete. Final utility connections only will be provided by others as outlined in the plans and specifications.
 7. Check equipment sizes and take note to building access. Make provisions to ensure that equipment will fit through permanent doorways and/or structure.
 8. Be advised that the MEPFP drawings along with the food service equipment specifications and drawings will be used as a reference for rough-in of waste, water, and electrical systems. Provide equipment to fit these requirements. Notify the Construction Manager if writing of any deviations at bid time.
 9. Expedite submittal of shop drawings, fabrication, and shipment of all items to be cast in the slab or concealed within walls. Expedite hood shop drawings for HVAC/Electrical coordination.
 10. Coordinate sink hoses/ wash down hoses with all above sink shelving so as not to interfere with intended use of hoses. Provide all backflow preventers required by health department whether shown or not.
 11. Provide protection of equipment until final acceptance. Provide touchup painting of all finishes including factory finished equipment. Provide final cleaning of all materials and equipment. All equipment and material provided by this contractor shall be cleaned and sanitized by this contractor when directed by the CM.
 12. Warranty periods for equipment of this bid package shall not start any earlier than July 1, 2021.
 13. Participate in health department review, acceptance, and sign off.

JJ. Gym Equipment

1. Submit receive, approve, and deliver equipment and material to maintain the project schedule and as directed by the Construction Manager. Provide equipment mounting locations as soon as possible for coordination with the steel contractor for joist bridging if required.
2. This contractor shall provide all switches, controllers, remote controllers, and necessary wiring from the controller/switch to the motors for the equipment. Power to controller/switch will be provided by the electrical contractor. Coordinate work with the electrical contractor.
3. Coordinate locations of all wall devices with the architectural drawings.
4. Provide all means of support and attachments for all equipment back to the structure. Provide all miscellaneous steel supports which are not shown on the drawings but are required to complete the work of this bid package. Include primer and touch-up paint on prefinished materials.
5. Submit complete coordination drawings in conjunction with BIM coordination indicating location of equipment in relation to MEPFP equipment, fixtures, and partition assemblies.
5. Provide and coordinate all required wall pad cut outs for wall mounted devices and signage.
6. Subcontractor responsible for furnishing, delivering, hoisting, unloading, distributing and installing material.
7. Return to the site to clean all installed equipment after substantial completion.

KK. Theatrical Rigging

1. Submit, receive, approve, and deliver equipment and material so as to maintain the project schedule as directed by the Construction Manager. Coordinate with Catwalk

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- and MEPFP trades and bring to the attention of the CM any discrepancies.
2. This contractor shall provide all switches, controllers, and necessary wiring from the controller/switch to the motors for the equipment. Power to controller/switch will be provided by the electrical contractor. Coordinate work with the electrical contractor.
 3. Coordinate locations of all wall devices with the architectural drawings.
 4. Provide all means of support and attachments for all equipment back to the structure. Provide all miscellaneous steel supports which are not shown on the drawings but are required to complete the work of this bid package. Include primer and touch-up paint on prefinished materials.
 5. Submit complete coordination drawings in conjunction with BIM coordination indicating location of equipment in relation to MEPFP equipment, fixtures, and partition assemblies.
 6. Highlight any areas that require blocking to mount your equipment. Failure to do this will result in this contractor paying for installation, patching, and painting for any remedial work required.

LL. Elevator

1. Subcontractor shall include an allowance of (80) hours of operator time for each elevator for miscellaneous trades to complete associated work within elevator shaft. Subcontractor shall track time spent against this allowance in conjunction with Fontaine/W.T. Rich Superintendent and shall have slips signed each day reflecting time spent. Subcontractor shall be compensated or provide a credit upon project closeout based upon amount of this allowance used. Work will be compensated for time on site, not an 8 hour minimum.
2. Subcontractor shall perform all activities related to elevator testing and commissioning as part of this scope of work at no extra charge. These activities include providing labor as required for alarm testing, elevator louver testing, and inspections. This work is part of the base bid of this contract and shall not be charged against the 80 hour allowance in item 1 above.
3. Subcontractor shall include removal of all components not necessary for operation of elevator upon completion of installation including excess hydraulic oil if directed by the CM.
4. Subcontractor shall participate in and sign off on elevator room layout. Subcontractor shall make diligent efforts to avoid conflicts with other trades. Verify pit and shaft sizes prior to ordering elevator.
5. Include provisions for temporary power connections to operate cab during installation.
6. Subcontractor's employees shall maintain the guardrail system put in place by others during performance of their work. Subcontractors shall remove guardrails only as necessary to provide access to cab/shaft and shall replace guardrails immediately when possible. Subcontractors employees who create a safety hazard at any time will be immediately dismissed from the project.
7. Subcontractor shall make all efforts necessary to complete installation and inspection of elevator as quickly as possible to allow for temporary and permanent operation. Subcontractor shall allow temporary use of elevator with operator as feasible and shall allow use of elevator immediately after inspection regardless of whether or not substantial completion has been reached.
8. Subcontractor shall make provisions to provide specified warranty period from date of certification of occupancy or acceptance of the building, whichever is later, including provisions to provide extended warranties if necessary.
9. Provide all drawings and documentation required for inspections in a timely manner so they can be reviewed and stamped by the design team prior to elevator inspection.
10. Provide all hoisting, offloading and distribution of materials.

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11. It is the responsibility of this contractor to verify and monitor approval of elevator shop drawings, color selections, and submittals to ensure elevator is released to meet project schedule.

MM. Fire Protection

1. Maintain as built drawings in the most recent version of AutoCAD, updated as-built drawings shall be a prerequisite to monthly payment.
2. Provide sleeves/coring as necessary for work of this subcontractor, provide firestopping through fire rated partitions. Provide acoustical sealant at all acoustical partitions. Provide link seal at foundation walls.
3. All bidders are directed to review all disciplines of the bid documents prior to submitting a price. The drawings and specifications are complimentary and bidders' prices shall reflect all Fire Protection work regardless of where it is shown in the documents.
4. Stamped shop drawings and building design shall be completed asap. Drawings shall be submitted to the building department for permit application with a copy provided to the fire department.
5. Furnish and install seismic bracing as required by codes and shown on drawings, whichever is more stringent.
6. Subcontractor shall complete all commissioning and start up procedures in accordance with the specifications and as directed by the project team.
7. Fire protection contractor shall arrange for all inspections and tests, including pressure tests as required by applicable codes and engineers. Fire protection contractor shall notify Fontaine/W.T. Rich in advance of any such test and shall provide written documentation of all test performed.
8. Subcontractor shall comply with Engineer's requirements in regards to raising of fire protection piping as far above ceiling as possible at no additional cost.
9. Fire protection systems installed under this subcontract shall continue to 10 feet beyond the building perimeter. This contractor shall oversee installation of exterior fire protection system components by the site contractor as required by code.
10. Per NFPA 241 and as directed by the CM in coordination with the Fire Marshall, standpipes shall be installed and maintained in the stairwells during steel erection no more than one floor below the top story and/or scaffold level.
11. Special Note with regards to sprinkler heads: The contract drawings are complementary and indicate the approximate amount of sprinkler heads required. The Fire Protection Trade Contractor shall review the drawings in depth, bid and install ALL of the necessary sprinkler heads for the project. No additional compensation will be provided to the Fire Protection Trade Bidder for missing sprinkler heads.
12. MEP Coordination utilizing 3D Modeling (BIM):
 - a. Provide 3D coordination models and related responsibilities. See Section Construction Manager Supplemental Conditions 00 73 00a for additional information.
 - b. Provide appropriate BIM expertise and resources to meet the MEP Coordination Requirements defined in Construction Manager Project Schedule 00 73 00e.
 - c. Both sections of the building will be modeled for MEP coordination at the same time. This contractor shall carry and make available the appropriate staff to allow for simultaneous multi-building area coordination. As a result of the coordination process, piping may be orientated in a way that will require additional pipe lengths, elbows, fittings, and low points requiring drainage. This work is to be included in the base contract. No extras will be entertained due to

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coordination.

13. Special attention shall be taken by this Trade Contractor for review of RCP drawings. There are many instances of required layouts, layouts allowing concealed conditions, layout through access panels within decking.
14. Access Doors and Panels:
 - a. The Fire Protection Trade Contractor shall furnish access doors and panels as required to allow access to fire protection valves, equipment and the like.
 - b. Access doors and panels shall be installed by the trade responsible for the material into which the access door and panel is to be installed (for example, drywall, masonry, tile, acoustical ceiling.
 - c. Access doors for MEP's shall be furnished from a single source vendor in order for them to be keyed alike. Coordinate with all other MEP's subcontractors at the appropriate time.
 - d. Access panel coordination must be completed for Design Team review.
 - e. Access panels must be labeled on the inside of the panel with the name of the contractor requiring the access panel.

NN.Plumbing

1. Maintain as built drawings in the most recent version of AutoCAD, updated as built drawings shall be a prerequisite to monthly payment.
2. Plumbing systems installed under this subcontract shall continue to 10 feet beyond the building perimeter.
3. Plumbing subcontractor shall include all drilling, coring, sleeving, and link seals required for this scope of work.
4. Subcontractor shall provide firestopping at all penetrations through fire rated systems and acoustical sealant at all acoustical systems.
5. Furnish and install seismic bracing as required by codes and shown on drawings, whichever is more stringent.
6. Provide detailed drawing showing all locations that require in wall blocking prior to the start of interior framing.
7. Subcontractor shall complete all commissioning and start up procedures in accordance with the specifications and as directed by the project team.
8. Plumbing contractor shall arrange for all inspections and tests, including line tests, as required by applicable codes and engineers. Plumbing subcontractor shall notify Fontaine/W.T. Rich in advance of any such test and shall provide written documentation of all tests performed.
9. Provide submittals for any materials on or penetrating the roof within 2 weeks of notice of intent. Provide roof drains and rain leaders asap to coordinate with roof install. Building shall be kept dry. Provide temporary piping to the exterior of the building to divert water out of the building until the site utilities are ready to receive water.
10. Pressure test all lines. All testing shall be witnessed by Fontaine/W.T. Rich and inspector. Provide written documentation of each test performed.
11. Protect floor drains and clean outs until building has been turned over to the owner. ALL damage to floor drains will be repaired by and at the cost of the plumbing subcontractor regardless of the cause. Remove and clean protection at the completion of the project and clean covers to look like new. Replace covers as necessary.
12. Provide protection of rain leaders after installation and prior to installation of spray fire proofing. Remove and dispose of protection after spray fireproofing is complete to make ready for insulation.
13. Provide all labor, equipment, and material necessary to provide temporary gas piping

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- from LP Gas tanks provided by others outside of the building to temp heat units inside the building. Assume that there will be (6) LP gas tanks in 2019 piped to a total of (6) temp heat units. Assume units will be piped to natural gas from within building for 2020. Units will be installed and removed for the 2019 and 2020 winter heating season. Include hookups and disconnects as required to meet both heating seasons. See cut sheets for proposed heaters following this specification section.
14. Furnish and install plumbing utility connections to food service equipment, including but not limited to LP, gas, sanitary waste and venting. Provide manpower to assist/work with Fontaine/W.T. Rich and Food Service equipment vendors and manufacturer's representatives to start up and commission all kitchen equipment as well as commission life safety systems.
 15. Provide coring/sleeving for any work penetrating foundation walls and slabs after installation of foundation walls and slabs.
 16. All bidders are directed to review all disciplines of the bid documents prior to submitting a price. The drawings and specifications are complimentary and bidders' prices shall reflect all plumbing work not explicitly included in another scope of work, regardless of where it is shown on the documents.
 17. Cut metal deck penetrations at framed openings in coordination with Fontaine/W.T. Rich schedule.
 18. MEP Coordination utilizing 3D Modeling (BIM):
 - a. Provide 3D coordination models and related responsibilities. See Section Construction Manager Supplemental Conditions 00 73 00a for additional information.
 - b. Provide appropriate BIM expertise and resources to meet the MEP Coordination Requirements defined in Construction Manager Project Schedule 00 73 00e.
 - c. Both sections of the building will be modeled for MEP coordination at the same time. This contractor shall carry and make available the appropriate staff to allow for simultaneous multi-building area coordination. As a result of the coordination process, piping may be orientated in a way that will require additional pipe lengths, elbows, fittings, and low points requiring drainage. This work is to be included in the base contract. No extras will be entertained due to coordination.
 19. Plumbing Trade Contractor shall be responsible to be present during all slab on grade concrete placements to ensure underground rough-in piping does not move during the concrete pours. Contractor will be solely responsible for the final location of all plumbing rough-ins.
 20. Temporary Water – Install all necessary temporary water systems consisting of a connection to the buildings water service and a distribution system that provides for one hose bib connection at a central location on each floor of the project (both areas of the building). The Plumbing Trade Contractor shall:
 - a. Maintain this system for the duration of the project.
 - b. Disconnect, dismantle, remove and dispose of the system when no longer required for temporary water (at discretion of Construction Manager).
 21. Special attention shall be taken by this Trade Contractor for review of RCP drawings. There are many instances of required layouts, layouts allowing concealed conditions, layout through access panels within decking.
 22. Access Doors and Panels:
 - a. The Plumbing Trade Contractor shall furnish access doors and panels as required to allow access to plumbing valves, equipment and the like.
 - b. Access doors and panels shall be installed by the trade responsible for the material into which the access door and panel is to be installed (for example, drywall, masonry, tile, acoustical ceiling)
 - c. Access doors for MEP's shall be furnished from a single source vendor in

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

- order for them to be keyed alike. Coordinate with all other MEP's subcontractors at the appropriate time.
 - d. Access panel ceiling coordination must be completed for Design Team review.
 - e. Access panels shall be labeled with the name of the contractor providing the panel.
23. Roof Drains shall be connected immediately (in coordination with the roofing trade bidder). Should the roofing trade bidder complete their drain work prior to the actual connection of the roof drains, the Plumbing Trade Bidder shall pump the roof water to a location selected by the CM. Rain garden 3 will not hooked up to the drainage system until area outside of rain garden 3 is no longer needed for MEPFP crane pads. Temporary pipe rain leaders to rain garden 2 or as coordinated with the CM.
24. Plumbing Contractor shall expedite submittals relating to below grade materials and roof drain system.

OO. HVAC

1. Maintain as built drawings in the most recent version of AutoCAD, updated as built drawings shall be a prerequisite to monthly payment.
2. Furnish and install seismic bracing as required by codes and shown on drawings, whichever is more stringent.
3. Provide submittals for roof top units, air handlers, and other roof top units within 2 weeks of notice of intent. Provide resubmittals on this material within 1 week of returned submittal.
4. Mechanical equipment shall be procured as quickly as possible, and shall be stored off site if necessary, until required for installation.
5. Provide detailed drawing with sizing and locations all roof and floor penetrations prior to steel fabrication.
6. Provide Shop drawings with fire dampers flagged and showing locations of duct smoke detectors for coordination with electrical requirements.
7. Comply with IAQ Management Plan, protection of ductwork, and all other **LEED** requirements.
8. Provide for full building flushout per **LEED** requirements including filter change and documentation.
9. Include construction filters and media protection for use of mechanical system during construction including filter/media changes as required.
10. Subcontractor shall provide coring/drilling/sleeving and link seals for any work associated with HVAC scope.
11. Subcontractor shall complete all commissioning and start up procedures in accordance with the specifications and as directed by the project team.
12. Furnish access panels required to access work of HVAC subcontractor, install by installer within whose finish surface they rest.
13. Subcontractor shall provide firestopping at all penetrations through fire rated systems and acoustical sealant at all acoustical systems.
14. Furnish and install all louvers on the project, including louvers connected to HVAC equipment, architectural louvers, elevator louvers, etc.
15. Provide all hoisting, staging, lifts, rigging, etc. required to complete this scope of work, including crane for setting of mechanical curbs and units on roof.
16. All bidders are directed to review all disciplines of the bid documents prior to submitting a price. The drawings and specifications are complimentary and bidders' prices shall reflect all HVAC work not explicitly included in another scope of work, regardless of where it is shown on the documents.
17. HVAC subcontractor shall ensure that HVAC system is fully operational prior to

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

installation of millwork and casework as dictated by project schedule. HVAC subcontractor shall include provisions necessary to operate system during construction and deliver a fully operational and cleaned out system for occupancy including necessary filter changes etc. In the event that HVAC subcontractor fails to provide a fully operational system prior to installation of millwork and casework, HVAC subcontractor shall provide dehumidification, humidification, and temperature control to ensure that building environment meets standards within those specs.

18. Cut metal deck penetrations at framed openings in coordination with Fontaine/W.T. Rich schedule.
19. Provide all wall and floor flange's to close up openings of material that penetrates walls and floors.
20. Subcontractor shall furnish, install, maintain, and remove 100 linear feet of temporary ductwork for temporary heating equipment, equipment provided by Fontaine/W.T. Rich, including special connections, and disconnections, as part of base bid. Assume that there will be (6) temp heat units. Units will be installed and removed for the 2019 and installed and removed for the 2020 winter heating season. Include hookups and disconnects as required for both heating seasons. See cut sheets for proposed heaters following this specification section.
21. Deliver roof top equipment over multiple mobilizations as required by schedule and as coordinated with the CM.
22. Provide signage on all units to meet Worcester Fire Department Standards.
23. Provide custom color for all units as noted in specifications.
24. MEP Coordination utilizing 3D Modeling (BIM):
 - a. Provide 3D coordination models and related responsibilities. See Section Construction Manager Supplemental Conditions 00 73 00a for additional information.
 - b. Provide appropriate BIM expertise and resources to meet the MEP Coordination Requirements defined in Construction Manager Project Schedule 00 73 00e.
 - c. Both sections of the building will be modeled for MEP coordination at the same time. This contractor shall carry and make available the appropriate staff to allow for simultaneous multi-building area coordination. As a result of the coordination process, piping may be orientated in a way that will require additional pipe lengths, elbows, fittings, and low points requiring drainage. This work is to be included in the base contract. No extras will be entertained due to coordination.
25. Access Doors and Panels:
 - a. The Plumbing Trade Contractor shall furnish access doors and panels as required to allow access to plumbing valves, equipment and the like.
 - b. Access doors and panels shall be installed by the trade responsible for the material into which the access door and panel is to be installed (for example, drywall, masonry, tile, acoustical ceiling)
 - c. Access doors for MEP's shall be furnished from a single source vendor in order for them to be keyed alike. Coordinate with all other MEP's subcontractors at the appropriate time.
 - d. Access panel ceiling coordination must be completed for Design Team review.
 - e. Access panels shall be labeled with the name of the contractor providing the panel.
26. Special attention shall be taken by this Trade Contractor for review of RCP drawings. There are many instances of required layouts, layouts allowing concealed conditions, layout through access panels within decking.
27. Special Attention is directed to Metering. The HVAC Trade Contractor shall furnish

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

and install all required metering, cabling, programing, etc. for a complete monitored system. This Trade Contractor shall lead the coordination of this work and execution of the complete system.

28. Louvers and Grills shall be furnished and installed by the HVAC Trade Contractor, unless specifically identified by others

PP. Electrical

1. Maintain as-built drawings in the most recent version of AutoCAD, updated as built drawings shall be a prerequisite to monthly payment.
2. Furnish and install seismic bracing as required by codes and shown on drawings, whichever is more stringent.
3. Provide all submittals within four weeks of execution of subcontract
4. Subcontractor is responsible for furnishing all access panels required to access work of this subcontract. Access panels shall be installed by subcontractor within whose finished surface they rest.
5. Subcontractor shall provide temporary power
 - a. Subcontractor shall provide temporary power within building footprint and within 50 feet of perimeter of building footprint for all trades. Subcontractor shall provide power per OSHA standards within one week of notice of intent to award subcontract. Subcontractor shall provide temporary power by any means necessary, **including providing generators and fuel**. Subcontractor shall replace generators and fuel with temporary power connection from utility as soon as possible.
 - b. Subcontractor shall provide all pads, bollards, and other accessories required for temporary and permanent power provision. Subcontractor shall provide excavation, backfill, conduit, and concrete if necessary for encasement of temporary power.
 - c. Power to CM and OPM/Owner trailer was provided under the site enabling contract. This contractor shall maintain and relocate temporary power as necessary. It is understood that these facilities may be moved during the construction period, and that these relocations will be performed at no additional cost. Power provided to CM and Owner trailers/offices shall be sufficient to power everyday operations including operation of computers, copiers, printers, and heating equipment integral to trailers/offices.
 - d. Subcontractor shall provide temporary lighting and power system within the building per OSHA requirements or specification requirements, whichever is more significant. Subcontractor shall maintain system until directed to remove system by Fontaine/W.T. Rich and shall not remove temporary system until permanent systems are in place. Subcontractor shall include dismantling system safely and without further damage to installed finishes around system. Subcontractors whose system runs through shall include provisions for patching holes left by system, painter shall include painting patches. Temp lighting shall be provided for concrete slab placement.
 - e. Subcontractor shall provide wiring to temporary heating equipment provided by Fontaine/W.T. Rich, including special connections, and disconnections, as part of base bid. Assume that there will be (6) temp heat units. Units will be installed and removed for the 2019 and installed and removed for the 2020 winter heating season. Include hookups and disconnects as required for both heating seasons. See cut sheets for proposed heaters following this specification section.
6. Subcontractor shall provide labor, material, and connections to provide power to all systems requiring power shown on plans, even if wiring is not specifically shown on

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

- the electrical plans.
7. Subcontractor shall furnish and install low voltage wiring as required for window shades, gymnasium equipment, curtain and rigging, food service equipment, overhead doors and controls, and similar equipment furnished and installed by others that requires low voltage wiring to and from controls or at other connection points.
 8. Furnish and install site electrical, including, but not limited to feeders, conduit, supports, hand holds, and equipment. Excavation and backfill by others. Coordinate with sitework subcontractor.
 9. Subcontractor responsible for all precast and prefabricated equipment pads related to Electrical work.
 10. Schedule testing and inspections expeditiously and in advance of required contract dates. Coordinate with Fontaine/W.T. Rich field personnel.
 11. Provide coring/drilling/sleeving and link seals at penetrations required for electrical work.
 12. Subcontractor shall provide firestopping at all penetrations through fire rated systems and acoustical sealant at all acoustical systems.
 13. Subcontractor shall complete all commissioning and start up procedures in accordance with the specifications and as directed by the project team.
 14. Provide coring/sleeving for any work penetrating foundation walls and slabs after installation of foundation walls and slabs.
 15. Subcontractor shall include in their bid provision of labor, material, and equipment necessary to make special connections for equipment requiring special power such as fire proofing equipment (pumps and sprayers), floor grinding machines, masonry saws, dehumidifiers, fans, etc. Equipment connections will need to be relocated as required.
 16. Provide labor, equipment, and material necessary for connection and operation of temporary heating systems during winter of 2019-2021. Remove and dispose of materials when directed by Fontaine/W.T. Rich.
 17. All bidders are directed to review all disciplines of the bid documents prior to submitting a price. The drawings and specifications are complimentary and bidders' prices shall reflect all Electrical work not explicitly included in another scope of work, regardless of where it is shown on the documents.
 18. Cut metal deck penetrations at framed openings in coordination with Fontaine/W.T. Rich schedule.
 19. Commissioning and testing.
 20. MEP Coordination utilizing 3D Modeling (BIM):
 - a. Provide 3D coordination models and related responsibilities. See Section Construction Manager Supplemental Conditions 00 73 00a for additional information.
 - b. Provide appropriate BIM expertise and resources to meet the MEP Coordination Requirements defined in Construction Manager Project Schedule 00 73 00e.
 - c. Both sections of the building will be modeled for MEP coordination at the same time. This contractor shall carry and make available the appropriate staff to allow for simultaneous multi-building area coordination. As a result of the coordination process, piping may be orientated in a way that will require additional pipe lengths, elbows, fittings, and low points requiring drainage. This work is to be included in the base contract. No extras will be entertained due to coordination.
 21. Access Doors and Panels:
 - a. The Plumbing Trade Contractor shall furnish access doors and panels as required to allow access to plumbing valves, equipment and the like.
 - b. Access doors and panels shall be installed by the trade responsible for the material into which the access door and panel is to be installed (for example, drywall, masonry, tile, acoustical ceiling)
 - c. Access doors for MEP's shall be furnished from a single source vendor in order

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

- for them to be keyed alike. Coordinate with all other MEP's subcontractors at the appropriate time.
- d. Access panel ceiling coordination must be completed for Design Team review.
 - e. Access panels shall be labeled with the name of the contractor providing the panel.
- 22. Special attention shall be taken by this Trade Contractor for review of RCP drawings. There are many instances of required layouts, layouts allowing concealed conditions, layout through access panels within decking.
 - 23. Provide energized permanent light fixtures for final painting.
 - 24. Special Attention for items within Specification Divisions 10, 11 and 12 for Power requirements. Regardless of whether or not such power requirements are shown, they shall be furnished and installed by the Electrical Trade Contractor.
 - 25. Poke Thru Devices and/or Floor Assemblies shall be furnished and install by the Electrical Trade Contractor, including all necessary coring, floor repair, patching, grouting, etc. for a complete installation.
 - 26. Underslab Excavation Responsibilities. Excavation and backfilling for underslab electrical will be provided by others only for underground electrical work shown on the electrical drawings. The Electrical Trade Contractor shall be responsible for excavation and backfill work for all underslab or underground electrical work not shown or explicitly depicted as underslab or underground work on the electrical drawings.
 - 27. One Classroom projector shall be installed in the mockup classroom as CM's request prior to release of all other projectors. Following review by the design team and the CM, project shall be removed, stored, and reinstalled along with all other MEP finishes.

MM. Turf Fields

- 1. Inspect subgrade to ensure grading meets specifications of turf manufacturer.
- 2. Review and approve base material.

QQ. Landscape

- 1. Furnish and install precast site benches including sonotube foundations, precast concrete, and precast steps.
- 2. Furnish and install irrigation system which meets the intent shown on contract drawings. Design irrigation system and provide all material and labor necessary for a complete irrigation system with full coverage of irrigated areas regardless of quantity of heads, joints, sleeves, length of piping, etc.
- 3. Provide all trenching required to complete work of this bid package.
- 4. Site contractor shall provide rough grading of loam. This contractor shall fine grade.
- 5. This contractor shall excavate for all plantings.
- 6. Provide as-built drawings, as hard copies and in CAD format, to match owner's requirements.
- 7. Provide quick disconnects and associated piping and accessories at the turf field.
- 8. Complete seasonal shutdown and startup as noted in specifications. Shutdown and startup must be coordinated with the Owner.
- 9. Furnish and install all steel and plastic edging.

END OF SECTION

ESTD

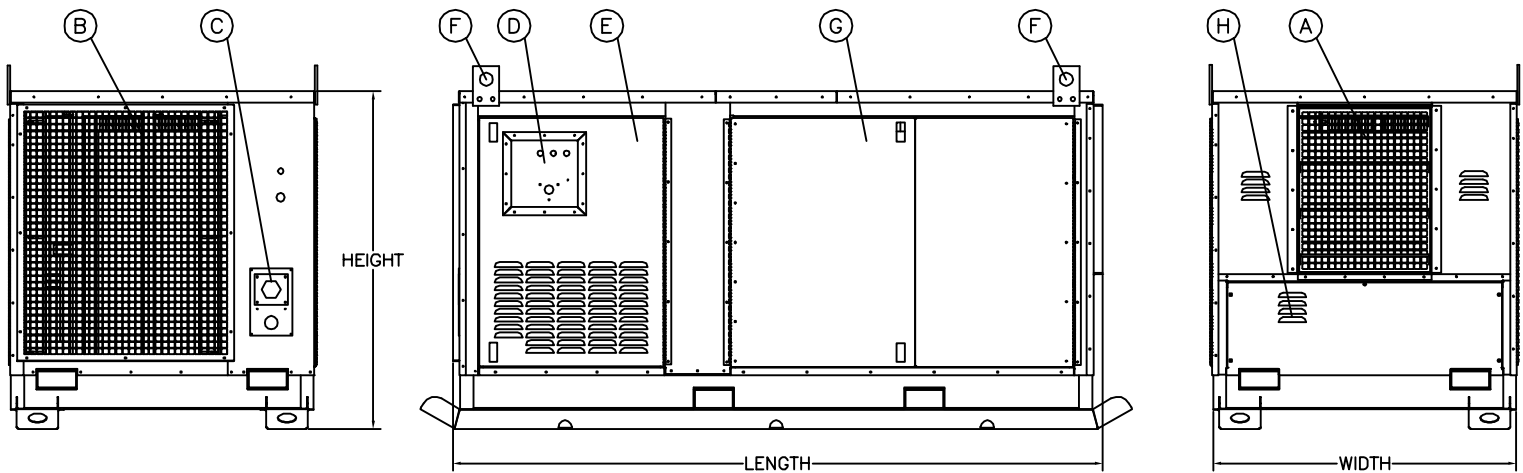


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TEMPAIR®

HVAC RENTAL SOLUTIONS

THP-2000



UNIT SPECIFICATIONS:

POWER SUPPLY: 230V/1PH/60HZ/35A
 230V/3PH/60HZ/20A
 460V/3PH/60HZ/10A

AIR DELIVERY: 11,000 CFM

BTU INPUT: 89,100 - 2,000,000

FUEL SUPPLY: MIN PRESSURE: MAX PRESSURE:

PROPANE: 2 PSI 10 PSI

NATURAL GAS: 14" W.C. 4 PSI

CONNECTION: PROPANE: 1" NPT NAT GAS: 1-1/2" NPT

DIMENSIONS:

LENGTH: 99"
 WIDTH: 47"
 HEIGHT: 52"
 WEIGHT: 1607 lb

NOTE:

CONTACT TEMP-AIR FOR OTHER GAS PRESSURES.

- Ⓐ DISCHARGE DIFFUSER
- Ⓑ INTAKE SCREEN
- Ⓒ GAS INLET
- Ⓓ CONTROL PANEL WITH SAFETY DISCONNECT
- Ⓔ SERVICE ACCESS ELECTRICAL /MANIFOLD
- Ⓕ LIFTING EYES
- Ⓖ SERVICE ACCESS BLOWER/BEARINGS
- Ⓗ SERVICE ACCESS MOTOR

DRAWN: ACJ	UPDATED: JH
DATE: 10/26/01	DATE: 03/09/18

ESTD

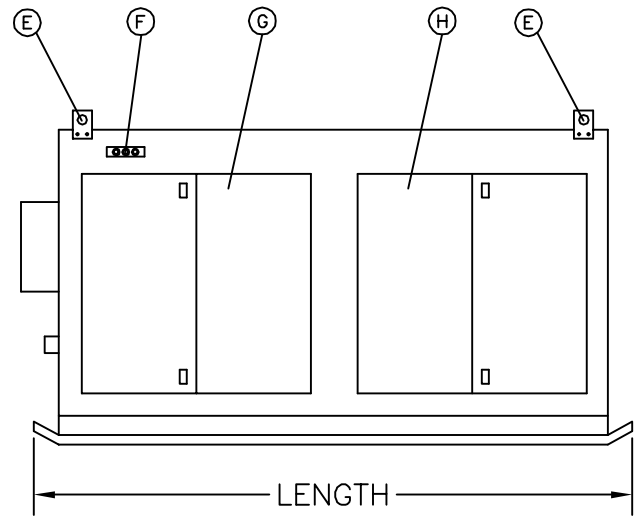
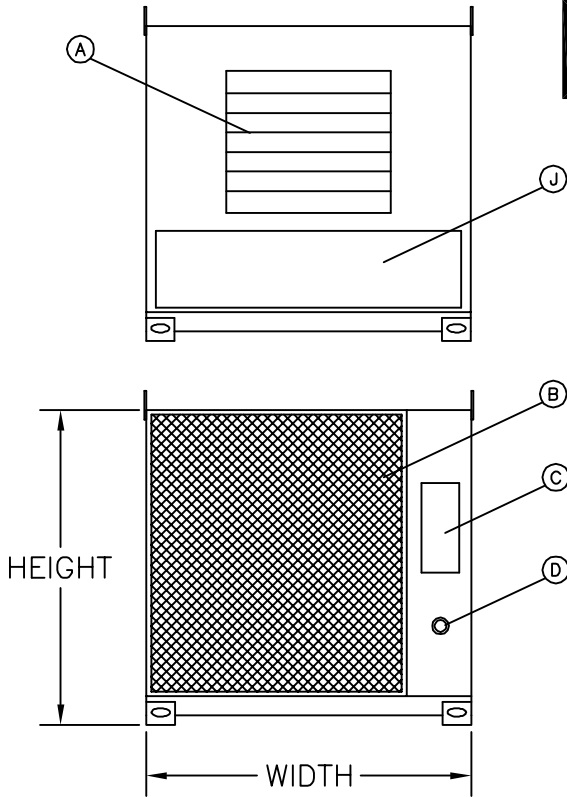


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TEMPAIR®

HVAC RENTAL SOLUTIONS

THP-4500



UNIT SPECIFICATIONS:

POWER SUPPLY: 230V/3PH/60HZ/60A

460V/3PH/60HZ/30A

AIR DELIVERY: 24,500 CFM

BTU INPUT: 202,500 - 4,500,00

FUEL SUPPLY: MIN PRESSURE: MAX PRESSURE:

PROPANE: 2 PSI 10 PSI

NATURAL GAS: 14" W.C. 4 PSI

CONNECTION: PROPANE: 2" NPT NAT GAS: 2"NPT

DIMENSIONS:

LENGTH: 125"

WIDTH: 68"

HEIGHT: 66"

WEIGHT: 2,700 lb

UNIT COMPONENTS:

- (A) DISCHARGE DIFFUSER
- (B) INTAKE SCREEN
- (C) SAFETY DISCONNECT
- (D) GAS INLET
- (E) LIFTING EYES
- (F) CONTROL PANEL
- (G) SERVICE ACCESS ELECTRICAL & MANIFOLD
- (H) SERVICE ACCESS BLOWER/BEARINGS
- (J) SERVICE ACCESS MOTOR

NOTE:

CONTACT TEMP-AIR FOR OTHER GAS PRESSURES.

DRAWN: ACJ	UPDATED: JH
DATE: 11/13/01	DATE: 03/09/18

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Section 00 73 00a
BIM EXECUTION PLAN

BIM Execution Plan and BIM Requirements for Subcontractors

1 Introduction

In the past years, Building Information Models (BIM) have evolved from being a specialty application that was primarily used on process industry projects to an accepted and valued tool in the general building industry. BIM for building projects has demonstrated its value to construction practitioners on the design and construction side. BIM representing design or shop drawing information in three dimensions has proven to be a beneficial tool for representing, sharing and coordinating information among the participants of a project. In addition to 3D geometrical information BIM can also contain information that is associated with building elements, spaces or buildings in general e.g. schedule information, cost information, status information, submittal information etc. At this time, BIM is still an evolving topic in our industry that will keep expanding in its use and application. While there are many aspects of BIM that are new and are in the process of being defined, other areas, such as 3D coordination of disciplines and trades, have already proven their value. To date the overwhelming majority of projects that use BIM for discipline and trade coordination, report a higher degree of accuracy and reliability of the coordination effort. This higher degree of coordination translates into reduced re-work in the field. In a secondary effect the high level of coordination and trust in the coordination effort often results in subcontractors feeling confident to raise their level of pre-fabrication on BIM projects and hence generate savings through more efficient fabrication practices. While Fontaine/W.T. Rich cannot guarantee or prescribe any certain level of trust and pre-fabrication to happen on the project, we are committed to creating an environment in which the project participants provide the best of their work product to our client and at the same time work efficiently and profitably. It is Fontaine/W.T. Rich intent to leverage the practical, tried and proven aspects of BIM to their greatest extent. At the same time, it is not Fontaine/W.T. Rich intent to use every possible facet of BIM without seeing a clear benefit for the project. The intention of this document is to provide clarity about Fontaine/W.T. Rich BIM Process and the requirements for participating in that process.

2 The BIM Based Trade Coordination Process

2.1 Modeling requirements for subcontractors

On the project Fontaine/W.T. Rich will implement a collaborative BIM Process for the coordination of the trades specified in Section 8 in this document. The purpose of the coordination effort is to reach agreement on the usage of space for components installed by the different subcontractors, access space and clearance space. In this coordination process the subcontractors are required to provide models, called Component Models, for the scope of their work. Section 8 provides the minimum requirements for the objects that need to be represented in the Component Models of the respective subcontractors. The subcontractors are encouraged to represent all objects and space requirements in the model that they deem necessary to coordinate their scope of work with the other trades. The subcontractors may use reasonable abstractions for representing the objects and elements of their scope of work, e.g. box representations for cable trays and light fixtures. The abstractions must be appropriate to allow meaningful interpretation and coordination between the trades.

2.2 Structuring the models

The Component Models need to be broken down into areas that can be shown on drawings and that correspond with the general sequence of the coordination process with each of these Component Models being represented in one file. For a 10 story hospital, for instance, the models, and files, provided by the

subcontractors are broken down by trades and levels. If the facility has a larger footprint the Component Models will be structured by trades, levels and zones. The practice of breaking down a model by different trades, levels and zones serves multiple purposes: (1) the general sequence of the coordination process can be followed in which the team breaks up the building into different areas, coordinates these areas and signs-off on the coordination of these areas; (2) the models provided by the different project participants are distinct so no two subcontractors need to work on the same model or file and their contributions can be clearly delineated; and (3) the file sizes of the Component Models remain small and manageable for all project participants. The file structure of the Component Models will be determined in the BIM Kick-off Meeting. Please see the example provided in Section 4.

2.3 Models are a contract for installation space

For the purpose of field installation the signed off, final models are treated as a contract for space. By modeling their components and their scope of work, including access space etc. subcontractors reserve space. If a conflict arises in the field installation the subcontractor who did not reserve space for his/her components has to move his/her components for the subcontractor who did reserve space at his (the subcontractor who did not reserve space) cost. The subcontractor who did not follow the model also has to compensate other contractors/subcontractors for consequential costs arising from the incorrect installation of his/her components. Components that are not represented in the model will be installed after the components that are represented in the signed-off model.

2.4 The modeling and coordination sequence

The sequence and schedule of the coordination is determined by Fontaine/W.T. Rich's Project Manager on the project. All models and drawings shall be developed in the time frames allotted and submitted so as to not delay the installation of the overall project schedule. In general, the traditional sequence of coordination (Structural Fabrication, Ductwork, Pitched Pipe, Pressure Pipe, Electrical, Fire Protection) will be followed. Exceptions to this sequence may be necessary. The coordination effort for each of the areas will start with a high level overview meeting in which high level agreements between the different trades are reached. These agreements may include: general elevation levels for the installation of the different trades, constraints around vertical riser cores, general agreements on the standard cross sections in corridors etc.

2.5 The model sharing, clash detection and coordination process

Figure 1 illustrates the BIM-Based Coordination Process. The process starts with the designers or 3rd party modelers providing the architectural and structural Component Models and uploading these models to the file sharing platform. In addition 2D dwg files of the floor plans will also be made available. The Component Models will be made available to all project participants to be used as background models for laying out their scope of work. The subcontractors should use these models and the Component Models provided by the other subcontractors as reference models (x-Refs in AutoCAD based applications), so that their work is represented in a distinct file that does not contain the information provided by the other project participants. Please refer to the provisions in Section 10 (Contract Documents and the model - legal aspects) regarding the reliability of the architectural and structural Component Models.

Fontaine/W.T. Rich will make the following material available to the subcontractors on a file sharing site:

Component	Author	File Format
Architectural Model	Designer	3D rvt*
Structural Model	Designer	3D rvt*
Mechanical Floor Plans	Designer	2D dwg*+ pdf
Electrical Floor Plans	Designer	2D dwg*+ pdf
Plumbing Floor Plans	Designer	2D dwg*+ pdf
Architectural Floor Plans	Designer	2D dwg*+ pdf

Architectural Reflected Ceiling Plans	Designer	2D dwg*+ pdf
Architectural Sections and Elevations	Designer	2D dwg*+ pdf
Structural Floor Plans	Designer	2D dwg*+ pdf
Structural Sections and Elevations	Designer	2D dwg*+ pdf
Others	TBD	TBD
* Autocad (dwg) and Revit (rvt) files will be provided if appropriate model or cad files will be provided to Fontaine/W.T. Rich by the design team		

Following the agreed upon coordination sequence the subcontractors will develop the layout of their scope of work and upload their Component Models to the file sharing platform. In accordance with an agreed upon schedule Fontaine/W.T. Rich will download the latest Component Models from the file sharing platform and create a Federated Model. A Federated Model is a model that superimposes the Component Models provided by the project participants and allows delineating the Component Models from each other in the superimposed representation. The Model Review software, in which the Federated Model is created, allows automated and efficient identification of the physical clashes between the Component Models. Fontaine/W.T. Rich BIM Manager will highlight the identified clashes and conflicts in the Federated Model. That Federated Model will be made available to all project participants on the file sharing platform before the coordination meeting. The clashes identified in the Federated Model will be discussed in the coordination meeting. The subcontractors are required to bring their laptop computers with the relevant software installed on the computers to the coordination meetings so that smaller clashes can be resolved right at the coordination meeting. For clashes that require more re-modeling work a conceptual solution will be developed and documented in the coordination meeting and the subcontractors will make adjustments to their Component Models in their home offices. Fontaine/W.T. Rich may elect to use web meetings for the coordination process. The coordination process is an iterative process that typically requires weekly in-person coordination meetings. In addition to that web-based coordination meetings (2-3) per week may be conducted.

If conflicts or interferences in the coordination process cannot be satisfactory resolved the Architect shall be notified for his/her decision to be obtained.

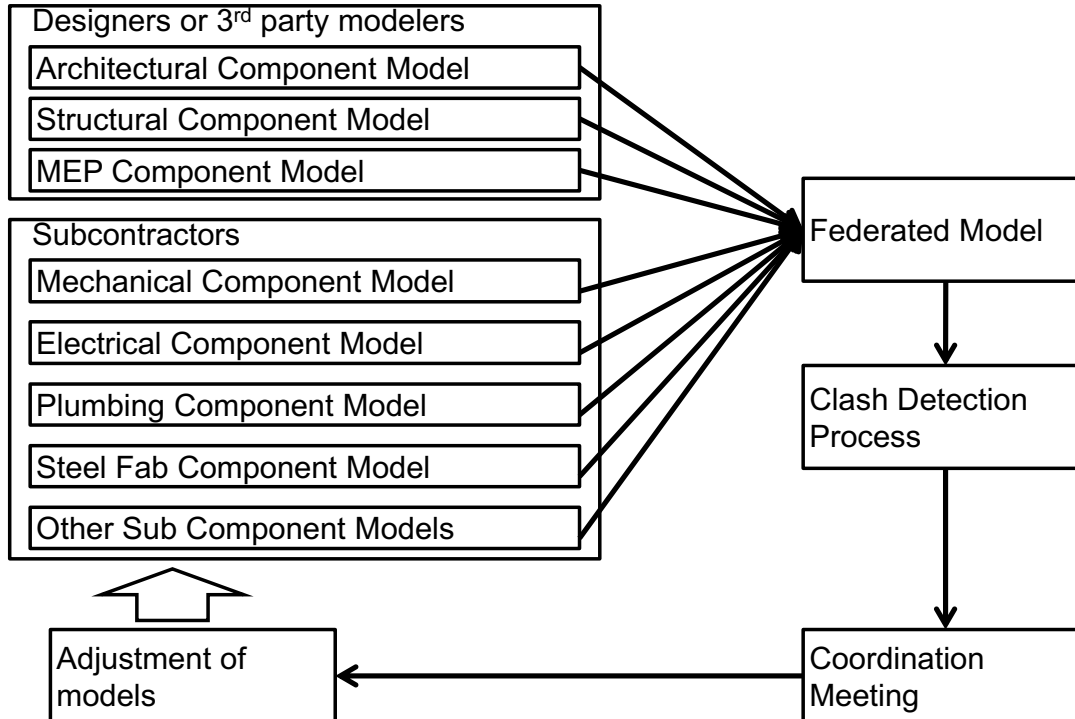


Figure 1. The BIM-Based Coordination Process (generalized version; project specific situations may be slightly different)

2.6 Specific Responsibilities of the Subcontractors

In the coordination process Fontaine/W.T. Rich requires the subcontractors to upload their models on a frequent basis as they are being developed to the provided file sharing platform. Uploads may be requested on a frequency between once a week and daily depending on the requirements on the project. This frequent sharing of the work as it is being developed allows the following subcontractors to make themselves familiar with the constraints on the project early and voice possible concerns before the predecessor trades finalize their work.

It is Fontaine/W.T. Rich intent to create an environment in which clashes in the models between the trades are avoided in the first place, rather than identified and resolved in an iterative process. Fontaine/W.T. Rich therefore requires the subcontractors to have a Model Review software (see section 5 of this documents) installed on their computers and perform clash tests using their own Component Models and the Component Models of the other trades that are available on the file sharing platform. These clash tests should be performed as the models are being developed, at a minimum on a daily basis. The subcontractors shall coordinate among each other via phone, through the file sharing server and by using online meeting tools to resolve as many clashes as possible before the coordination meeting.

The purpose of the modeling and coordination process is to develop a layout that works for all trades participating in the project, not just for the trades leading in the coordination process. It may therefore be necessary that portions of the model that have been developed need to be re-configured, re-modeled, re-drawn and re-coordinated. For the purpose of developing a workable solution to coordination issues that follows the design intent represented in the design documents and accommodates for the coordination constraints arising in the coordination process the subcontractors may need to develop a solution that requires additional components (e.g. pipe, fittings, elbows, hangers, cable tray etc.).

For the purpose of coordination and development of shop drawings the design drawings created by the design team provided through Fontaine/W.T. Rich are the authoritative documents that shall be followed. It

is the responsibility of the subcontractors to check if any provided design models are in agreement with the authoritative design documents.

For each Component Model provided the respective subcontractor assumes responsibility for the constructability of the system within the spatial requirements described in the model. This includes hanging and support requirements.

Figure 1 also shows that the BIM-Based Coordination Process does not change the fundamentals of the coordination process. The design team develops the design Component Models and the sub-contractors create the shop drawing – level Component Models. Fontaine/W.T. Rich does neither create design nor shop drawing information. Fontaine/W.T. Rich's role is to facilitate an efficient coordination process and ensure the constructability of the project.

2.7 Maintaining the Models and Drawings

All subcontractors are required to install their systems in the spaces that they reserved in the model-based coordination process so that the coordinated and signed-off model becomes the AS BUILT model and the coordinated drawings become the AS BUILT drawings. If changes or adjustments become necessary, these changes or adjustments need to be represented in the respective Component Model, checked for constructability in the Federated Model and coordinated with the other subcontractors involved in the coordination effort and coordinated with Fontaine/W.T. Rich. Only after Fontaine/W.T. Rich's review and written approval of the updated Component Model can changes be implemented in the field. It is the subcontractor's responsibility to ensure consistency between their Component Models and drawings at any point in time.

2.8 Installation in the Field

Subcontractors have to coordinate the installation sequence among each other AND with Fontaine/W.T. Rich. This coordination may be required even early in the coordination process, but in any case before installation of the components in the field. Components that are not modeled will be installed after the components that are represented in the model.

2.9 Installation in the Field

The design team indicated that they will make available their Design Models in Revit format. The design team states that some members of the design team are new to Revit and that they cannot make any representation regarding correctness and accuracy of the models. The authoritative contract documents are the pdf drawings issued by the design team. The design team will be available for model review sessions in order to identify and discuss area that require definition or where the design needs to be adjusted for constructability. Fontaine/W.T. Rich will moderate and facilitate the processes of collaborating with the design team and the design team has indicated interest in participating in this collaborative process, but there is no legal requirement (relative to the relationship between Fontaine/W.T. Rich and the design team) for the design team to provide particular participation or services in the process.

2.10 Design Documents and Design Models and Status of Design Coordination

The design team will issue design documents and models throughout the process. The architectural design model is likely to be updated with design changes (e.g. ASIs, RFI-responses, etc.). The MEP and STR design models will most likely not be updated in the process and design changes will only be represented in drawings. Design models are issued for information only and as a courtesy from the design team and there are no guarantees attached to design models in terms of content, scope, correctness and agreement with design drawings. For the purpose of communicating design intent and design requirements the design drawings are the relevant documents. At this current time the design models and the design represented in design drawings has not been spatially coordinated. A Federated Model of the design (no guarantees attached) can be made available upon request in the bidding process. Significant portions of the design model show clashes between systems (e.g. truss and duct, duct and plumbing). This does not necessarily

mean that the design intent cannot be built, but it means that the trade coordination process – as outlined in this document - between the GC and the trade contractors will have to resolve these issues.

3. The Setup Process

The setup process for BIM-Based Coordination will involve the coordinators of the project participants listed in Section 8 and will comprise the following activities:

- BIM Kick Off Meeting:
 - o Development of the coordination sequence and the coordination schedule
 - o Definition of the breakdown structure of the model into Component Models with each of the Component Models represented in one file
 - o Determination of the governing coordinate system for all model files
 - o Establishing the agreed upon origin points
 - o Establishing the File Naming Conventions
- Setup of the file sharing platform (done by Fontaine/W.T. Rich)
- Proof of concept of the interoperability of the different modeling systems used on the project (all participants involved)
- Training for model review and clash detection (provided by Fontaine/W.T. Rich)
- Process training and training on using the file sharing platform (provided by Fontaine/W.T. Rich)
- Development of file format exchange protocols and installation of Object Enablers

Typically, it takes up to 2 weeks after the BIM Kick-off meeting until the systems of the project participants are setup in a way so that they can efficiently exchange files.

4. Modeling, Model File and Drawing File Requirements

The subcontractors have to provide their files in a file format that is useful for the coordination team for spatial coordination. The minimum requirement for the model files are the following:

- AutoCAD 2013 *.dwg file format with components of the subcontractor's scope represented as 3D Solids. In addition the provision of the component model files in their native file format may be requested. The use of formats other than *.dwg needs to be coordinated with Fontaine/W.T. Rich IM Manager.
- The coordinate system of the model(s) will be determined in the BIM Kick-off Meeting. As a default the coordinate system is the coordinate system of the structural design Component Model.
- The x,y components of model files and drawing files (e.g. for coordinated composite drawings, shop drawings and installation drawings) need to agree so that files can be superimposed in a meaningful way without adjustments to the coordinate systems. It is encouraged to make the 3D model files and the 2D drawing files one and the same file with the annotation layers turned off in the model file representation.
- The layer names of the submitted model files need to be intuitive for construction practitioners

- Access spaces and clearance spaces represented in the model need to be represented on a layer named CLEARANCE. Layers should be organized by Systems and need to be coordinated and approved by Fontaine/W.T. Rich.
- Annotations have to be on layers separate from layers containing 3D geometrical information and have to be designated as annotation layers.
- The breakdown structure of the Component Models and the names of the corresponding files will be determined in the BIM Kick-off Meeting.
- The coordinate systems in the different model files provided by the subcontractor need to be coordinated with each other in a way that the models will fall into place when superimposed in NavisWorks or referenced-in in Autocad-based applications. There must be no overlap or disconnect between the components represented in different model files.
- The building elements represented in the model need to be of a granularity that corresponds with the anticipated installation sequence, so that the model can be linked to a schedule and the construction process can be simulated.
- Participants in the coordination process have to upload their respective Component Model files to the designated locations on the project file sharing platform.

5. Hardware and software requirements

The requirements stated below are for the following trades:

- Structural, Mechanical, Ductwork, Plumbing, Electrical, Fire Protection, Pneumatic Tube, Controls

Requirements:

- Functional personal email address for each coordinator
- Internet connection from the office that allows general internet access, access to collaboration tools (e.g. GotoMeeting, Webex etc.) and access to the file sharing platform
- Fully functional Model Review software that can load the models and file formats specified in this document and can perform comprehensive clash detection. These Model Review software may be: Autodesk Navisworks Manage, Tekla BIM Sight (generally free software; please confirm before bidding project; <http://www.teklabimsight.com>), Solibri

6. BIM training and support

Throughout the project duration Fontaine/W.T. Rich designated BIM Manager will be the direct point of contact for all subcontractors for BIM related questions. The BIM Manager will establish the protocols for efficient file sharing and hold training sessions for clash detection and for using the file sharing platform.

At the request of the contractors Fontaine/W.T. Rich can provide training and support for the model review software and the file sharing platform.

7. Sign Off and Coordination Drawing Requirements

On the project it is the Sheet Metal Subcontractor's responsibility to assemble the coordinated composite drawings. Each subcontractor/trade listed in Section 8 shall provide the sheet metal subcontractor with the files in dwg-format so that he/she can assemble the coordinated composite drawings. These files must be

consistent with the model files used for the model based coordination process. It is encouraged that dwg files provided for the creation of the coordinated composite drawings are the model files with the annotation layers turned on.

8. Minimum requirements for components represented in models and drawings:

The requirements for objects to be included in the Component Models provided by the subcontractors are minimum requirements. The subcontractors are encouraged to provide additional objects in their models that facilitate the coordination between the trades. In case of contradictions between inclusions and exclusions in the scope description below the case that imposes the greater duty on the subcontractor shall be considered.

Site Utilities:

See respective Mechanical, Electrical and Plumbing sections of this document

Structural Steel

Inclusions: All structural steel members in their true location, shape and dimensions.
Exclusions: Nuts and Bolts

Miscellaneous Steel

Inclusions: All support steel
Exclusions: Nuts and Bolts, handrails mounted to walls (not to the floor)

Mechanical Systems and Heating, Ventilation, Air Conditioning

Inclusions: All systems included in the Mechanical Systems scope of work including but not limited to all mechanical piping, distribution, valves equipment, hanging and support systems, insulation, fittings, valves, geothermal systems.
Exclusions:

Sheet Metal

Inclusions: All systems included in the HVAC scope of work including but not limited to all ductwork, diffusers, flex duct, VAV boxes, access space for maintenance of installed equipment, Air Handler Units, fans, pumps, tanks, control boxes and panels, heat exchanges and all components included in the subcontractor's scope that are generally relevant for space coordination.
Exclusions: Flanges, insulation, access doors, hangers and support systems.

Plumbing Systems

Inclusions: All systems included in the plumbing scope of work, including underground lines including but not limited to pipe, pipe racks and support structures, hangers, distribution systems and equipment included in the plumbing scope of work; medical gas systems, gas, gas tanks; rain water leaders, pressure and drainage pipe
Exclusions:

Electrical Systems

- Inclusions: All systems included in the electrical scope of work, including, but not limited to all conduit in conduit racks carrying more than 3 conduits, light fixtures, required clearance space (e.g. in front of electrical panels, around light fixtures, access to electrical J-Boxes); ceiling plane, underground systems.
Receptacles, switches, junction boxes
Speakers, cameras, clocks, and similar electrical equipment. This also includes clearance and access spaces.
- Exclusions: Conduit 1" and smaller if not more than 2 conduits are in the area.

Fire Protection Systems

- Inclusions: All systems included in the Fire Protection scope of work, including but not limited to pipe, sprinkler heads, valves, fire pumps, hangers
- Exclusions: none

Control Systems

- Inclusions: All systems included in the Control Systems scope of work, required clearance space (e.g. in front of control panels)
- Exclusions: Conduit 1" and smaller

Kitchen Equipment and Systems

- Inclusions: All systems included in the Kitchen Equipment scope of work, required clearance space (e.g. in front of panels, for service and maintenance), connection points to power, water, utility lines.
- Exclusions: Interior details of equipment.

Case Work and Mill Work

- Inclusions: Case work and mill work components that are to be modeled. Case work and mill work that is accurately represented in its to be installed shape, form and location can be copied from the design model into the trade contractor's component model.
- Exclusions:

Gym Equipment

- Inclusions: All gym equipment that is attached or stationary is to be modeled. This also includes support systems, divider walls as well as clearance zones.
- Exclusions:

9. Facility Management Related Requirements

It is the intention of the Owner and Fontaine/W.T. Rich to use the model for Facility Management related purposes. The owner and Fontaine/W.T. Rich. will develop a list of elements and equipment that are of interest for Facility Management purposes. These elements are to be coded in the model with specific information.

For this reason the subcontractors are required to:

- To structure models such that elements that are of interest for Facility Management Purposes can be isolated
- Insert provided hyperlinks into these elements
- Insert specific property information into these elements

10. Contract Documents and the model - legal aspects

The models provided by the design team or 3rd party modelers and provided to the subcontractors are for information only and are not contract documents. Fontaine/W.T. Rich does not make any representation regarding completeness or fitness of models provided by the design team for the coordination process. The contract documents remain the paper or pdf versions of the design drawings provided by the design team and provided to the subcontractors. Fontaine/W.T. Rich requires coordination of the systems listed under Section 8 in BIM even though the model provided is not a contract document. It is the subcontractor's responsibility to check if the model agrees with the contract drawings and report any discrepancies and inconsistencies to Fontaine/W.T. Rich.

The provided design documents do represent design intent, but are clearly not fully coordinated between disciplines and systems. In order to ensure constructability of the design the coordination process described in this document needs to be followed and implemented by relevant project participants. Deviations between the design documents and final coordinated product may need to be developed with the design team and coordinated with the design team. If these deviations are within the scope of typical coordination of comparable BIM projects the costs need to be borne by the subcontractor.

The requirement to provide coordinated and signed off drawings remains un-affected by the requirements and provisions described in this document.

The subcontractor grants a non-exclusive copyright license for the Component Models created in the modeling process to Fontaine/W.T. Rich, including the right to provide or sell the model or parts of it to owner or other entities, e.g. for the use in Facility Management systems. If the model is published Fontaine/W.T. Rich or the user of the model designated by Fontaine/W.T. Rich is not required to mention the creator of the model.

11. Specific Additional Requirements

1. The Plumbing systems contractor is also to include any site utility systems related work in its scope of modeling and drawing
2. The Sheetmetal contractor is to compile composite drawings for submission to design team of the shop drawings provided by other team members.

End of Section



Site Specific Safety Plan
“The Joint Venture” Fontaine/ W.T. Rich
A Joint Venture
Construction Managers

Date: August 2018

Project Name: Worcester South Community High School

Site Address: 170 Apricot Street Worcester, Ma 01603

Owner ; City of Worcester, MA. City Hall 455 Main Street Worcester, Ma 01608

Construction Managers; Fontaine Bros. Inc. 510 Cottage Street Springfield, Ma 01104 (413)-781-2020

W.T. Rich Company, Inc. 29 Crafts Street Newton, Ma 02458 (617)-467-6010

Owners Project Manager; Heery International 80 Blanchard Road Suite 108 Burlington, Ma 01803

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Note: All references to “The Joint Venture” refers to Fontaine Bros. Inc. and W.T. Rich who have contractually entered into the Worcester South High School Project as a Joint Venture.

***This is a Smoke-Free Project per the Massachusetts Education Reform Act. This includes cigarettes, cigars, pipes and vaping.**

“ No Smoking” Signs will be posted throughout the project.

Introduction

Communication and training is an integral part of the program, and should be emphasized over the duration of the project. In order to facilitate the above, every employee on site shall follow the established policies and procedures, report hazardous conditions and mitigate “areas of concern” before an illness, injury, near miss or other incident is realized. Contractors as well as other persons on this site are obligated to follow the same rules and regulations that have been implemented for the contractors in accordance with the requirements of, but not limited to; the federal Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA) or other state and local agencies, and this safety program.

The goal of this program is to provide a healthy and safe working environment for everyone as well as to protect the site and the environment to the best of our ability.

Scope

The Project includes, but is not limited to, a new High School constructed behind the existing South High Community School. Facade construction to be brick veneer, fiber cement panels and composite metal panels; metal stud back-up; aluminum windows and curtainwall systems; PVC roofing. Primary structural frame to be structural steel with applied fireproofing where noted. Exterior site work, play areas, parking and paving on grade are also included. Project to be phased construction, the existing school is to be demolished during the last phase.

Primary Requirement

“The Joint Venture” shall make all personnel on site, including sub-contractors aware of this site-specific safety plan, and emergency action plan(s), prior to initiation of work when practical. This notification shall include; site specific program content, special project concerns and hazards, owner modifications, the training requirements for the project, including the day and time of the “tool box” talks, the reporting of hazards, illnesses, injuries and “near-misses”, any dangerous or out-of-service equipment, and the location of all the plans, manuals, SDS and JHA / JSA’s. All reports, including accidents, incidents, out-of-service equipment and other information related to this plan shall be submitted to the Project Manager/Site Superintendent for corrective action and distribution.

Safety Vision and Guiding Principles

The management of "The Joint Venture" is very interested in working with you to provide a safe place in which to work. The prevention of accidents and injuries to employees is the prime objective.

All personnel are expected to take an active and constant interest in the prevention of accidents. We call upon all employees to use good common sense and in all their actions, take a second to think of the consequences to your fellow employees. We cannot overemphasize that all employees must do their part to minimize accidents.

Please show your support by demonstrating the following:

1. OBSERVING COMPANY SAFETY RULES.
2. KEEPING WORK AREAS FREE OF UNSAFE CONDITIONS.
3. AVOIDING AND ELIMINATING UNSAFE ACTS.
4. PROMPTLY REPORTING UNSAFE ACTS AND CONDITIONS.
5. REPORTING ALL ACCIDENTS IMMEDIATELY.

Accidents cause suffering and pain. We value each of you as individuals and hope you will cooperate with us in this important endeavor.

Any constructive criticism or suggestions toward improving safety on any of our jobs will be given prompt and careful consideration.

Sincerely,

"The Joint Venture"

SAFETY MISSION

A PRIMARY GOAL OF “THE JOINT VENTURE” IS TO ELIMINATE OR CONTROL BOTH KNOWN AND POTENTIAL SAFETY AND HEALTH HAZARDS WHICH EMPLOYEES FACE ON THE JOB.

In order to do so, we must adhere to the following guidelines:

- Safety and Health are a shared responsibility. Everyone from top management to supervisors to each and every worker must take ownership of his/her own safety and that of co-workers.
- Maintaining a safe and healthful work environment is not just an idea, it is top priority.
- It is everyone's job to spot hazards and to correct them or report them in a timely manner.
- Where hazards cannot be completely eliminated, they must be reduced through engineering and/or administrative controls or, as a final precaution, through the proper use of personnel protective equipment.
- Every individual will be trained to perform work safely. Should an individual feel inadequately trained to perform certain tasks, he/she shall immediately discuss the problem with his/her foreman.
- As a condition of employment, each employee must consistently work in a safe manner.

Signature: _____ Date: _____

Code of Safe Work Practices

Personal Protective Equipment and Project Safety Requirements

1. Hard hats are required at all times.
2. Safety glasses are strongly recommended at all times.
3. Class 2 High Visibility Clothing required at all times per latest version of ANSI 107.

“The Joint Ventures” managers and supervisors play a key role in the prevention of accidents on the job. They have direct contact with the employees and know the safety requirements for various jobs.

Safety responsibilities for these individuals include:

1. Enforce all safety rules in the Code of Safe Practices and ensure safe work procedures.
2. Verifying corrective action has been taken regarding safety hazards and accident investigations.
3. Conducting periodic documented inspections of the work sites to identify and correct unsafe actions and conditions that could cause accidents
4. To act as a leader in company safety policy and setting a good example by following all safety rules
5. Becoming familiar with local, state, and federal safety regulations. The Safety Coordinator is available for assistance
6. Train all new and existing employees in proper safety procedures and the hazards of the job
7. Instruct all employees, under their supervision, in safe work practices and job safety requirements
8. Hold weekly safety meetings with employees
9. Ensure employee proficiency when assigning work requiring specific knowledge, special operations or equipment
10. Ascertain that all machinery, equipment, and workstations are maintained in safe working condition and operate properly.
11. Correct unsafe acts and conditions that could cause accidents

12. Communicate with all employees about safety and accident prevention activities
13. Correct the cause of any accident as soon as possible
14. Ascertain that proper first aid and firefighting equipment is maintained and used when conditions warrant its use
15. Maintain good housekeeping conditions at all times
16. Investigate all injuries and accidents to determine their cause and potential corrective action
17. Ascertain that all injuries involving our employees that require medical attention are properly treated and promptly reported to the office

Every worker is responsible for working safely, both for self-protection and for protection of fellow workers. Employees must also support all company safety efforts. Specific employee safety responsibilities include:

1. If you are unsure how to do any task safely, ask your supervisor.
2. Read and abide by all requirements of the Safety Manual.
3. Know and follow the Code of Safe Practices and all company safety policies and rules.
4. Wear all required personal protective equipment.
5. Report all accidents and injuries, no matter how minor, to your supervisor immediately.
6. Do not operate any equipment you have not been trained and authorized to use.
7. Report any safety hazards or defective equipment immediately to your supervisor.
8. Do not remove, tamper with or defeat any guard, safety device or interlock.
9. Never use any equipment with inoperative or missing guards, safety devices or interlocks.
10. Never possess, or be under the influence of, alcohol or controlled substances while on the premises.
11. Never engage in horseplay or fighting.
12. Participate in, and actively support, the company safety program.

TRAINING

Training must be provided by competent person/qualified person and documented or “certified” as required.

Training must be provided for all personnel, specific to the types of work being performed by same.

- Training must be provided and documented for, but shall not be limited to; Fall Protection, Fork Lifts (Powered Industrial Truck Standard), Lockout/Tag out, Personnel Lifts, Respiratory Protection, welding certifications, scaffolding etc.
- All employees must have proof of OSHA 10-Hour Training
- All persons must complete New Employee Orientation prior to the start of work or as practical.

Some training can be provided through “Tool Box” talks, training or similar. Contractors must have proof of training, which can include, but is not limited to:

- Sign-in sheets
- Quizzes
- Training can also be provided by an outside agency or company with special knowledge on the topic being covered.
- Trainer must be competent in the subject material
- Sign in sheets or quizzes can be used for record of attendance
- Trainer providing the information shall provide a copy of training documentation, including information covered

A copy of the training documentation and the accompanying rosters should by maintained by “The Joint Venture”

The Tool Box / Training Sessions for this project or site shall be held on;

Day of the Week at __: am

Job Hazard Analysis (JHA) or Job Safety Analysis (JSA)

A JHA or JSA shall be developed for **all non-routine activities**, as well as for major construction operations. The Analysis shall be performed by a competent person, and shall be appropriately documented.

A copy of the JHA / JSA shall be provided to "The Joint Venture" for review.

The JHA or JSA is performed to be used as an operating procedure, and shall be made available for review and training for personnel performing the identified work.

- A copy of the JHA / JSA shall remain on site.

JOB SAFETY ANALYSIS FORM		Date:
Location:		PREPARED BY:
JOB/TASK:		REVIEWED BY:
CONTRACTOR:		_____
COMPETENT PERSONS:		APPROVED _____
JOB STEPS	POTENTIAL HAZARDS	ACTION/PROCEDURE TO CONTROL OR ELIMINATE
1. Supervision by Competent Person Designated by Employer as having expertise and training, ability to recognize existing and predictable hazards and having authority to take corrective action	Existing and predictable.	Regular and frequent inspections by CP, supervision of personnel

OSHA Inspections

The Occupational Safety and Health Administration is part of the U. S. Department of Labor. The OSH Act was promulgated to insure every working man and woman in the nation a safe and healthful working environment and to preserve our human resources. This said, it falls upon all of us to make sure we meet this requirement in our work places.

Our first, best line of defense is the Field Foreman, the person responsible for the day-to-day operation of a construction project. This individual is also known as the "Competent Person", meaning he is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous or dangerous to employees, AND has the authorization to take prompt corrective measure to eliminate them. The Competent Person is so designated by the employer.

The best practice for an inspection is preparedness. Following the guidelines in the manual will assist you. Here is a brief guide to the steps in an inspection. There may be some variations depending on the Compliance Officer.

NOTE: Discuss if you have questions but NEVER ARGUE with the C.O.

The Compliance Officer arrives on site and presents his credentials to the General Contractor (Prime or Construction Manager). (Now is the time for you to notify the office and call your Safety Manager). He will review the G.C.'s site specific written program (if one exists) as well as the method by which safety is managed on site. If certain criteria are met, he may conduct a "focused inspection". This is a short form inspection and it is often dealt with quickly.

Typically, a General, Comprehensive Inspection follows this pattern:

1. The C.O. will
 - a. Request for review, a copy of your safety manual and MSDS.
 - b. Ask you where your written Hazard Communication Program is.
 - c. Ask for your name, employer, local no.
 - d. Request a copy of the Company's OSHA 300 log
2. The inspection begins:
 - a. Anyone who has an interest in the inspection (that is you) may accompany the C.O. during his walk thru (bring paper, pencil, camera)
 - b. Make notes as to what the C.O. alleges is a violation on your part
 - c. Take the same pictures the C.O. takes
 - d. Your troops will be interviewed away from your presence
 - e. A closing conference will be held at the job site at which you must be present. This is when the C.O. will spell out what violations may be cited. Make notes.
3. Post inspection

- a. Citations are mailed to the employer and are to be posted at the job site.
- b. The employer makes an appointment for an Informal Conference, at which he presents a defense.
- c. The violations listed on the citation must be abated (removed, corrected and/or protected) within the time constraints listed on the citation.
- d. A letter stating the methods by which violations were abated must be sent to the issuing OSHA office.
- e. A conclusion is reached and fines are paid or violations are contested.

TYPICAL SERIOUS HAZARD DEFINITIONS

1. Fire hazards and lack of fire extinguishers.
2. Lack of fall protection.
3. Objects falling from above which could strike and injure an employee working below
4. Open-sided floors and unprotected floor openings where a fall would result in serious injury or death
5. Trenching and excavations which are not protected from cave-in or slide
6. Unprotected energized electrical systems/parts which would result in electrocution
7. Lack of grounding of temporary wiring, flexible cords, electrical tools, etc. or ground fault circuit interrupters which could cause electrical shock or electrocution.
8. Environmental hazards such as toxic fumes, toxic mists, or dusts, etc.

Project Safety Orientation

All new employees shall receive safety orientation.

Each employee will receive a New Employee Orientation provided by the Construction Management Team. The orientation session will include a summary of the key aspects of the "The Joint Venture" Policy and identification of hazards of the site.

Orientation attendance shall be documented.

PROGRAM ENFORCEMENT

Each Subcontractor:

- Shall assume responsibility for safety program enforcement by his/her foremen
- Shall see that all accidents or losses are properly investigated and the information passed on to the Construction Management in a timely manner
- Shall see that all new employees receive proper safety indoctrination
- Shall provide proper personal protection equipment (PPE) including hard hat and safety glasses for each worker
- Shall enforce proper use of PPE
- Shall hold weekly Safety Meetings and return signed attendance sheets to the construction manager
- Shall assist with accident investigation to insure proper reporting and documentation, using the information to prevent future loss incidents from occurring.
- During job progress audits, the foreman should be alert for hazardous conditions which could cause a lost time injury or property damage and unnecessary costs to the company
- Shall have the conditions corrected immediately or remove employees from exposure
- Contact the construction manager and communicate the hazard, identify the hazard and its specific locations so that formal contact can be made.

EMPLOYEE ORIENTATION

Each individual being hired to work at this jobsite will be required to attend an Employee Orientation session prior to beginning employment. The goal of the employee orientation session is to familiarize each employee with the policies and procedures of the work site. The sessions will be conducted prior to the start of work for all new employees.

The following is an outline of the items to be reviewed at each session.

Task	Responsibility
Safety and Loss Control Policy	

Review of Safety Manual/Procedures	

Review the Emergency Action Plan	

At the conclusion of the orientation, the employees will be given the training confirmation Sheet to fill out. The company representative should review the completed Safety and Health Information for any potential work limitations and advise the Project Manager/Foreman accordingly. The employee then proceeds to the jobsite, and reports to the project foreman for employment.

SAFETY HANDBOOK ORIENTATION

YOUR SAFETY REQUIREMENTS

THIS SHEET MUST BE REVIEWED WITH EACH NEW EMPLOYEE WHEN HE IS ISSUED THE HANDBOOK AND SIGNS THE TEAR OUT FORM IN THE FRONT OF THE HANDBOOK.

Personal Equipment

- A hard hat must be worn at all times
- Wear a safety harness in elevated areas (6' or more) not protected by guard rails
- Respirators and rubber gloves are to be used on special jobs
- Safety glasses are required when the potential for flying object hazard exists

Tools and Equipment

- Do not alter tools or guards and use only for their designated purpose.

Barricades

- Required for excavations and around overhead work. Hole covers or barricades must be placed at all floor openings.
- Do Not cross barricades or taped off areas.

Ladders

- Straight and extension ladders must be tied off.
- Stepladders must be fully opened and set level.
- Stay off the top step of stepladders.

Welding, Cutting and Burning

- Remove combustible materials from the immediate area.
- Check equipment for safe working condition.
- Always have a fire extinguisher for the job.

Rigging

- Never raise or load over people.
- Use tag lines to control a load.
- Know capacities of chain falls, come-alongs, chokers, shackles and clamps and know the weight of the loads.

Orderliness

- Keep everything in its proper place.
- Put scrap, trash and other waste in the right containers.
- Clean up tools and work areas as your job progresses.

- Keep cords and hoses raised seven (7) feet overhead or Protect them in walkways.
- Keep all material, tools and equipment in a stable position to prevent rolling or falling.
- Maintain clear access to all work areas.

Other

- Never enter a tank or confined space without a valid "Tank Entry" permit.
- Read all labels on containers of petroleum fuels, solvents, thinners, degreasers, protective coatings, acids and caustics. Ask for a copy of the Material Safety Data Sheet (MSDS) for more detailed information.
- Inspect all electrical tools and cords before each use.

COMPLIANCE AND ENFORCEMENT

The compliance of all employees with our Safety Manual is mandatory and shall be considered a condition of employment.

The following programs will be utilized to ensure employee compliance with the safety program and all safety rules.

- Training programs
- Retraining
- Disciplinary action
- Optional safety incentive programs

Training Programs

The importance of safe work practices and the consequences of failing to abide by safety rules will be covered in the New Employee Safety Orientation and safety meetings. This will help ensure that all employees understand and abide by company safety policies.

Retraining

Employees that are observed performing unsafe acts or not following proper procedures or rules will be retrained by their supervisor. A Safety Contact Report may be completed by the supervisor to document the training. If multiple employees are involved, additional safety meetings will be held.

Disciplinary Action

The failure of an employee to adhere to safety policies and procedures can have a serious impact on everyone concerned. An unsafe act can threaten not only the health and well-being of the employee committing the unsafe act but can also affect the safety of his/her coworkers

and customers. Accordingly, any employee who violates any of the company's safety policies will be subject to disciplinary action.

Note: Failure to promptly report any on-the-job accident or injury, on the same day as occurrence, is considered a serious violation of the Company's Code of Safe Practices. Any employee who fails to immediately report a work-related accident or injury, no matter how minor shall be subject to disciplinary action.

Employees will be disciplined for infractions of safety rules and unsafe work practices that are observed, not just those that result in an injury. Often, when an injury occurs, the accident investigation will reveal that the injury was caused because the employee violated an established safety rule and/or safe work practice(s). In any disciplinary action, the supervisor should be cautious that discipline is given to the employee for safety violations, and not because the employee was injured on the job or filed a Workers' Compensation claim.

Violations of safety rules and the Code of Safe Practices are to be considered equal to violations of other company policy. Discipline for safety violations will be administered in a manner that is consistent with the company's system of progressive discipline. If, after training, violations occur, disciplinary action will be taken as follows:

1. Verbal warning / *Possible monetary fine
2. Written Warning. Retrain as to correct procedure or work practice / *Possible monetary fine
3. Written Warning with 3 day suspension / * Possible monetary fine
4. Termination from the project / *Possible monetary fine

As in all disciplinary actions, each situation is to be carefully evaluated and investigated. The particular step taken in the disciplinary process will depend on the severity of the violation, employee history, and regard to safety. Managers and supervisors should consult with the office if there is any question about whether or not disciplinary action is justified. Employees may be terminated immediately for willful or extremely serious violations. Union or contract employees are entitled to the grievance process specified by their contract.

***Note: Monetary Fine Classification System is located on page 148**

SAFETY ORIENTATION VERIFICATION FORM

The Supervisor will verbally cover the following items with each new employee on the first day of their employment.

Employee Name: _____

Start Date: _____

Job Title / Position: _____

Instruction has been received in the following areas.

- ☐ 1. Code of Safe Practices. *
- ☐ 2. Hazard Communication (chemicals hazards) *
- ☐ 3. Driving Safety Rules. *
- ☐ 4. Safety rule enforcement procedures.
- ☐ 5. Necessity of reporting ALL injuries, no matter how minor.
- ☐ 6. Proper method of reporting safety hazards.
- ☐ 7. Emergency procedures and First Aid.
- ☐ 8. Proper work clothing & required personal protective equipment.
- ☐ 9. List all special equipment, such as lifts, employee is trained and authorized to use.
- ☐ 10. Emergency Exits and Fire Extinguishers.

* Give a copy of these items to the employee.

I agree to abide by all company safety policies and the Code of Safe Practices. I also understand that failure to do so may result in disciplinary action and possible termination.

Employee Warning Notice

Employee _____

Supervisor _____

Date _____

Employer Statement

Date of incident: _____ Time _____

Signature _____

Employee Statement

Date of incident: _____ Time _____

Signature _____

Action to be taken: _____

I have read this warning and I understand it.

Supervisor signature

Employee signature

Date

Date

Personal Protective Equipment (PPE)

Includes, but is not limited to the following;

Eye Protection

Contractors shall be responsible for employees wearing the appropriate personal protective equipment on the construction site, if there is an exposure to a hazardous condition, or if regulations require the use of specified equipment to reduce the hazards on site.

- Safety glasses shall be used for impact and flying objects protection.
- Prescription safety glasses (that meet ANSI Rating) shall have side shields in place, if being used as safety glasses
- Goggles shall be worn whenever chemicals are used, or there is a splash potential
- Face Shields are secondary protection. They must be worn over safety glasses or goggles.

Eye Protections for this project shall be worn;

- When performing work that involves impact
- When using chemicals
- As required by the tool or products manufacturer.

The use of safety glasses at all times is strongly recommended.

Fall Protection

- Shall be supplied and maintained by the appropriate contractor(s)
- All contractors are responsible for the use of fall protection on site.
- All fall protection equipment shall be properly inspected before use, and shall be maintained in accordance with the requirements of the manufacturer
- Fall protection shall be kept clean and stored in appropriate containers (when not in use) to protect it from environmental conditions and other damage
- **Fall protection is required at 6 feet for employees of from trades.**

Foot Protection

- Appropriate footwear is required. No sneakers, sandals, etc.
- Foot protection shall be work-type specific (i.e. EH – Electrical Hazards, Metatarsal, Etc.)

Hand Protection

- For this project, the following types of hand protection shall be used;
- _____

Hearing Protection

All employees shall be provided with hearing protection to reduce the dB levels in accordance with OSHA requirements.

- The contractors shall make the following hearing protection available :
 - Ear Plugs
 - Ear Muffs
 - Other Engineering Control:
 - _____

Head Protection

- Hard Hats shall be worn by all persons at all times.

High Visibility Clothing

- High visibility Class 2 or greater outerwear is required on this project at all times.

Safety Requirements

GENERAL RULES

All Employees

Ladders and Step Ladders

1. Read and follow the manufacturer's instruction label affixed to the ladder.
2. Do not use ladders that have loose rungs, cracked, or split side rails, missing rubber footpads, or are otherwise visibly damaged.
3. Keep ladder rungs clean and free of grease. Remove buildup of material such as dirt or mud.
4. Do not place ladders in a passageway or doorway without posting warning signs or cones that detour pedestrian traffic away from the ladder. Lock the doorway that you are blocking with the ladder and post signs that will detour traffic away from your work.
5. Do not place a ladder at a blind corner or doorway without diverting foot traffic by blocking or roping off the area.
6. Allow only one person on the ladder at a time.
7. Face the ladder when climbing up or down it.
8. Maintain a three-point contact by keeping both hands and one foot or both feet and one hand on the ladder at all times when climbing up or down the ladder.
9. When performing work from a ladder, face the ladder and do not lean backward or sideways from the ladder.
10. Do not stand on tables, chairs, boxes or other improvised climbing devices to reach high places. Use the ladder or stepstool.
11. Do not stand on the top two rungs of any ladder.
12. Do not stand on a ladder that wobbles, or that leans to the left or right of center.
13. When using a straight or extension ladder, extend the top of the ladder at least 3 feet above the edge of the landing.
14. Secure the ladder in place by having another employee hold it if it cannot be tied to the structure.
15. Do not move a rolling ladder while someone is on it.
16. Do not place ladders on barrels, boxes, loose bricks, pails, concrete blocks, or other unstable bases.
17. Do not carry items in your hands while climbing up or down a ladder.
18. Do not try to "walk" a ladder by rocking it. Climb down the ladder, and then move it.
19. Do not use a ladder as a horizontal platform.

Lifting Procedures

1. Plan the move before lifting; ensure that you have an unobstructed pathway.
2. Test the weight of the load before lifting by pushing the load along its resting surface.
3. If the load is too heavy or bulky, use lifting and carrying aids such as hand trucks, dollies, pallet jacks and carts, or get assistance from a co-worker.
4. If assistance is required to perform a lift, coordinate and communicate your movements with those of your co-worker.
5. Position your feet 6 to 12 inches apart with one foot slightly in front of the other.
6. Face the load.
7. Bend at the knees, not at the back.
8. Keep your back straight.
9. Get a firm grip on the object using your hands and fingers. Use handles when they are present.
10. Hold the object as close to your body as possible.
11. While keeping the weight of the load in your legs, stand to an erect position.
12. Perform lifting movements smoothly and gradually; do not jerk the load.
13. If you must change direction while lifting or carrying the load, pivot your feet and turn your entire body. Do not twist at the waist.
14. Set down objects in the same manner as you picked them up, except in reverse.
15. Do not lift an object from the floor to a level above your waist in one motion. Set the load down on a table or bench and then adjust your grip before lifting it higher.
16. Never lift anything if your hands are greasy or wet.
17. Wear protective gloves when lifting objects that have sharp corners or jagged edges.

Electric Powered Tools

1. Do not use power equipment or tools on which you have not been trained.
2. Keep power cords away from the path of drills, saws, vacuum cleaners, floor polishers, mowers, slicers, knives, grinders, irons, and presses.
3. Do not carry plugged-in equipment or tools with your finger on the switch.
4. Do not carry equipment or tools by the cord.
5. Disconnect the tool from the outlet by pulling on the plug, not the cord.
6. Turn the tool off before plugging or unplugging it.
7. Do not leave tools that are "On" unattended.
8. Do not handle or operate electrical tools when your hands are wet or when you are standing on wet floors.

9. Do not operate spark inducing tools such as grinders, drills, or saws near containers labeled "Flammable" or in an explosive atmosphere such as a paint spray booth.
10. Turn off electrical tools and disconnect the power source from the outlet before attempting repairs or service work. Tag the tool "Out of Service."
11. Do not connect multiple electrical tools into a single outlet.
12. Do not run extension cords through doorways, through holes in ceilings, walls, or floors.
13. Do not drive over, drag, step on or place objects on a cord.
14. Do not operate a power hand tool or portable appliance with a two-pronged adapter or a two-conductor extension cord.
15. Do not use a power hand tool while wearing wet cotton gloves or wet leather gloves.
16. Never operate electrical equipment barefooted. Wear rubber-soled or insulated work boots.
17. Do not operate a power hand tool or portable appliance while holding a part of the metal casing or holding the extension cord in your hand. Hold all portable power tools by the plastic handgrips or other nonconductive areas designed for gripping purposes.
18. Do not operate a power hand tool or portable appliance that has a frayed, worn, cut, improperly spliced, or damaged power cord.
19. Do not operate a power hand tool or portable appliance if the ground pin from the three-pronged power plug is missing or has been removed.

Hand Tools

1. Use tied-off containers to keep tools from falling off scaffolds and other elevated work platforms.
2. Keep the blades of all cutting tools sharp.
3. Carry all sharp tools in sheaths or holsters.
4. Tag worn, damaged, or defective tools "Out of Service" and do not use them.
5. Do not use a tool if its handle has splinters, burrs, cracks, splits or if the head of the tool is loose.
6. Do not use impact tools such as hammers, chisels, punches, or steel stakes that have mushroomed heads.
7. When handing a tool to another person, direct sharp points and cutting edges away from yourself and the other person.
8. Do not chop at heights above your head when working with a hand axe.
9. Do not carry sharp or pointed hand tools such as screwdrivers, scribes, aviation snips, scrapers, chisels or files in your pocket unless the tool or pocket is sheathed.
10. Do not perform "make-shift" repairs to tools.
11. Do not use "cheaters" on load binders or "boomers."
12. Do not carry tools in your hand when climbing. Carry tools in tool belts or hoist the tools to the work area with a hand line.

13. Do not throw tools from one location to another, from one employee to another, from scaffolds or other elevated platforms.

Chisels

1. Keep the cutting edge of the chisel sharp.
2. Do not use chisels with damaged striking ferrules.
3. Hold a chisel with a tool holder if possible.
4. Clamp a small work piece in a vise and chip towards the stationary jaw when working with a chisel.

Clamps

1. Do not use the C-clamp for hoisting materials.
2. Do not use the C-clamp as a permanent fastening device.

Files/Rasps

1. Do not use a file as a pry bar, hammer, screwdriver, or chisel.
2. When using a file or a rasp, grasp the handle in one hand and the toe of the file in the other.
3. Do not hammer on a file.

Hammers

1. Use a claw hammer for pulling nails and driving nails.
2. Do not strike nails or other objects with the cheek of the hammer.
3. Do not strike a hardened steel surface, such as a cold chisel, with a claw hammer.
4. Do not strike one hammer against another hammer.
5. Do not use a hammer if your hands are oily, greasy, or wet.
6. Do not use a hammer as a wedge, a pry bar or for pulling large spikes.
7. Use only a sledge-type hammer on a striking face wrench.

Knives/Sharp instruments

1. When handling knife blades and other cutting tools, direct sharp points and edges away from you.
2. Store knives in knife blocks or in sheaths after use.
3. Do not use knives with dull blades.
4. Do not use honing steels that do not have disc guards.
5. Do not attempt to catch a falling knife.

6. Use knives for the operation for which they are named.
7. Do not use knives with broken or loose handles.
8. Do not use knives as screwdrivers, pry bars, can openers or ice picks.
9. Do not pick up knives by their blades.
10. Carry knives with their tips pointed towards the floor.

Pliers

1. Do not attempt to force pliers by using a hammer on them.
2. Do not slip a pipe over the handles of pliers to increase leverage.
3. Use pliers with insulated handles for electrical work.
4. Do not use pliers that are cracked, broken, or sprung.
5. When using diagonal cutting pliers, shield the loose pieces of cut material from flying into the air by using a cloth or your gloved hand.

Saws

1. Do not use an adjustable blade saw such as a hacksaw, coping saw, keyhole saw, or bow saw, if the blade is not taut.
2. Do not use a saw that has dull saw blades.
3. Keep hands and fingers away from the saw blade while using the saw.
4. Do not carry a saw by the blade.
5. When using a handsaw, hold the work piece firmly against the worktable.
6. Do not use woodworking equipment such as circular saws, radial saws, or jointers if they do not have guards on the saw blade.
7. Keep control of saws by decreasing downward pressure at the end of the stroke.
8. When operating scroll saws, stop the machine before removing scrap pieces from the table.
9. Clamp work when using a hole saw.

Screwdrivers

1. Always match the size and type of screwdriver blade to fit the head of the screw.
2. Do not hold the work piece against your body while using a screwdriver.
3. Do not put your fingers near the blade of the screwdriver when tightening a screw.
4. Use an awl, drill or a nail to make a starting hole for screws.
5. Do not force a screwdriver by using a hammer or pliers on it.
6. Do not use a screwdriver as a punch, chisel, pry bar or nail puller.
7. Use a screwdriver that has an insulated handle for electrical work.

8. Do not use a screwdriver if your hands are wet, oily, or greasy.
9. Do not use a screwdriver to test the charge of a battery.
10. When using a spiral ratchet screwdriver, push down firmly and slowly.

Snips

1. Wear safety glasses or safety goggles when using snips to cut materials.
2. Wear work gloves when cutting materials with snips.
3. Do not use straight cut snips to cut curves.
4. Keep the blade aligned by tightening the nut and bolt on the snips.
5. Do not use snips as a hammer, screwdriver, or pry bar.
6. Use the locking clip on the snips after use.

Vises

1. When clamping a long work piece in a vise, support the far end of the work piece by using an adjustable pipe stand, sawhorse, or box.
2. Position the work piece in the vise so that the entire face of the jaw supports the work piece.
3. Do not use a vise that has worn or broken jaw inserts, or has cracks or fractures in the body of the vise.
4. Do not slip a pipe over the handle of a vise to gain extra leverage.

Personal Protective Equipment

1. Do not paint or drill holes in hard hats.
2. Do not wear hard hats that are dented or cracked.
3. Wear safety glasses, goggles, or face shield when using chippers, grinders, lathes, or sanders.
4. Wear earplugs or earmuffs in areas posted "Hearing Protection Required."

Pneumatic Tools

1. Do not point a compressed air hose at bystanders or use it to clean your clothing.
2. Do not use tools that have handles with burrs or cracks.
3. Do not use compressors if their belt guards are missing. Replace belt guards before use.
4. Turn the tool "off" and let it come to a complete stop before leaving it unattended.
5. Disconnect the tool from the airline before making any adjustments or repairs to the tool.
6. Engage positive locks on hoses and attachments before use.

7. Shut off pressure valve and disconnect airline when not in use.
8. Tag damaged or defective pneumatic tools "Out of Service" to prevent usage of the tool by other employees.

Powder Actuated Tools

1. Only employer-authorized personnel, with a valid certification card may operate powder-actuated tools.
2. Wear safety glasses, goggles, or face shields when operating powder actuated tools.
3. Wear earplugs or earmuffs when making fastenings.
4. Do not permit bystanders in the area when using a powder-actuated tool.
5. Do not load tool until ready to make a fastening.
6. Keep tool pointed in a safe direction (away from personnel).
7. Post a sign alerting co-workers that a powder actuated tool is being used.
8. After use, lock powder actuated tools and powder loads in a container and store in a safe place such as a locker or the trunk of a car.

SCA

1. Follow the manufacturer's instructions when erecting the scaffold.
2. Do not work on scaffolds outside during stormy or windy weather.
3. Do not climb on scaffolds that wobble or lean to one side.
4. Initially inspect scaffold prior to mounting. Do not use a scaffold if any pulley, block, hook, or fitting is visibly worn, cracked, rusted, or otherwise damaged. Do not use a scaffold if any rope is frayed, torn, or visibly damaged.
5. Do not use any scaffold tagged "Out of Service."
6. Do not use unstable objects such as barrels, boxes, loose brick or concrete blocks to support scaffolds or planks.
7. Do not use a scaffold unless guardrails and all flooring are in place.
8. Level the scaffold after each move. Do not extend adjusting leg screws more than 12 inches.
9. Do not walk or work beneath a scaffold unless a wire mesh has been installed between the mid-rail and the toe board or planking.
10. Use safety belts and lanyards when working from scaffolds that are higher than 10 feet and that do not have top and mid-guard rails.
11. Do not climb the cross braces for access to the scaffold. Use a ladder.
12. Do not jump from, to, or between scaffolding.
13. Do not slide down cables, ropes or guys used for bracing.

14. Keep both feet on the decking. Do not sit or climb on the guardrails.
15. Do not lean out from the scaffold. Do not rock the scaffold.
16. Keep the scaffold free of scraps, loose tools, tangled lines and other obstructions.
17. Do not throw anything "overboard" unless a spotter is available. Use debris chutes or lower things by hoist or by hand.
18. Do not move a mobile scaffold with anyone on the scaffold.
19. Lock and chock wheels on rolling scaffolds before using.

Stairways, Floors and Openings

1. Do not work on open sided floors, elevated walkways or elevated platforms if there are no guardrails in place.
2. Stand clear of floor openings if guardrails or covers are removed or displaced.

Heavy Equipment Operators

Site Safety

1. Do not start work until barricades, barrier logs, fill or other protection have been installed to isolate the work area from local traffic.
2. Do not work outdoors during lightning storms.
3. Drink plenty of clear liquids during your breaks.
4. Take breaks in shaded areas.

Forklifts Pre-Use Inspection

Do not use forklift if any of the following conditions exist:

1. The mast has broken or cracked weld-points.
2. The roller tracks are not greased or the chains are not free to travel.
3. Forks are unequally spaced or cracks exist along the blade or at the heels.
4. Hydraulic fluid levels are low.
5. Hydraulic line and fitting have excessive wear or are crimped.
6. Fluid is leaking from the lift or the tilt cylinders.
7. The hardware on the cylinders is loose.
8. Tires are excessively worn, split, or have missing tire material.
9. Air filled tires are not filled to the operating pressure indicated on the tire.
10. Batteries have cracks or holes, uncapped cells, frayed cables, broken cable insulation, loose connections, or clogged vent caps.

Starting the Forklift

1. Apply the foot brake and shift gears to neutral before turning the key.

Picking Up a Load

1. Square up on the center of the load and approach it straight on with the forks in the travel position.
2. Stop when the tips of your forks are about a foot from the load.
3. Level the forks and slowly drive forward until the load is resting against the backrest of the mast.
4. Lift the load high enough to clear whatever is under it.
5. Back up about one foot, and then slowly and evenly tilt the mast backwards to stabilize the load.

Putting a Load Down

1. Square up and stop about one foot from desired location.
2. Level the forks and drive to the loading spot.
3. Slowly lower the load to the floor.
4. Tilt the forks slightly forward so that you do not hook the load.
5. When the path behind you is clear of obstructions, back straight out until the forks have cleared the pallet.

Stacking One Load on Top of Another

1. Stop about one foot away from the loading area and lift the mast high enough to clear the top of the stack.
2. Slowly move forward until the load is squarely over the top of the stack.
3. Level the forks and lower the mast until the load is no longer supported by the forks.
4. Look over both shoulders for obstructions and back straight out if the path is clear.

Forklift Safety Rules

1. Do not exceed the lift capacity of the forklift. Read the lift capacity plate on the forklift if you are unsure.
2. Follow the manufacturer's guidelines concerning changes in the lift capacity before adding attachments, such as wedges, to a forklift.
3. Lift the load an inch or two to test for stability: If the rear wheels are not in firm contact with the floor, take a lighter load or use a forklift with a higher lift capacity.
4. Do not raise or lower a load while you are en-route. Wait until you are in the loading area and have stopped before raising or lowering the load.
5. After picking up a load, adjust the forks so that the load is tilted slightly backward for added stability.

6. Drive with the load at a ground clearance height of 4-6 inches at the tips and 2 inches at the heels in order to clear most uneven surfaces and debris.
7. Drive at a walking pace and apply brakes slowly to stop when driving on slippery surfaces such as icy or wet floors.
8. Approach angle railroad tracks at a 45
9. Do not drive over objects in your pathway.
10. Do not drive into an area with a ceiling height that is lower than the height of the mast or overhead guard.
11. Steer wide when making turns.
12. Do not drive up to anyone standing or working in front of a fixed object such as a wall.
13. Do not drive along the edge of an unguarded elevated surface such as a loading dock or staging platform.
14. Obey all traffic rules and signs.
15. Sound horn when approaching blind corners, doorways, or aisles to alert other operators and pedestrians.
16. Do not exceed a safe working speed of five miles per hour. Slowdown in congested areas.
17. Stay a minimum distance of three truck lengths from other operating mobile equipment.
18. Drive in reverse and use a signal person when your vision is blocked by the load.
19. Look in the direction that you are driving; proceed when you have a clear path.
20. Do not use bare forks as a man-lift platform.
21. Do not drive the forklift while people are on the attached man-lift platform.
22. Drive loaded forklifts forward up ramps.
23. Raise the forks an additional two inches to avoid hitting or scraping the ramp surface as you approach the ramp.
24. Drive loaded forklifts in reverse when driving down a ramp.
25. Drive unloaded forklifts in reverse going up a ramp and forward going down a ramp.
26. Do not attempt to turn around on a ramp.
27. Do not use "Reverse" to brake.
28. Lower the mast completely, turn off the engine, and set the parking brake before leaving your forklift.

Power Hoist Safety

1. Use manufacturer approved counter weights to secure the hoist. Do not use roofing materials such as rolls of felt or bundles of shingles,
2. Do not exceed the manufacturer's recommended load capacity limits.
3. Only trained personnel, approved by the employer, are allowed to operate a power hoist.

4. Use the power hoist in an area that permits the operator to stand clear of the load at all times.
5. Use safety hooks or shackles to attach the load whenever possible.
6. Use 'tag lines' to control the load when necessary.
7. Keep your fingers and clothing clear of hoist machinery.
8. Do not attempt adjustments while the hoist is running.

Portable Welding Equipment

1. Wear a welding helmet or welding goggles during welding operations.
2. Do not use personal or employee-owned power tools and portable appliance while at work.
3. Do not perform welding tasks while wearing wet cotton gloves or wet leather gloves.
4. Insulated work gloves are required for all welders when using welding equipment.
5. Do not use welding apparatus if power plug is cut, frayed, split or otherwise visibly damaged or modified.
6. When replacing power plugs and cords of welding apparatus, always check to ensure that the ground wire is connected and the power plug prongs are not worn off, allowing the plug to be inserted backward.

Compressed Gas Cylinders

Storage and Handling

1. Do not handle oxygen cylinders if your gloves are greasy or oily.
2. Store all cylinders in the upright position.
3. Place valve protection caps on gas cylinders that are in storage or not in use.
4. Do not lift cylinders by the valve protection cap.
5. Do not store compressed gas cylinders in areas where they can come in contact with chemicals labeled "Corrosive."
6. Place cylinders on a cradle, sling board, pallet or cylinder basket to hoist them.
7. Do not place cylinders against electrical panels or live electrical cords where the cylinder can become part of the circuit.
8. Do not use a flame to check for propane cylinder leak, use a leak or monitor detector.
9. Use of Cylinders
10. Do not use dented, cracked, or other visually damaged cylinders.
11. Use only an open ended or adjustable wrench when connecting or disconnecting regulators and fittings.
12. Do not transport cylinders without first removing regulators and replacing the valve protection caps.

13. Close the cylinder valve when work is finished, when the cylinder is empty or at any time, the cylinder is moved.
14. Do not store oxygen cylinders near fuel gas cylinders such as propane or acetylene or near combustible material such as oil or grease.
15. Stand to the side of the regulator when opening the valve.
16. If a cylinder is leaking around a valve or a fuse plug, move it to an outside area away from where work is performed and tag it to indicate the defect.
17. Do not hoist or transport cylinders by means of magnets or choker slings.
18. Do not use compressed gas to clean the work area, equipment, or yourself.
19. Do not remove the valve wrench from acetylene cylinders while the cylinder is in use.
20. Open compressed gas cylinder valves slowly. Open fully when in use to eliminate possible leakage around the cylinder valve stem.
21. Purge oxygen valves, regulators, and lines before use.

Torch on Applications

1. "Blow Out" hoses before attaching the torch.
2. Inspect hoses and torches before use. Replace damaged, burned, worn, or leaking parts.
3. Use a pressure gauge on every regulator. Do not use an adjustable regulator with a higher-pressure range than the original regulator that came with the torch.
4. Never face the gauge while opening the cylinder valve.
5. Before lighting a torch, purge the hose, adjust the working pressures, then use a friction lighter to ignite the gases. Do not use matches or a cigarette lighter.
6. Do not use oil, grease or other lubricants on the regulator.
7. When shutting off the torch, close the gas cylinder valve first and let the remaining gas burn out of the hose before closing off the torch valve.
8. Never overfill a gas cylinder. It could explode.
9. Use only hoses listed for liquid petroleum (LP) gas.
10. Use soap solution to test for gas leaks before lighting.
11. Visually check and ensure that the flow of gas through the regulator is flowing in the proper direction. Directional flow is stamped on the regulator.
12. To keep 'frosting' from occurring, increase the size of the bottle or cylinder.
13. Secure propane tanks in an upright position and place them at least 10 feet from the open flame.
14. Keep non-applicators at least 10 feet from the flame.
15. Keep vent in pressure regulator clear at all times.
16. When shutting off the torch, close the propane cylinder valve first and let the remaining gas burn out of the hose.

17. Do not leave a lighted torch unattended.
18. Do not heat a cylinder to increase pressure.
19. Place a fire extinguisher near you, but away from the torch and other parts of LP gas equipment, when performing torch on operations.
20. Do not lay an operating torch over the edge of a roof.
21. Do not use a trowel as a torch stand.
22. Do not lay an operating torch to rest on a gas cylinder. If there is a gas leak in the cylinder area, there could be a fire.

Vehicle Loading

1. Plan the move before loading; ensure that you have an unobstructed pathway and that the vehicle is parked as close to the equipment or material as possible.
2. Keep bumpers/tailgates free of grease, water, etc.; remove buildup of material such as dirt, mud, etc.
3. Use lifting aids such as dollies, pallet jack, and forklift or get assistance from a co-worker to place dock plate resting between loading dock and truck surface.
4. If equipment or material that is to be loaded into truck is too heavy or bulky, use lifting aids such as hand trucks, dollies, pallet jacks and carts, or get assistance from co-workers.
5. Secure all equipment and material within the truck to eliminate or reduce movement.

Emergency Action Plan

Fire Alarms

All employees and visitors are required to evacuate the building or site in the event of a fire alarm, regardless of cause or time.

1. For reasons of muster, "The Joint Venture" shall, before any work is initiated, identify specific **muster area** for each contractor, trade or manageable group.
2. Muster areas shall be $\geq 50'$ from the building.
3. **The Muster Area for this project will be outside the Construction Manager Trailers unless otherwise directed by the Construction Manager**
 - It is the responsibility of the individual group, (by contractor, trade etc.), to determine whether or not all of their personnel evacuated the building, and if not, to report the names of the missing (or unaccounted person(s)) to the fire department incident commander, the local police/security department, and the project superintendent.

Fire

In the event of an actual fire or smoke condition, the previously identified (through training) procedures shall be followed: Notify all persons in the immediate area of the fire to initiate evacuation.

- **Close** the door to the fire area/room to contain the fire and/or smoke condition after everyone has left area.
- **Activate Alarm** (fire alarm, horn or other suitable warning device) to initiate building evacuation.
- **Evacuate the building**
- **Phone Police** (911)

Medical Emergency

Emergencies (which include significant lacerations, amputations, head, neck or back injuries, loss of consciousness, allergic reactions, diabetic emergencies, seizures, difficulty breathing, stroke and unknown illness or injuries) shall require the response of an ambulance. 911 or the local emergency number;

Unless required for reasons of personal safety (such as explosion, fire, structural failure etc.), no person needing emergency first aid shall be relocated, as this may compromise their health, safety and well-being.

- A designated person shall be identified to meet the ambulance at a pre-determined location, and direct the ambulance crew into the area or building where the incident has occurred.

First-Aid

Every work site shall have access to at least one first-aid kit in a weatherproof container. The first-aid kit will be inspected regularly to ensure that it is well stocked, in sanitary condition, and any used items are promptly replaced. The contents of the first-aid kit shall be arranged to be quickly found and remain sanitary. First-aid dressings shall be sterile and in individually sealed packages.

Drugs, antiseptics, eye irrigation solutions, inhalants, medicines, or proprietary preparations shall not be included in first-aid kits unless specifically approved, in writing, by an employer-authorized, licensed physician. Other supplies and equipment, if provided, shall be in accordance with the documented recommendations of an employer-authorized licensed physician upon consideration of the extent and type of emergency care to be given based upon the anticipated incidence and nature of injuries and illnesses and availability of transportation to medical care.

Each project will have a Blood-Borne Pathogens Kit for the safe cleaning of surfaces contaminated by blood or other bodily fluids.

Proper equipment for the prompt transportation of the injured or ill person to a physician or hospital where emergency care is provided, or an effective communication system for contacting hospitals or other emergency medical facilities, physicians, ambulance and fire services, shall also be provided. The telephone numbers of the following emergency services in the area shall be posted near the job telephone, or otherwise made available to the employees where no job site telephone exists:

1. A company authorized physician or medical clinic, and at least one alternate if available.
2. Hospitals.
3. Ambulance services
4. Fire-protection services.

Prior to the commencement of work at any site, the Supervisor or Manager shall locate the nearest preferred medical facility and establish that transportation or communication methods are available in the event of an employee injury.

Each employee shall be informed of the procedures to follow in case of injury or illness through our new employee orientation program, Code of Safe Practices, and safety meetings. Where the eyes or body of any person may be exposed to injurious or corrosive materials, suitable facilities for drenching the body or flushing the eyes with clean water shall be conspicuously and readily accessible.

Area Hospitals:

U-Mass Memorial

26 Queen Street

Worcester, Ma 01603

855-862-7763

Saint Vincent

123 Summer Street

Worcester, Ma 01603

Urgent Care Facility

AFC Urgent Care

117A Stafford Street,

Worcester, Ma

508-755-4010

Injury Reporting

- All injuries and illness shall be reported to one of the following person(s) as soon as possible.
- Mark Hogan, "The Joint Venture" Superintendent 413- 246-4793
- Bill Faneuf, "The Joint Venture" Superintendent 413-531-3566
- Jamie Blume, "The Joint Venture" Project Manager 617-823-7639

Emergency Contacts for this project

Superintendent- Mark Hogan	413- 246-4793	mhogan@fontainebros.com
Superintendent- Bill Faneuf	413-531-3566	bfaneuf@ fontainebros.com
Project Manager- Jamie Blume	617-823-7639	jblume@ fontainebros.com
Safety Director- Roger Mee	413-244-3119	rmee@fontainebros.com

Voluntary Respirator Use

Voluntary respirator use by workers is permitted as long as the equipment is proper for the intended use, NIOSH Approved, and has been inspected and the worker signs a Voluntary Respirator Use Waiver.

Appendix D to Sec. 1910.134 (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard

VOLUNTARY RESPIRATOR USE FORM

I, _____, am requesting to use the

following dust/mist respirator (_____)

for the following tasks (_____).

I understand the hazard to myself is minimal, and I should be able to complete the task without a respirator, if necessary. I am not aware of any current health conditions or family history involving heart/lung disease or breathing disorders that may be affected by the wearing of a disposal respirator. Should I develop any health conditions, I will immediately stop work, notify my immediate supervisor and consult with a medical professional for further evaluation.

I have read 29CFR1910.134 (1998) (Appendix D) (below).

Questions on respirator use can be answered by my supervisor or the Safety Director.

_____ (Respirator User) _____ (Date)

_____ (Immediate Supervisor) _____ (Date)

Appendix D to Sec. 1910.134 (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator. [63 FR 1152, Jan. 8, 1998; 63 FR 20098, April 23, 1998]

Means of Egress

All means of egress within the area or building shall be properly maintained for health and safety reasons.

- Personnel must be able to enter and exit the area, building or facility without hazard.
- All corridors and other walk / work surfaces shall be free of accumulated dust(s) and waste.
- Boxes, cardboard and other combustible material shall be kept to a minimum to reduce the risk of fire.
- Cords and other potential trip hazards shall be run along the base of the wall or overhead.
 - Cords run overhead shall not be run above ceilings, ceiling grids or through walls.
 - Cords run overhead should be hung by non-metallic means such as rope, string or tape.
- Corridors shall not be used for the storage or placement of gases.
 - Combustible storage should be placed in a separate area or room, in case of fire.
 - Equipment should be properly stored to prevent trip and fall, and for ease of retrieval.
- Flammable Gas and Liquid storage shall be kept to a minimum, and shall be stored in a manner acceptable to the owner and the local fire department.
 - Flammable gases and liquids shall not be placed or otherwise stored in a “means of egress”, such as a corridor or exit.
 - Flammable and combustible liquids shall be placed in approved metal (self-closing) cans and Flammable Storage Cabinets.
- All floors, unless otherwise permitted by the Building Official, shall have (2) separate and distinct means of egress.
 - If a stairwell must be removed, or temporarily made inaccessible, it shall be the responsibility of “The Joint Venture” to create another means of emergency egress, which could include, but is not limited to;
- Ladders to lower floor or ground
- Access to scaffold/staging
 - Whenever an Exit is temporarily closed or relocated, “The Joint Venture” shall make the following site modifications;
 - Cover or remove any reference to the existing signage
 - Post exit signage at the new location and
 - Direct employees and visitors to the new or temporary exit, as required

All means of egress must be properly identified, as required by the building official and OSHA. At a minimum the EXIT sign must be;

- Green or Red in color
- At least 2' above the floor
- Easily recognizable
- All **EXIT** signs that no longer serve an actual exit, must...

- be covered to prevent confusion, and
 - shall have alternative exit signage (with arrows) in place to re-direct occupants to the new exit.
- Lighting is the responsibility of “The Joint Venture”, or their identified designee. Adequate illumination must be maintained at all times for reasons of safety.
- Emergency lighting is required in areas where work may be necessary at night, or in locations below grade, in cases of power failure
- All temporary lighting must have the appropriate guards, as required
- The wattage of the light bulbs shall not exceed the manufacturers specifications for the light fixture

ENVIRONMENTAL

Hazardous Materials

- “The Joint Venture” shall make the owner or the owner’s designee/representative aware of any hazardous materials found on site that were not previously addressed or identified at the beginning of the project.
- “The Joint Venture” shall notify the owner or the owner’s designee/representative about any hazardous material incidents on site, regardless of size or quantity.
 - Leaks, spills or other types of contamination to air, soil or water which include chemicals, gasoline, hydraulic fluids and oils must be reported immediately
 - If the leak or spill is a “reportable quantity” of a chemical, gas or oil greater than 10 gallons (may be less depending on material), spilled directly to water regardless of quantity, or spilled to a direct pathway to water (i.e. storm drain), the owner or the owner's designee / representative must be notified, the local fire department and/or the Massachusetts Department of Environmental Protection shall be notified.
 - Hazardous materials shall be contained and labeled in a manner acceptable to the authority having jurisdiction.
 - Hazardous materials shall be properly labeled, as referenced in the Hazard Communications section of this program.

Hazardous materials including chemicals, cleaning agents, including those used for power washing of buildings and oil shall not be discharged or disposed of; to driveway, ground, road, sewer, storm drain or trash / waste receptacle or any other non-approved manner.

- The facility (owner) shall identify, with appropriate environmental assistance, the most appropriate manner in which to properly discard the hazardous material or waste, in accordance with the requirements of the state and federal environmental protection requirements.
 - For additional information and regulatory requirements, see the following sections;
 - Hazardous Waste

- Solid Waste and Recycling
- Storm Water
- Universal Waste

Hazardous Waste

Each contractor and sub-contractor is ultimately responsible for the identification, disposal and record keeping requirements of hazardous waste generated from the site and processes, such as lead based paint, asbestos, contaminated materials, and chemicals present at the facility. Contractors and sub-contractors are responsible for any waste they create on the site that is unrelated to the owner, including but not limited to; cutting oil, and concrete cleaners, cleaning compounds, solvents etc..

Storm Water

- As part of this requirement, this project shall have a storm water pollution protection plan (SWPPP) to limit the discharge of construction materials, waste, including chemicals, cleaning materials, mud and sand into a storm drain and other "navigable" waterways.
 - The SWPPP, because it applies to ground water and water run-off must take into consideration all potential wastes leaving the construction site.
 - Acid or power washing of buildings must be controlled in a manner acceptable to the DEP / EPA
 - Areas for the washing of vehicles and concrete equipment must be controlled.
 - Oil must be stored in a manner to prevent the release in the case of a spill. "The Joint Venture" must check with the Owner to determine if SPCC regulations apply. If so, "The Joint Venture" must supply a list of all oil being stored in 55 gallons or larger to the owner, and must abide by the SWPPP.
- The responsible contractor shall control run-off with appropriate measures that may include, but are not limited to;
 - Catch basin filters
 - Soil retaining measures
 - Street sweeping (frequent)
- "The Joint Venture", the sub-contractor (if applicable) and the Owner shall meet and discuss all options available to decide on the best management practices for the control of run-off.

HEALTH

General Health and Sanitation

- Housekeeping practices are reflective of the site health and sanitation program
- Contractors and sub-contractors shall be responsible for providing their workers with adequate potable water and disposable cups for the purpose of employee hydration.
- "The Joint Venture" shall provide the appropriate sanitary restroom facilities, unless otherwise negotiated with the owner.
- All restroom facilities shall have, as a minimum alcohol-based hand cleaners and disposable toilet paper.

HAZARD COMMUNICATION (GHS) SAFETY PLAN

DEFINITIONS: For purposes of HAZARD COMMUNICATION (GHS) SAFETY PLAN, the following will apply:

1. **"Article"** means a manufactured item other than a fluid or particle that is formed to a specific shape or design during manufacture, and has use function(s) dependent in whole or in part upon its shape or design during end use; and under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a Hazard chemical and does not pose a physical hazard or health risk to employees.
2. **"Assistant Secretary"** means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.
3. **"Chemical"** means any substance, or mixture of substances.
4. **"Chemical Manufacturer"** means a manufacturer with a workplace where chemical(s) are produced for use or distribution.
5. **"Chemical Name"** means the scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name that will clearly identify the chemical for the purpose of conducting a hazard classification.
6. **"Classification"** means to identify the relevant data regarding the hazards of a chemical; review those data to ascertain the hazards associated with the chemical; and decide whether the chemical will be classified as Hazard according to the definition of a Hazard chemical. In addition, classification for health and physical hazards includes the determination of the degree of hazard by comparing the data with the criteria for health and physical hazards.
7. **"Commercial Account"** means an arrangement where a retail distributor sells Hazard chemicals to a company, generally in large quantities over time and/or at costs that are below the regular retail price.

8. **"Common Name"** means any designation or identification such as code name, code number, trade name, brand name or generic name used to identify a chemical other than by its chemical name.
9. **"Container"** means any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a Hazard chemical. Pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers.
10. **"Designated Representative"** means any individual or organization that our employee gives written authorization to exercise such employee's rights. A recognized or certified collective bargaining agent will be treated automatically as a designated representative without regard to written employee authorization.
11. **"Director"** means the Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.
12. **"Distributor"** means a business, other than a chemical manufacturer or importer that supplies Hazard chemicals to other distributors or to employers.
13. **"Employee"** means employee who may be exposed to Hazard chemicals under normal operating conditions or in foreseeable emergencies. Employees who encounter Hazard chemicals only in non-routine, isolated instances are not covered.
14. **"Employer"** means a person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor.
15. **"Exposure or Exposed"** means that an employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g. accidental or possible) exposure. "Subjected" in terms of health hazards includes any route of entry (e.g. inhalation, ingestion, skin contact or absorption.)
16. **"Foreseeable Emergency"** means any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that could result in an uncontrolled release of a Hazard chemical into the workplace.
17. **"Hazard Category"** means the division of criteria within each hazard class, e.g., oral acute toxicity and flammable liquids include four hazard categories. These categories compare hazard severity within a hazard class and should not be taken as a comparison of hazard categories more generally.
18. **"Hazard Class"** means the nature of the physical or health hazards, e.g., flammable solid, carcinogen, oral acute toxicity.
19. **"Hazard Not Otherwise Classified (HNOC)"** means an adverse physical or health effect identified through evaluation of scientific evidence during the classification process that does not meet the specified criteria for the physical and health hazard classes addressed in this section. This does not extend coverage to adverse physical and health effects for that there is a hazard class

but the effect either falls below the cut-off value/concentration limit of the hazard class or is under a GHS hazard category that has not been adopted by OSHA.

20. **"Hazard Statement"** means a statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including the degree of the hazard.
21. **"Hazard Chemical"** means any chemical that is classified as a physical hazard or a health hazard, a simple combustible dust, pyrophoric gas, or hazard not otherwise classified.
22. **"Hazard Classification"** means chemical manufacturers and importers will evaluate chemicals produced in their workplaces or imported by them to classify the chemicals in accordance with this section. For each chemical, the chemical manufacturer or importer will determine the hazard classes, and where appropriate, the category of each class that apply to the chemical being classified. The company is not required to classify chemicals unless they choose not to rely on the classification performed by the chemical manufacturer or importer for the chemical to satisfy this requirement.
23. **"Health Hazard"** means a chemical that is classified as posing one of the following Hazard effects: acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); or aspiration hazard.
24. **"Immediate Use"** means that the Hazard chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift where it is transferred.
25. **"Importer"** means the first business with employees within the Customs Territory of the United States that receives Hazard chemicals produced in other countries for the purpose of supplying them to distributors or other employers within the United States.
26. **"Label"** means an appropriate group of written, printed or graphic information elements concerning a Hazard chemical that is affixed to, printed on, or attached to the immediate container of a Hazard chemical, or to the outside packaging.
27. **"Label Elements"** means the specified pictogram, hazard statement, signal word and precautionary statement for each hazard class and category.
28. **"Mixture"** means a combination or a solution composed of two or more substances in that they do not react.
29. **"Physical Hazard"** means a chemical that is classified as posing one of the following Hazard effects: explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; pyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas.
30. **"Pictogram"** means a composition that may include a symbol plus other

graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical. Eight pictograms are designated under this standard for application to a hazard category.

31. **"Precautionary Statement"** means a phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a Hazard chemical or improper storage or handling.
32. **"Product Identifier"** means the name or number used for a Hazard chemical on a label or in the SDS. It provides a unique means so that the user can identify the chemical. The product identifier used will permit cross-references to be made among the list of Hazard chemicals required in the written hazard communication program, the label and the SDS.
33. **"Produce"** means to manufacture, process, formulate, blend, extract, generate, emit, or repackage.
34. **"Pyrophoric Gas"** means a chemical in a gaseous state that will ignite spontaneously in air at a temperature of 130 degrees F (54.4 degrees C) or below.
35. **"Responsible Party"** means someone who can provide additional information on the Hazard chemical and appropriate emergency procedures, if necessary.
36. **"Safety Data Sheet (SDS)"** means written or printed material concerning a Hazard chemical that is prepared in accordance with the Hazard Communication regulations.
37. **"Signal Word"** means a word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used in this section are "danger" and "warning." "Danger" is used for the more severe hazards, while "warning" is used for the less severe.
38. **"Simple Asphyxiate"** means a substance or mixture that displaces oxygen in the ambient atmosphere, and can thus cause oxygen deprivation in those who are exposed, leading to unconsciousness and death.
39. **"Specific Chemical Identity"** means the chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.
40. **"Substance"** means chemical elements and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product and any impurities deriving from the process used, but excluding any solvent that may be separated without affecting the stability of the substance or changing its composition.
41. **"Trade Secret"** means any confidential formula, pattern, process, device, information or compilation of information that is used in business, and that gives the business an opportunity to obtain an advantage over competitors who do not know or use it.

42. **"Use"** means to package, handle, react, emit, extract, generate as a byproduct, or transfer.
43. **"Work Area"** means a room or defined space in a workplace where Hazard chemicals are produced or used, and where employees are present.
44. **"Workplace"** means an establishment, job site, or project, at one geographical location containing one or more work areas.
1. **Hazard Classification:** Chemical manufacturers and importers are required to determine the hazards of the chemicals they produce or import. Hazard classification under the new, updated standard provides specific criteria to address health and physical hazards as well as classification of chemical mixtures.
2. **Labels:** Chemical manufacturers and importers must provide a label that requires the use of a safety data sheet format and provides detailed information regarding the chemical. This includes a signal word, pictogram, hazard statement, and precautionary statement for each hazard class and category.
3. **Safety Data Sheets:** The new format requires **16 specific sections** that will provide consistency in presentation of important protection information.
4. **Information and Training:** To facilitate understanding of the new system, the new standard requires that employees be trained on the new label elements and safety data sheet format, in addition to the current training requirements.

Labeling Requirements

1. Chemical manufacturers and importers must provide a label that requires the use of a safety data sheet format and provides detailed information regarding the chemical. This includes a signal word, pictogram, hazard statement, and precautionary statement for each hazard class, category and mixed chemicals.
2. The HCS now requires the following label elements on labels of Hazard chemicals:
- a. **Name, Address and Telephone Number** of the chemical manufacturer, importer or other responsible party.
 - b. **Product Identifier** is how the Hazard chemical is identified. This can be (buy) is not limited to) the chemical name, code number or batch number. The manufacturer, importer or distributor can decide the appropriate product identifier. The same product identifier must be both on the label and in section 1 of the SDS.
 - c. **Signal Words** are used to indicate the relative level of severity of the hazard and alert the reader to a potential hazard on the label. There are only two










words used as signal words, “Danger” and “Warning.” Within a specific hazard class, “Danger” is used for the more severe hazards and “Warning” is used for the less severe hazards. There will only be one signal word on the label no matter how many hazards a chemical may have. If one of the hazards warrants a “Danger” signal word and another warrants the signal word “Warning,” then only “Danger” should appear on the label.

- d. **Hazard Statements** describe the nature of the hazard(s) of a chemical, including where appropriate, the degree of hazard. For example: “Causes damage to kidneys through prolonged or repeated exposure when absorbed through the skin.” All of the applicable hazard statements must appear on the label. Hazard statements may be combined where appropriate to reduce redundancies and improve readability. The hazard statements are specific to the hazard classification categories, and chemical users should always see the same statement for the same hazards no matter what the chemical is or who produces it.
 - e. **Precautionary Statements** describe recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to the Hazard chemical or improper storage or handling. There are four types of precautionary statements: prevention (to minimize exposure); response (in case of accidental spillage or exposure emergency response, and first-aid); storage; and disposal. For example, a chemical presenting a specific target organ toxicity (repeated exposure) hazard would include the following on the label: “Do not breathe dust, fumes, gas, mist, vapors, and/or spray.”
- 3. **Precautionary Statements** may be combined on the label to save on space and improve readability. When a chemical is classified for a number of hazards and the precautionary statements are similar, the most stringent statements must be included on the label. In this case, the chemical manufacturer, importer, or distributor may impose an order of precedence where phrases concerning response require rapid action to ensure the health and safety of the exposed person. In the self-reactive hazard category.
 - 4. To develop labels under the revised HCS regulations, the manufacturers, importers and distributors must first identify and classify the chemical hazard(s) by including **Pictogram(s)** on the label. After classifying the Hazard chemicals, the manufacturer, importer or distributor then determines the appropriate pictogram(s) signal words, and hazard and precautionary statement(s), for the chemical label. Once this information has been identified and gathered, then a label may be created. In most cases, the precautionary statements are independent; however, OSHA does allow flexibility for applying precautionary statements to the label, such as combining statements, using an order of precedence or eliminating an inappropriate statement.
 - 5. The label producer may provide supplementary Information and additional instructions or information that it deems helpful. It may also list any hazards not otherwise classified under this portion of the label. This section must also identify

the percentage of ingredient(s) of unknown acute toxicity when it is present in a concentration of $\geq 1\%$ (and the classification is not based on testing the mixture as a whole). If the company decides to include additional information regarding the chemical that is above and beyond what the standard requires, it may list this information under what is considered "supplementary information." There is also no required format for how a workplace label must look and no particular format the company has to use; however, it cannot contradict or detract from the required information.

6. An example of an item that may be considered supplementary is the personal protective equipment (PPE) pictogram indicating what workers handling the chemical may need to wear to protect them. For example, the **Hazard Materials Information System (HMIS)** pictogram of a person wearing goggles may be listed. Other supplementary information may include directions of use, expiration date, or fill date, all of that may provide additional information specific to the process in that the chemical is used.
7. Pictograms are graphic symbols used to communicate specific information about the hazards of a chemical. On Hazard chemicals being shipped or transported from a manufacturer, importer or distributor, the required pictograms consist of a red square frame set at a point with a black hazard symbol on a white background, sufficiently wide to be clearly visible. A square red frame set at a point without a hazard symbol is not a pictogram and is not permitted on the label. The pictograms OSHA has adopted improve worker safety and health, conform to the GHS, and are used worldwide. While the GHS uses a total of nine pictograms, OSHA will only enforce the use of eight. The environmental pictogram is not mandatory but may be used to provide additional information. Employees may see the ninth symbol on a label because label preparers may choose to add the environment pictogram as supplementary information.
8. It is important to note that the OSHA pictograms do not replace the diamond shaped labels that the U.S. Department of Transportation (DOT) requires for the transport of chemicals, including chemical drums, chemical totes, tanks or other containers. Those labels must be on the external part of a shipped container and must meet the DOT requirements set forth in 49 CFR 172. While the DOT diamond label is required for all Hazard chemicals on the outside shipping containers, chemicals in smaller containers inside the larger shipped container do not require the DOT diamond but do require the OSHA pictograms.
9. The company is responsible for maintaining the labels on the containers, including, tanks, totes, and drums. This means that labels must be maintained on chemicals in a manner that continues to be legible and the pertinent information does not get defaced (i.e., fade, get washed off) or removed in any way.

PICTOGRAMS AND HAZARDS

Health Hazard  <ul style="list-style-type: none"> • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity 	Flame  <ul style="list-style-type: none"> • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides 	Exclamation Mark  <ul style="list-style-type: none"> • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder  <ul style="list-style-type: none"> • Gases Under Pressure 	Corrosion  <ul style="list-style-type: none"> • Skin Corrosion/ Burns • Eye Damage • Corrosive to Metals 	Exploding Bomb  <ul style="list-style-type: none"> • Explosives • Self-Reactives • Organic Peroxides
Flame Over Circle  <ul style="list-style-type: none"> • Oxidizers 	Environment (Non-Mandatory)  <ul style="list-style-type: none"> • Aquatic Toxicity 	Skull and Crossbones  <ul style="list-style-type: none"> • Acute Toxicity (fatal or toxic)

Employee Training

The 16 sections of a Safety Data Sheet (SDS)

- 1. Identification**
- 2. Hazard identification**
- 3. Composition/Information on ingredients**
- 4. First-aid Measures**
- 5. Fire Fighting Measures**
- 6. Accidental Release Measures**
- 7. Handling and Storage**
- 8. Exposure Controls/ PPE**
- 9. Physical and Chemical Properties**
- 10. Stability and Reactivity**
- 11. Toxicological Information**
- 12. Ecological Information**
- 13. Disposal Considerations**
- 14. Transport Information**
- 15. Regulatory Information**
- 16. Other Information**

Respirable Crystalline Silica Program

PURPOSE

This Respirable Crystalline Silica Program was developed to prevent employee exposure to hazardous levels of Respirable Crystalline Silica that could result through construction activities or nearby construction activities occurring on worksites. Respirable Crystalline Silica exposure at hazardous levels can lead to lung cancer, silicosis, chronic obstructive pulmonary disease, and kidney disease. It is intended to meet the requirements of the Respirable Crystalline Silica Construction Standard (29 CFR 1926.1153) established by the Occupational Safety and Health Administration (OSHA).

All work involving chipping, cutting, drilling, grinding, or similar activities on materials containing Crystalline Silica can lead to the release of respirable-sized particles of Crystalline Silica (i.e. Respirable Crystalline Silica). Crystalline Silica is a basic component of soil, sand, granite and many other minerals. Quartz is the most common form of Crystalline Silica. Many materials found on construction sites include Crystalline Silica; including but not limited to – cement, concrete, asphalt, pre-formed structures (inlets, pipe, etc.) and others. Consequently, this program has been developed to address and control these potential exposures to prevent our employees from experiencing the effects of occupational illnesses related to Respirable Crystalline Silica exposure.

SCOPE

This Respirable Crystalline Silica Program applies to all employees who have the potential to be exposed to Respirable Crystalline Silica when covered by the OSHA Standard. The OSHA Respirable Crystalline Silica Construction Standard applies to all occupational exposures to Respirable Crystalline Silica in construction work, except where employee exposure will remain below 25 micrograms of Respirable Crystalline Silica per cubic meter of air ($25 \mu\text{g}/\text{m}^3$) as an 8-hour time-weighted average (TWA) under any foreseeable conditions.

RESPONSIBILITIES

“The Joint Venture” firmly believes protecting the health and safety of our employees is everyone’s responsibility. This responsibility begins with upper management providing the necessary support to properly implement this program. However, all levels of the organization assume some level of responsibility for this program including the following positions.

Safety Department

- Conduct job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments in order to determine if an employee's exposure will be above $25 \mu\text{g}/\text{m}^3$ as an 8-hour TWA under any foreseeable conditions.
- Select and implement into the project's ECP the appropriate control measures in accordance with the Construction Tasks identified in OSHA's Construction Standard Table 1; and potentially including (but not limited to) - a written Exposure Control Plan (ECP), exposure monitoring, Hazard Communication training, medical surveillance, housekeeping and others.

NOTE: OSHA's Construction Standard Table 1 is a list of 18 common construction tasks along with acceptable exposure control methods and work practices that limit exposure for those tasks.

- Ensure that the materials, tools, equipment, personal protective equipment (PPE), and other resources (such as worker training) required to fully implement and maintain this Respirable Crystalline Silica Program are in place and readily available if needed.
- Ensure that Project Managers, Site Managers, Competent Persons, and employees are educated in the hazards of Silica exposure and trained to work safely with Silica in accordance with OSHA's Respirable Crystalline Silica Construction Standard and OSHA's Hazard Communication Standard. Managers and Competent Persons may receive more advanced training than other employees.
- Maintain written records of training (for example, proper use of respirators), ECPs, inspections (for equipment, PPE, and work methods/practices), medical surveillance (under lock and key), respirator medical clearances (under lock and key) and fit-test results.
- Conduct an annual review (or more often if conditions change) of the effectiveness of this program and any active project ECP's that extend beyond a year. This includes a review of available dust control technologies to ensure these are selected and used when practical.
- Coordinate work with other employers and contractors to ensure a safe work environment relative to Silica exposure.

Project Manager

- Ensure all applicable elements of this Respirable Crystalline Silica Program are implemented on the project including the selection of a Competent Person.
- Assist the Safety Department in conduct job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments in order to determine if an ECP, exposure monitoring, and medical surveillance is necessary.
- Assist in the selection and implementation of the appropriate control measures in accordance with the Construction Tasks identified in OSHA's Construction Standard Table 1; and potentially including (but not limited to) - a written Exposure Control Plan (ECP), exposure monitoring, Hazard Communication training, medical surveillance, housekeeping and others.
- Ensure that employees using respirators have been properly trained, medically cleared, and fit-tested in accordance with the company's Respiratory Protection Program. This process will be documented.
- Ensure that work is conducted in a manner that minimizes and adequately controls the risk to workers and others. This includes ensuring that workers use appropriate engineering controls, work practices, and wear the necessary PPE.
- Where there is risk of exposure to Silica dust, verify employees are properly trained on the applicable contents of this program, the project-specific ECP, and the applicable OSHA Standards (such as Hazard Communication). Ensure employees are provided appropriate PPE when conducting such work.

Competent Person and/or Site Manager (Superintendent, Foreman, etc.)

- Make frequent and regular inspections of job sites, materials, and equipment to implement the written ECP.
- Identify existing and foreseeable Respirable Crystalline Silica hazards in the workplace and take prompt corrective measures to eliminate or minimize them.
- Notify the Project Manager and/or Safety Department of any deficiencies identified during inspections in order to coordinate and facilitate prompt corrective action.
- Assist the Project Manager and Safety Department in conducting job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments in order to determine if an ECP, exposure monitoring, and medical surveillance is necessary.

Employees:

- Follow recognized work procedures (such as the Construction Tasks identified in OSHA's Construction Standard Table 1) as established in the project's ECP and this program.
- Use the assigned PPE in an effective and safe manner.
- Participate in Respirable Crystalline Silica exposure monitoring and the medical surveillance program.
- Report any unsafe conditions or acts to the Site Manager and/or Competent Person.
- Report any exposure incidents or any signs or symptoms of Silica illness.

DEFINITIONS

If a definition is not listed in this section, please contact your supervisor. If your supervisor is unaware of what the term means, please contact the Competent Person or your Safety Department.

- Action Level means a concentration of airborne Respirable Crystalline Silica of $25 \mu\text{g}/\text{m}^3$, calculated as an 8-hour TWA.
- Competent Person means an individual who is capable of identifying existing and foreseeable Respirable Crystalline Silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them.
- Employee Exposure means the exposure to airborne Respirable Crystalline Silica that would occur if the employee were not using a respirator.
- High-Efficiency Particulate Air (HEPA) Filter means a filter that is at least 99.97 percent efficient in removing monodispersed particles of 0.3 micrometers in diameter.
- Objective Data means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to Respirable Crystalline Silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.
- Permissible Exposure Limit (PEL) means the employer shall ensure that no employee is exposed to an airborne concentration of Respirable Crystalline Silica in excess of $50 \mu\text{g}/\text{m}^3$, calculated as an 8-hour TWA.
- Physician or Other Licensed Health Care Professional (PLHCP) means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the

particular health care services required by the Medical Surveillance Section of the OSHA Respirable Crystalline Silica Standard.

- Respirable Crystalline Silica means Quartz, Cristobalite, and/or Tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle size- selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality-Particle Size Fraction Definitions for Health-Related Sampling.
- Specialist means an American Board Certified Specialist in Pulmonary Disease or an American Board Certified Specialist in Occupational Medicine.

REQUIREMENTS

Specified Exposure Control Methods

When possible and applicable, “The Joint Venture” will conduct activities involving potential Silica exposure to be consistent with OSHA’s Construction Standard Table 1. Supervisors will ensure each employee under their supervision and engaged in a task identified on OSHA’s Construction Standard Table 1 have fully and properly implemented the engineering controls, work practices, and respiratory protection specified for the task on Table 1 (unless Fontaine/W.T. Rich. has assessed and limited the exposure of the employee to Respirable Crystalline Silica in accordance with the Alternative Exposure Control Methods Section of this program).

The task(s) being performed by Fontaine/W.T. Rich. identified on OSHA’s Construction Standard Table 1 is/are: **Select any/all of the following that apply:**

Table 1: Specified Exposure Control Methods When
Working With Materials Containing Crystalline Silica

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
1	Stationary masonry saws	<ul style="list-style-type: none"> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	None
2a	Handheld power saws (any blade diameter) when used outdoors	<ul style="list-style-type: none"> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
2b	Handheld power saws (any blade diameter) when used indoors or in an enclosed area	<ul style="list-style-type: none"> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
3	Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less) for tasks performed outdoors only	<ul style="list-style-type: none"> Use saw equipped with commercially available dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency. 	None	None
4a	Walk-behind saws when used outdoors	<ul style="list-style-type: none"> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	None
4b	Walk-behind saws when used indoors or in an enclosed area	<ul style="list-style-type: none"> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
5	Drivable saws for tasks performed outdoors only	<ul style="list-style-type: none"> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	None
6	Rig-mounted core saws or drills	<ul style="list-style-type: none"> Use tool equipped with integrated water delivery system that supplies water to cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	None

CONSTRUCTION MANAGERS SITE SPECIFIC SAFETY PLAN

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
7	Handheld and stand-mounted drills (including impact and rotary hammer drills)	<ul style="list-style-type: none"> Use drill equipped with commercially available shroud or cowling with dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes. 	None	None
8	Dowel drilling rigs for concrete for tasks performed outdoors only	<ul style="list-style-type: none"> Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes. 	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
9a	Vehicle-mounted drilling rigs for rock and concrete	<ul style="list-style-type: none"> Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector. 	None	None
9b	Vehicle-mounted drilling rigs for rock and concrete	<ul style="list-style-type: none"> Operate from within an enclosed cab and use water for dust suppression on drill bit. 	None	None
10a	Jackhammers and handheld powered chipping tools when used outdoors	<ul style="list-style-type: none"> Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact. 	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10b	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	<ul style="list-style-type: none"> Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact. 	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10c	Jackhammers and handheld powered chipping tools when used outdoors	<ul style="list-style-type: none"> Use tool equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. 	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10d	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	<ul style="list-style-type: none"> Use tool equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or 	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask

CONSTRUCTION MANAGERS SITE SPECIFIC SAFETY PLAN

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
		greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.		
11	Handheld grinders for mortar removal (i.e., tuckpointing)	<ul style="list-style-type: none"> Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism. 	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	Powered Air-Purifying Respirator (PAPR) with P100 Filters
12a	Handheld grinders for uses other than mortar removal for tasks performed outdoors only	<ul style="list-style-type: none"> Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	None
12b	Handheld grinders for uses other than mortar removal when used outdoors	<ul style="list-style-type: none"> Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism. 	None	None
12c	Handheld grinders for uses other than mortar removal when used indoors or in an enclosed area	<ul style="list-style-type: none"> Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism. 	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
13a	Walk-behind milling machines and floor grinders	<ul style="list-style-type: none"> Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	None
13b	Walk-behind milling machines and floor grinders	<ul style="list-style-type: none"> Use machine equipped with dust collection system recommended by the manufacturer. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 	None	None

CONSTRUCTION MANAGERS SITE SPECIFIC SAFETY PLAN

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
		<ul style="list-style-type: none"> Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes. 		
14	Small drivable milling machines (less than half-lane)	<ul style="list-style-type: none"> Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions. 	None	None
15a	Large drivable milling machines (half-lane and larger) for cuts of any depth on asphalt only	<ul style="list-style-type: none"> Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions. 	None	None
15b	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	<ul style="list-style-type: none"> Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions. 	None	None
15c	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	<ul style="list-style-type: none"> Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions. 	None	None
16	Crushing machines	<ul style="list-style-type: none"> Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyers, sieves/sizing or vibrating components, and discharge points). Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station. 	None	None
17a	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	<ul style="list-style-type: none"> Operate equipment from within an enclosed cab. 	None	None
17b	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during	<ul style="list-style-type: none"> When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions. 	None	None

CONSTRUCTION MANAGERS SITE SPECIFIC SAFETY PLAN

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
	demolition activities involving silica-containing materials			
18a	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	<ul style="list-style-type: none"> Apply water and/or dust suppressants as necessary to minimize dust emissions. 	None	None
18b	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	<ul style="list-style-type: none"> When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab. 	None	None

When implementing the control measures specified in Table 1, "The Joint Venture" shall:

- For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust;
- For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;
- For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:
 - Is maintained as free as practicable from settled dust;
 - Has door seals and closing mechanisms that work properly;
 - Has gaskets and seals that are in good condition and working properly;
 - Is under positive pressure maintained through continuous delivery of fresh air;
 - Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 µm range (e.g., MERV-16 or better); and
 - Has heating and cooling capabilities.
- Where an employee performs more than one task included on OSHA's Construction Standard Table 1 during the course of a shift, and the total duration of all tasks combined is

more than four hours, the required respiratory protection for each task is the respiratory protection specified for more than four hours per shift. If the total duration of all tasks on Table 1 combined is less than four hours, the required respiratory protection for each task is the respiratory protection specified for less than four hours per shift.

Alternative Exposure Control Methods

Alternative Exposure Control Methods apply for tasks not listed in OSHA's Construction Standard Table 1, or where "The Joint Venture" cannot not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1.

First, "The Joint Venture" will assess the exposure of each employee who is or may reasonably be expected to be exposed to Respirable Crystalline Silica at or above the Action Level in accordance with either the Performance Option or the Scheduled Monitoring Option.

- **Performance Option** – "The Joint Venture" will assess the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to Respirable Crystalline Silica.
- **Scheduled Monitoring Option:**
 - "The Joint Venture" will perform initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the exposures of employees on each shift, for each job classification, and in each work area. Where several employees perform the same tasks on the same shift and in the same work area, "The Joint Venture" will plan to monitor a representative fraction of these employees. When using representative monitoring, "The Joint Venture" will sample the employee(s) who are expected to have the highest exposure to Respirable Crystalline Silica.
 - If initial monitoring indicates that employee exposures are below the Action Level, "The Joint Venture" will probably discontinue monitoring for those employees whose exposures are represented by such monitoring.
 - Where the most recent exposure monitoring indicates that employee exposures are at or above the Action Level but at or below the PEL, "The Joint Venture" will repeat such monitoring within six months of the most recent monitoring.
 - Where the most recent exposure monitoring indicates that employee exposures are above the PEL, "The Joint Venture" will repeat such monitoring within three months of the most recent monitoring.
 - Where the most recent (non-initial) exposure monitoring indicates that employee exposures are below the Action Level, "The Joint Venture" will repeat such monitoring within six months of the most recent monitoring until two consecutive measurements, taken seven or more days apart, are below the Action Level, at which time "The Joint Venture" will probably discontinue monitoring for those employees whose exposures are represented by such monitoring, except when a reassessment is required. "The Joint Venture" will reassess exposures whenever a change in the production, process, control

equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the Action Level, or when “The Joint Venture” has any reason to believe that new or additional exposures at or above the Action Level have occurred.

“The Joint Venture” will ensure that all Respirable Crystalline Silica samples taken to satisfy the monitoring requirements of this program and OSHA are collected by a qualified individual (i.e. a Certified Industrial Hygienist) and the samples are evaluated by a qualified laboratory (i.e. accredited to ANSI/ISO/IEC Standard 17025:2005 with respect to Crystalline Silica analyses by a body that is compliant with ISO/IEC Standard 17011:2004 for implementation of quality assessment programs).

Within five working days after completing an exposure assessment, “The Joint Venture” will individually notify each affected employee in writing of the results of that assessment or post the results in an appropriate location accessible to all affected employees.

Whenever an exposure assessment indicates that employee exposure is above the PEL, “The Joint Venture” will describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

Where air monitoring is performed, “The Joint Venture” will provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to Respirable Crystalline Silica. When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required for any workplace hazard, “The Joint Venture” will provide the observer with protective clothing and equipment at no cost and shall ensure that the observer uses such clothing and equipment.

Once air monitoring has been performed, “The Joint Venture” will determine its method of compliance based on the monitoring data and the hierarchy of controls. “The Joint Venture” will use engineering and work practice controls to reduce and maintain employee exposure to Respirable Crystalline Silica to or below the PEL, unless “The Joint Venture” can demonstrate that such controls are not feasible. Wherever such feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, “The Joint Venture” will nonetheless use them to reduce employee exposure to the lowest feasible level and shall supplement them with the use of respiratory protection.

In addition to the requirements of this program, “The Joint Venture” will comply with other programs and OSHA standards (such as 29 CFR 1926.57 [Ventilation]), when applicable where abrasive blasting is conducted using Crystalline Silica-containing blasting agents, or where abrasive blasting is conducted on substrates that contain Crystalline Silica.

Control Methods

“The Joint Venture” will provide control methods that are either consistent with Table 1 or otherwise minimize worker exposures to Silica. These exposure control methods can include engineering controls, work practices, and respiratory protection. Listed below are control methods to be used when Table 1 is not followed:

List Control Methods

Respiratory Protection

Where respiratory protection is required by this program, "The Joint Venture" will provide each employee an appropriate respirator that complies with the requirements of the company's Respiratory Protection Program and the OSHA Respiratory Protection Standard (29 CFR 1910.134).

Respiratory protection is required where specified by the OSHA Construction Standard Table 1, for tasks not listed in Table 1, or where the company has not fully and properly implemented the engineering controls, work practices, and respiratory protection described in Table 1. Situations requiring respiratory protection include:

- Where exposures exceed the PEL during periods necessary to install or implement feasible engineering and work practice controls;
- Where exposures exceed the PEL during tasks, such as certain maintenance and repair tasks, for which engineering and work practice controls are not feasible; and
- During tasks for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL.

Housekeeping

"The Joint Venture" does not allow dry sweeping or dry brushing where such activity could contribute to employee exposure to Respirable Crystalline Silica unless wet sweeping, HEPA-filtered vacuuming, or other methods that minimize the likelihood of exposure are not feasible.

"The Joint Venture" does not allow compressed air to be used to clean clothing or surfaces where such activity could contribute to employee exposure to Respirable Crystalline Silica unless:

- The compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air; or
- No alternative method is feasible.

Written Exposure Control Plan

When employee exposure on a construction project is expected to be at or above the Action Level, a Written Exposure Control Plan (ECP) will be established and implemented. This ECP will contain at least the following elements:

- A description of the tasks in the workplace that involve exposure to Respirable Crystalline Silica;

- A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to Respirable Crystalline Silica for each task;
- A description of the housekeeping measures used to limit employee exposure to Respirable Crystalline Silica; and
- A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to Respirable Crystalline Silica and their level of exposure, including exposures generated by other employers or sole proprietors.

The written ECP will designate a Competent Person to make frequent and regular inspections of job sites, materials, and equipment to ensure the ECP is implemented.

The written ECP will be reviewed at least annually to evaluate the effectiveness of it and update it as necessary. Having said this, ECP's are project specific and most project durations do not exceed a year. The written ECP will be readily available for examination and copying, upon request, to each employee covered by this program and/or ECP, their designated representatives, and OSHA.

Medical Surveillance

Medical surveillance will be made available for each employee who will be required to use a respirator for 30 or more days per year due to their Respirable Crystalline Silica exposure. Medical surveillance (i.e. medical examinations and procedures) will be performed by a PLHCP and provided at no cost to the employee at a reasonable time and place.

"The Joint Venture" will make available an initial (baseline) medical examination within 30 days after initial assignment, unless the employee has received a medical examination that meets the requirements of the OSHA Respirable Crystalline Silica Construction Standard within the last three years. The examination shall consist of:

- A medical and work history, with emphasis on past, present, and anticipated exposure to Respirable Crystalline Silica, dust, and other agents affecting the respiratory system in addition to any history of respiratory system dysfunction, including signs and symptoms of respiratory disease (e.g., shortness of breath, cough, wheezing), history of tuberculosis, and smoking status and history;
- A physical examination with special emphasis on the respiratory system;
- A chest X-ray (a single postero-anterior radiographic projection or radiograph of the chest at full inspiration recorded on either film [no less than 14 x 17 inches and no more than 16 x 17 inches] or digital radiography systems) interpreted and classified according to the International Labour Office (ILO) International Classification of Radiographs of Pneumoconiosis by a NIOSH-certified B Reader;
- A pulmonary function test to include forced vital capacity (FVC) and forced expiratory volume in one second (FEV1) and FEV1/FVC ratio, administered by a spirometry technician with a current certificate from a NIOSH-approved spirometry course;

- Testing for latent tuberculosis infection; and
- Any other tests deemed appropriate by the PLHCP.

“The Joint Venture” will make available medical examinations that include the aforementioned procedures (except testing for latent tuberculosis infection) at least every three years. If recommended by the PLHCP, periodic examinations can be more frequently than every three years.

“The Joint Venture” will ensure that the examining PLHCP has a copy of the OSHA Respirable Crystalline Silica Construction Standard, this program, and the following information:

- A description of the employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to Respirable Crystalline Silica;
- The employee's former, current, and anticipated levels of occupational exposure to Respirable Crystalline Silica;
- A description of any personal protective equipment (PPE) used or to be used by the employee, including when and for how long the employee has used or will use that equipment; and
- Information from records of employment-related medical examinations previously provided to the employee and currently within the control of “The Joint Venture”

“The Joint Venture” will ensure that the PLHCP explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of each medical examination performed. The written report shall contain:

- A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to Respirable Crystalline Silica and any medical conditions that require further evaluation or treatment;
- Any recommended limitations on the employee's use of respirators;
- Any recommended limitations on the employee's exposure to Respirable Crystalline Silica; and;
- A statement that the employee should be examined by a Specialist if the chest X-ray is classified as 1/0 or higher by the B Reader, or if referral to a Specialist is otherwise deemed appropriate by the PLHCP.

“The Joint Venture” will also obtain a written medical opinion from the PLHCP within 30 days of the medical examination. The written opinion shall contain only the following in order to protect the employee's privacy:

- The date of the examination;

- A statement that the examination has met the requirements of the OSHA Respirable Crystalline Silica Construction Standard; and
- Any recommended limitations on the employee's use of respirators.

If the employee provides written authorization, the written opinion shall also contain either or both of the following:

- Any recommended limitations on the employee's exposure to Respirable Crystalline Silica; and/or
- A statement that the employee should be examined by a Specialist if the chest X-ray is classified as 1/0 or higher by the B Reader, or if referral to a Specialist is otherwise deemed appropriate by the PLHCP.

If the PLHCP's written medical opinion indicates that an employee should be examined by a Specialist, "The Joint Venture" will make available a medical examination by a Specialist within 30 days after receiving the PLHCP's written opinion. "The Joint Venture" will ensure that the examining Specialist is provided with all of the information that the employer is obligated to provide to the PLHCP.

"The Joint Venture" will ensure that the Specialist explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of the examination. The written report will contain:

- A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to Respirable Crystalline Silica and any medical conditions that require further evaluation or treatment;
- Any recommended limitations on the employee's use of respirators; and
- Any recommended limitations on the employee's exposure to respirable crystalline Silica.

In addition, "The Joint Venture" will obtain a written opinion from the Specialist within 30 days of the medical examination. The written opinion shall contain the following:

- The date of the examination;
- Any recommended limitations on the employee's use of respirators; and
- If the employee provides written authorization, the written opinion shall also contain any recommended limitations on the employee's exposure to Respirable Crystalline Silica.

Hazard Communication

“The Joint Venture” will include Respirable Crystalline Silica in the company’s Hazard Communication Program established to comply with the OSHA Hazard Communication Standard (29 CFR 1910.1200).

“The Joint Venture” will ensure that each employee has access to labels on containers of Crystalline Silica and those containers respective Safety Data Sheets (SDS’s).

All employees will be trained in accordance with the provisions of the OSHA Hazard Communication Standard and the Training Section of this program. This training will cover concerns relating to cancer, lung effects, immune system effects, and kidney effects.

“The Joint Venture” will ensure that each employee with the potential to be exposed at or above the Action Level for Respirable Crystalline Silica can demonstrate knowledge and understanding of at least the following:

- The health hazards associated with exposure to Respirable Crystalline Silica;
- Specific tasks in the workplace that could result in exposure to Respirable Crystalline Silica;
- Specific measures “The Joint Venture” has implemented to protect employees from exposure to Respirable Crystalline Silica, including engineering controls, work practices, and respirators to be used;
- The contents of the OSHA Respirable Crystalline Silica Construction Standard;
- The identity of the Competent Person designated by “The Joint Venture”; and
- The purpose and a description of the company’s Medical Surveillance Program.

“The Joint Venture” will make a copy of the OSHA Respirable Crystalline Silica Construction Standard readily available without cost to any employee who requests it.

Recordkeeping

“The Joint Venture” will make and maintain an accurate record of all exposure measurements taken to assess employee exposure to Respirable Crystalline Silica. This record will include at least the following information:

- The date of measurement for each sample taken;
- The task monitored;
- Sampling and analytical methods used;
- Number, duration, and results of samples taken;

- Identity of the laboratory that performed the analysis;
- Type of personal protective equipment (PPE), such as respirators, worn by the employees monitored; and
- Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

“The Joint Venture” will ensure that exposure records are maintained and made available in accordance with 29 CFR 1910.1020. Exposure records will be kept for at least 30 years.

The employer shall make and maintain an accurate record of all objective data relied upon to comply with the requirements of the OSHA Respirable Crystalline Silica Construction Standard. This record shall include at least the following information:

- The Crystalline Silica-containing material in question;
- The source of the objective data;
- The testing protocol and results of testing;
- A description of the process, task, or activity on which the objective data were based; and
- Other data relevant to the process, task, activity, material, or exposures on which the objective data were based.

“The Joint Venture” will ensure that objective data are maintained and made available in accordance with 29 CFR 1910.1020. Objective data records will be kept for at least 30 years.

“The Joint Venture” will make and maintain an accurate record for each employee enrolled in the Medical Surveillance portion of this program. The record shall include the following information about the employee:

- Name and social security number;
- A copy of the PLHCPs' and/or Specialists' written medical opinions; and
- A copy of the information provided to the PLHCPs and Specialists.

“The Joint Venture” will ensure that medical records are maintained and made available in accordance with 29 CFR 1910.1020. Medical records will be kept under lock and key for at least the duration of employment plus 30 years. It is necessary to keep these records for extended periods because Silica-related diseases such as cancer often cannot be detected until several decades after exposure. However, if an employee works for an employer for less than one year, the employer does not have to keep the medical records after employment ends, as long as the employer gives those records to the employee.

PROGRAM EVALUATION

This program will be reviewed and evaluated on an annual basis by the Safety Department unless changes to operations, the OSHA Respirable Crystalline Silica Construction Standard (29 CFR 1926.1153), or another applicable OSHA Standard require an immediate re-validation of this program.

Asbestos

It is the responsibility of each contractor and sub-contractor to determine the presence of hazardous materials and invoke safe work practices meeting all federal, state, and local mandates regarding disturbing, handling, removing, storage, and disposing of same.

Based on information available, it has been determined that this site has;

X Asbestos

No Asbestos

Possibility of
Asbestos

Asbestos may be found in the following locations on this project;

- ☐ Boilers and Heating Systems
- ☐ Ceiling tiles
- ☐ Floor tile(s)
- ☐ Glue daubs
- ☐ Window caulking and glazing
- ☐ Linoleum and cove base
 - ☐ Pipe insulation
 - ☐ Plaster
 - ☐ Roofing adhesives, flashing and membranes
 - ☐ Sheetrock and joint compound
- Although some materials can be identified as non-asbestos by touch (such as fiberglass), the only way to confirm whether or not the material is non-asbestos is to test it.
- All material that has not been tested, but has the possibility of being asbestos must be treated as “presumed asbestos containing material” or PACM
- Review any survey that has been done by the facility for the project.

Lead

Lead contaminated materials, including glazed blocks and tiles, paints, plumbing and stains may be present on site.

- The following materials has tested positive for lead on this project;

☐ **Wood** ☐ **Glazed Block** ☐ **Glazed Tile** ☐ **Paint** ☐ **Steel**

- Lead containing materials shall be properly removed and disposed of using lead safe work practices.
 - Lead contaminated wastes shall not be discarded into a construction dumpster, as the level of lead may exceed a TCLP (*Toxicity Characteristic Leaching Procedure*) test, rendering the dumpster contaminated and unable to be disposed of, except at an approved lead landfill, with appropriate documentation.
- “The Joint Venture”, with the permission of the owner or owner's representative, is responsible for the safe removal and disposal of all lead containing materials.

For this project, the contact person for lead safe work practices and disposal requirements is;

Cranes, Derricks, Hoists and Lifts

- All cranes derricks and lifts shall comply with the requirements of OSHA Final Rule effective date November 8, 2010 (Subpart CC.)
 - “The Joint Venture”, working with the crane operator shall insure that a “competent” person has been appointed to act as the person-in-charge for all lifts involving cranes, regardless of size and/or weight capacity.

The person-in-charge is required to have a pre-lift plan for regulatory and safety reasons. The plan must include, but is not limited to the following requirements;

- The operators name and proof of certification, as well as the signaler name and verification of training
- Area survey to ensure that the work site is stable and appropriate for the weight and work activities of the crane
- Description, type and rated capacity of the crane being used for the lift
- The list of the equipment or material being lifted, including weight, dimensions and other applicable information
- Appropriate sketches or blueprints of how the material will be lifted.
- Boom and swing angles, crane orientations, lifting points, methods of attachment and rated capacity.
- A pre-lift meeting with all personnel that will be involved with the lift, or in close proximity to same.

“The Joint Venture” or their designee is required to barricade or provide warnings to alert persons in close proximity about the overhead work. This shall include, but is not limited to;

- protection of doorways and exits, which might include redirection to an alternative entrance / exit
- tape off hazardous areas, including swing zones and areas where overhead hazards are likely to fall
- Inspections of cranes, derricks and associated attachments shall be made by a competent person prior to each use

Crane Operators are responsible for operations under their direct control. They shall;

- Not engage in any practice that will divert their attention while operating the hoisting equipment
- Not operate the lift if their operation is / might be impaired (mentally or physically)
- Perform an equipment assessment (walk around inspection) to verify personnel, equipment and site safety
- Place appropriate barriers or warning lines around the superstructure to prevent unauthorized entry into the site / area of swing
- Test all controls and emergency stops
 - improperly functioning / working controls must be adjusted / repaired before the equipment is used.
 - If not repairable, the unit must be removed from service and locked and / or tagged "Out Of Service DO Not Use".

- Respond appropriately to any signals from a trained "signalperson", or by radio or phone contact (hands-free).
- Be responsible for anyone working under their direct control, and shall stop any unsafe or potential unsafe operation until corrections can be made
- Secure and make safe any unattended hoisting equipment
- Not permit any person to work under the boom or suspended load

A competent, authorized and properly trained person shall inspect cranes, derricks and associated equipment, as specified by the manufacturer, prior to each use.

- Crane operators are responsible for their cranes and derricks before, during and after any lift.
 - If the safety of the personnel, equipment or facility is in question, the competent person shall;
 - Stop all hoist activities
 - Refuse to handle or lift non-conforming loads

Hoisting employees on a personal platform of cranes and derricks, when steel erection is being conducted is permitted, provided that all provisions of 29 CFR 1926.550 [except 1926.550(g)(2)] are met.

- Headache balls cannot be used to transport personnel
- Safety latches on crane hooks (regardless of hook capacity and size) shall not be deactivated, removed or disabled
- Crane Inspections shall;
 - Be performed by a competent person and shall include all aspects, as specified by the manufacturer of the crane.
 - **A qualified rigger must be used during all rigging and hoisting operations**

Use of cranes, including lifting procedures, assembling and disassembling shall be done in accordance with manufactures specifications.

Demolition: Subpart T

A Written Demolition Plan must be submitted and approved prior to building demolition.

- All demolition work, which creates dust (regardless of type), shall incorporate the use of dust control methods, such as a water spray, or other engineering controls to limit dust migration. The use of HEPA Vacuums will be used in conjunction with 6mil poly barriers to control airborne dust concentrations as needed.

Demolition Safety Tips

Demolition work involves many of the same hazards that arise during other construction activities. However, demolition also involves additional hazards due to a variety of other factors. Some of these include: lead-based paint, sharp or protruding objects and asbestos-containing material.

Preventing Falls

- Brace or shore up the walls and floors of structures which have been damaged and which employees must enter.
- Inspect personal protective equipment (PPE) before use.
- Select, wear and use appropriate PPE for the task.
- Inspect all stairs, passageways, and ladders; illuminate all stairways.
- Shut off or cap all electric, gas, water, steam, sewer, and other service lines; notify appropriate utility companies.
- Guard wall openings to a height of 42 inches; cover and secure floor openings with material able to withstand the loads likely to be imposed.
- Floor openings used for material disposal must not be more than 25% of the total floor area.
- Use enclosed chutes with gates on the discharge end to drop demolition material to the ground or into debris containers.
- Demolition of exterior walls and floors must begin at the top of the structure and proceed downward.
- Structural or load-supporting members on any floor must not be cut or removed until all stories above that floor have been removed.
- All roof cornices or other ornamental stonework must be removed prior to pulling walls down.
- Employees must not be permitted to work where structural collapse hazards exist until they are corrected by shoring, bracing, or other effective means.

IAQ Indoor Air Quality Management Program

Incorporate indoor air quality goals into the construction process.

Ensure that all members of the construction project team are knowledgeable about indoor quality issues and have defined responsibilities for implementation of good indoor air quality practices.

Require the development and use of this indoor air quality management plan. The purpose of the management plan is to prevent residual problems with indoor air quality in the completed building and protect workers on the site from undue health risks during construction. The plan should identify specific measures to address:

- Problem substances, including: construction dust, chemical fumes, off-gassing materials, and moisture. The plan should ensure that these problems are not introduced during construction, or, if they must be, eliminates or reduces their impact.
- Areas of planning, including: product substitutions and materials storage, safe installation, proper sequencing, regular monitoring, and safe and thorough cleanup.

Conduct regular inspection and maintenance of indoor air quality measures including ventilation system protection and ventilation rate.

Conduct safety meetings, develop signage, and establish subcontractor agreements that communicate the goals of the construction indoor air quality plan. The indoor air quality construction plan is also a good opportunity to proscribe behaviors unacceptable to the owner that represent a potentially negative impact on long term indoor air quality such as smoking, using chew tobacco, or wearing contaminated work clothes.

Require contractors to provide information on product substitutions sufficient to enable operations and maintenance staff to properly maintain and repair materials in place.

Construction Practices

During construction, there are several simple actions contractors can perform that will minimize the potential for indoor air quality problems. Trades that need to be especially careful include: flooring, roofing, painting, drywall, HVAC, insulators, and the clean-up crew.

Keep building materials dry. Building materials, especially those with moisture absorbing properties like wood, insulation, paper, and fabric, should be kept dry to prevent the growth of mold and bacteria. If moisture is present, mold will grow on any virtually any material. Some building materials such as wood may arrive at the construction site with a high- moisture content or may have been wetted before arrival or during the transport process. Wet materials need to be allowed to dry as much as possible as weather permits. Cover dry materials with plastic to prevent rain damage, and if resting on the ground, use spacers to allow air to circulate between the ground and the materials.

Dry water damaged materials quickly. Water damaged materials should be dried within 24 hours. Due to the possibility of mold growth, materials that are damp or wet for more than 72 hours may need to be discarded.

Clean spills immediately. If solvents, cleaners, gasoline, or other odorous or potentially toxic liquids are spilled onto the floor, they should be cleaned up immediately. If a spill occurs on an

easily replaced building material, it may be safest to discard it and replace it with new material. Odors from significant spills can linger sometimes for years, causing comfort and health problems for the future occupants of the building.

Seal unnecessary openings. Seal all unnecessary openings in walls, floors, and ceilings that separate conditioned space (heated or cooled) from unconditioned space. For example, it is common to punch large holes in the floor to allow pipes and wires to run between the rooms above and the crawlspaces or tunnels below. These oversized openings can cause two significant indoor air quality problems. Air that is contaminated with mold, radon, moisture, and pesticides can easily enter the rooms; and pests such as roaches or rodents can enter the rooms, leaving behind odors and allergens.

Temporarily seal duct-work. As duct-work is being installed, all return and supply air vents and any open duct-work should be temporarily sealed to prevent the duct-work and air handling units from being contaminated with construction debris or dust.

Ventilate when needed. Some construction activities can release large amounts of VOCs into the building, and if the building is already enclosed with walls, windows, and doors, outdoor air can no longer easily flow through the building and remove the VOCs. In addition to affecting the health of the construction workers, these VOCs can also be adsorbed onto other building materials and be re-released into the air later when the building is occupied by children and staff. During certain construction activities, temporary ventilation systems should be installed to quickly remove the gases.

Ventilation is generally needed when "wet" building materials are in use, when using materials that give off an odor, or when using materials that carry a manufacturer's warning regarding the need for ventilation. Odors from building materials are the result of chemicals being released from the materials into the air, so if there is an odor present, it is safest to provide ventilation that will quickly remove those odors from the building. Examples of potentially problematic construction activities include painting (even with no- or low-VOC paints), spreading of floor adhesives, and use of large amounts of caulk, sealants, and cleaning agents. Additionally, the installation of large amounts of building materials, such as carpet or vinyl-based flooring products and composite wood cabinets and shelves, can require extra ventilation if the material has not been carefully selected or aired-out before being unrolled or unpackaged within the building.

During installation of carpet, paints, furnishings, and other VOC-emitting products, provide supplemental (spot) ventilation for at least 72 hours after work is completed.

It is important that an exhaust fan be used to pull the polluted air out of the building, not to push outdoor air into the building. Simply opening windows or doors is not enough to effectively exhaust contaminants in most cases. The fan should be placed in a window or exterior door as close to the work area as possible, and any openings in the window or door around the fan be temporarily sealed with plastic or cardboard. Then open a window or exterior door at the opposite end of the room or building, so that fresher outdoor air will flow across the work area and sweep polluted air out through the exhaust fan. The size of exhaust fan needed will increase as the size of the room increases, and as the amount of gases being released into the air increases. The fan should provide about 5 air changes per hour (5 ACH). Divide the volume of the room in cubic feet by 12 to get the minimum amount of cubic feet per minute (CFM) that the fan must be able to exhaust. For example, a room with a volume of 9000 cubic feet (1000 square feet of floor area with 9 foot ceilings) divided by 12 results in a fan of 750 CFM. A 21 inch box fan may be sufficient for a single room if the materials are not too strong a source of gases, but would certainly not be sufficient for a wing or a whole

building. As a rule of thumb, there may be enough airflow if odors do not spread out of the immediate area where the work is being performed, if dust or smoke released into the air can be seen to be drawn towards the exhaust fan. As long as the odors or air pollutants are present, the temporary exhaust ventilation must continue to be operated, even during nights and weekends if necessary. Ventilation should continue for a minimum of 24 hours after completion, or until there are no longer any noticeable odors.

Barriers are to be installed to prevent dust mitigation into occupied areas. The barriers will be made from 6mil poly held into place with tensioners or high quality duct-tape.

A negative pressure will be created in the work zone using one or more negative pressure ventilation machines. The filter media on each machine will be inspected and replaced at regular intervals.

Reduce construction dust. Minimize the amount of dust in the air and on surfaces. Examples include use of vacuum assisted drywall sanding equipment, and use of vacuums instead of brooms to clean construction dust from floors.

Use wet sanding for gypsum board assemblies when possible.

Exception: Dry sanding is acceptable if the following measures are taken:

- Full isolation of space under finishing
- Vacuum systems are used
- Plastic protection sheeting is installed to provide air sealing during the sanding
- Closure of all air system devices and ductwork
- Sequencing of construction precludes the possibility of contamination of other spaces with gypsum dust
- Worker protection is provided. Use safety meetings, signage, and subcontractor agreements to communicate the goals of the construction indoor air quality plan.

Avoid use of combustion equipment indoors. Engines and heaters that run on gasoline, diesel, kerosene, or other fossil fuels should not be operated indoors unless absolutely necessary, and only when large quantities of exhaust ventilation are provided to remove combustion pollutants such as carbon monoxide and moisture.

Store liquids outdoors. To reduce the possibility of spills during storage, transfer, or mixing, store all odorous or toxic liquids outside the building and protect against freezing.

Smoking will only be allowed in designated areas. No exceptions.

Use less toxic cleaning agents. Ensure that the cleaning crews do not use highly toxic or odorous cleaning agents inside the building.

RESPIRATORY PROTECTION PROGRAM

Policy Statement

To control and or minimize the threat of occupational diseases caused by breathing air contaminated with harmful dusts, fumes, mists, gases, smokes, sprays, or vapors, the primary objective of this program shall be to prevent atmospheric contamination.

This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic substance). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used.

Written Program

Effective implementation of this program requires support from all levels of management within "The Joint Venture". This written program will be communicated to all personnel that are affected by it. It encompasses the total workplace, regardless of the number of workers employed or the number of work shifts. It is designed to establish clear goals, and objectives.

Medical Evaluations

All contractors shall provide a medical evaluation to determine the employee's ability to use a respirator. "The Joint Venture" shall identify a physician or other licensed health care professional to perform medical evaluations using a medical questionnaire and an initial medical examination.

Employer and Employee Responsibility

Employer's Responsibility

Respirators shall be provided by the respective employer when they are necessary to protect employee's health.

The respirator provided shall be suitable for the intended use,

Each contractor shall be responsible for establishing and maintaining a respiratory program whenever respirators are used.

Employee's Responsibility

The employee shall use the respiratory protection in accordance with instructions and training received or contracted by their employer.

The employee shall guard against damage to the respirator, and immediately replace suspect respirators.

The employee shall report any trouble with or malfunction of the respirator to his/her Foreman.

Respirators

Respirators shall be provided by the respective employer when such equipment is necessary to protect the health of the employees:

Contractors shall:

- Provide the respirators, which are applicable and suitable for the purpose intended.
- **Be responsible for the establishment and maintenance of a written respiratory protection program.**
- The employee shall use the provided respiratory protection in accordance with instructions and training received.
- Respirators shall be selected on the basis of hazards to which the worker is exposed.
- The user shall be instructed and trained in the proper use of respirators and their limitations.
- Respirators shall be regularly cleaned and disinfected. Those worn by more than one worker shall be thoroughly cleaned and disinfected after each use.
- Respirators shall be stored in a convenient, clean, and sanitary location.
- Respirators used routinely shall be inspected during cleaning. Worn or deteriorated parts shall be replaced. Respirators for emergency use such as self-contained devices shall be thoroughly inspected at least once a month and after each use.
- Appropriate surveillance of work area conditions and degree of employee exposure or stress shall be maintained.
- There shall be regular inspection and evaluation to determine the continued effectiveness of the program.
- Employees will not be assigned to tasks requiring use of respirators unless it has been determined that they are physically able to perform the work and use the equipment. A physician shall determine what health and physical conditions are pertinent. The respirators user's medical status will be reviewed on a periodic basis.
- NIOSH approved or accepted respirators shall be used when they are available. The respirator furnished shall provide adequate respiratory protection against the particular hazard for which it is designed.

Confined Space Entry

ASSIGNMENT OF RESPONSIBILITY

Typically, while performing work on a construction site, the Company may serve in the role of an Entry Employer or as the Host Employer or Controlling Contractor, as defined herein. The following outlines the Assignment of Responsibilities as well as guidance and recommendations pertaining to each of these roles.

Company Policy: *When the scale of the project is such that Host Employer does not possess confined space entry resources and the requirements of the OSHA regulation are beyond the capability of the Company, contracting the confined space entry work to a qualified entity that has this capability is highly recommended to ensure the health and safety of the Company's workers is protected.*

The effectiveness of this program depends on **proactive engagement and communication** of construction site management and employees. Before work begins at a construction site, each employer must ensure that a competent person identifies all confined spaces in which one or more of the employees it directs may work and identifies each space that is a permit space, through consideration and evaluation of the elements of that space, including testing as necessary.

If any employer conducting work on a construction site decides that employees it directs will enter a permit space, that employer (Entry Employer) must have a written permit space program implemented at the construction site. A written program, as outlined here, must be made available prior to and during entry operations for inspection by employees and their authorized representatives.

Interaction and information sharing with client facility representatives, general contractors and all related trade contractors is critical to this construction confined space process since hazards may be part of the jobs, tasks, and processes being completed by these multi-employer work environments. Clients may have confined spaces in their facilities or on active construction sites and it is important the Company work closely with these related organizations to identify these areas and take proper precautions.

This program (and the OSHA standard) is dependent upon the Controlling Contractor, rather than the Host Employer or Entry Employer, be the primary point of contact for information about permit spaces at the work site. The Host Employer must provide information it has about permit spaces at the work site to the Controlling Contractor, who then passes it on to the employers whose employees will enter the spaces (deemed "Entry Employers").

Likewise, Entry Employers must give the Controlling Contractor information about their entry program and hazards they encounter in the space and the Controlling Contractor passes that information on to other Entry Employers and back to the Host Employer.

The Controlling Contractor is also responsible for making sure employers outside a space know not to create hazards in the space and that Entry Employers working in a space at the same time do not create hazards for one another's workers.

Note: *If there is no Controlling Contractor, the Host Employer or another employer will perform these duties; or if the Controlling Contractor owns or manages the property, then it is both a Controlling Contractor also serves as the Host Employer.*

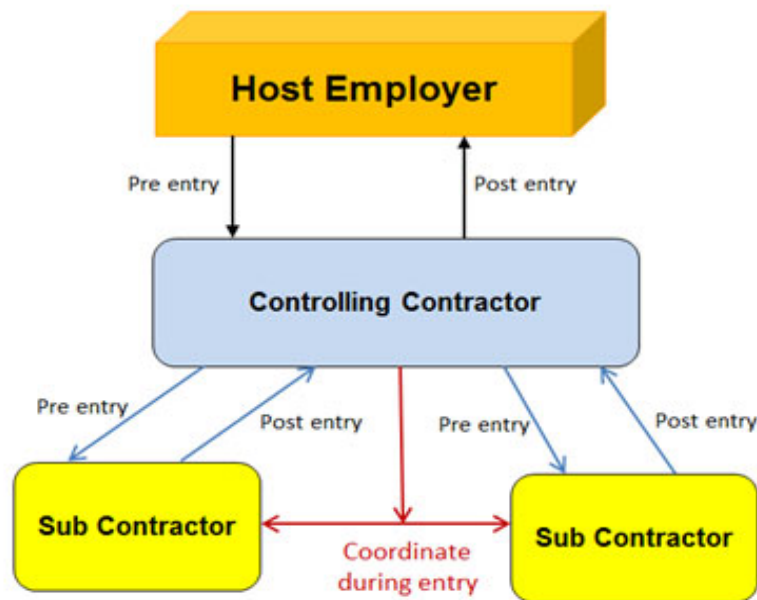
Before entry operations begin, the Controlling Contractor must:

- Obtain the Host Employer's information about the permit space hazards and previous entry operations; and
- Provide the following information to each entity entering a permit space and any other entity at the worksite whose activities could foreseeably result in a hazard in the permit space:
 - The information received from the Host Employer;
 - Any additional information the Controlling Contractor has about the subjects the Host Employer is responsible for listed above; and
 - The precautions that the Host Employer, Controlling Contractor, or other Entry Employers implemented for the protection of employees in the permit spaces.

If the workplace contains one or more permit spaces, the Host Employer responsibilities include:

- Before entry operations begin, the Host Employer must provide the following information to the Controlling Contractor if available:
 - The location of each known permit space and inform exposed employees by posting signs reading "DANGER – PERMIT REQUIRED CONFINED SPACE, DO NOT ENTER" providing sufficient notification of the existence and location of, and danger posed by each permit space.
 - Inform, in a timely manner and in a manner other than posting, its employees' authorized representatives and Controlling Contractor of the existence and location of, and the danger posed by, each permit space.
 - The hazards or potential hazards in each space or the reason it is a permit space; and
 - Any precautions that the Host Employer or any previous Controlling Contractor or Entry Employer implemented for the protection of employees in the permit space.

The following diagram should help to illustrate this flow of communication requirements, their assigned responsibilities within this program and the critical relationships between these key roles.



The Company Safety Manager is responsible for:

- Providing oversight and technical support,
- Securing the resources necessary to implement this program;
- Ensuring that routine safety checks of work operations are performed;
- Conducting an annual review of this program;
- Updates (as needed) to ensure the effectiveness of the program; and,
- Ensuring that proper reporting and record keeping is executed.

The Entry Supervisor is the Company *qualified person* (such as the site supervisor, foreman, or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this standard. **Note:** An entry supervisor may also serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required by this standard for each role he or she fills. Also, the duties of entry supervisor may be passed from one individual to another during the course of an entry operation.

Specifically, the Entry Supervisor is responsible for:

- Assessing the space prior to entry to determine if the space meets the characteristics of a permit-required confined space;
- Knowing space hazards including information on the mode of exposure, signs, or symptoms and consequences of exposure;
- Verifying emergency plans and specified entry conditions such as permits, tests, procedures, equipment, and availability of rescue services before allowing entry;
- Terminating entry and canceling permits when entry operations are complete or if a new condition exists;
- Taking appropriate measures to remove unauthorized entrants; and,
- Ensuring that entry operations remain consistent with the entry permit and acceptable entry conditions are maintained.

The Authorized Entrant is the properly trained employee who has been authorized by the Entry Supervisor to enter a permit space. Specifically, the Authorized Entrant is responsible for:

- Knowing the hazards that may be faced during entry, including information on the mode, signs, or symptoms, and consequences of the exposure;
- Properly using equipment as required;
- Communicating with the Attendant during the entry so that the Attendant can monitor the status of the entry;
- Exiting from the permit space as soon as possible when ordered by the Attendant, when the entrant recognizes the warning signs or symptoms of exposure exists, when a prohibited condition exists, or when an automatic alarm is activated; and,
- Alert the Attendant immediately when a prohibited condition exists or when warning signs or symptoms of exposure exist.

The Attendant is an individual stationed outside one or more permit spaces who assesses the status of authorized entrants and who must perform the following duties:

- Is familiar with and understands the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- Is aware of possible behavioral effects of hazard exposure in authorized entrants;
- Continuously maintains and ensures an accurate count of Authorized Entrants in the permit space;
- Remains outside the permit space during entry operations until relieved by another attendant; Note: Once an Attendant has been relieved by another Attendant, the relieved attendant may enter a permit space to attempt a rescue when the employer's permit space program allows attendant entry for rescue and the Attendant has been trained and equipped for rescue operations.
- Communicates with authorized entrants as necessary to assess entrant status and to alert entrants of the need to evacuate the space;
- Assesses activities and conditions inside and outside the space to determine if it is safe for entrants to remain in the space and orders the Authorized Entrants to evacuate the permit space immediately under any of the following conditions:
 - If there is a prohibited condition;
 - If the behavioral effects of hazard exposure are apparent in an authorized entrant;
 - If there is a situation outside the space that could endanger the authorized entrants;
 - or
 - If the Attendant cannot effectively and safely perform all the duties as required under this standard;
- Summons rescue and other emergency services as soon as the Attendant determines that authorized entrants may need assistance to escape from permit space hazards;
- Takes the following actions when unauthorized persons approach or enter a permit space while entry is underway:
 - Warns the unauthorized persons that they must stay away from the permit space;
 - Advises the unauthorized persons that they must exit immediately if they have entered the permit space; and
 - Informs the Authorized Entrants and the entry supervisor if unauthorized persons have entered the permit space;
- Performs non-entry rescues as specified by the employer's rescue procedure; and
 - Performs no duties that might interfere with the Attendant's primary duty to assess and protect the Authorized Entrants.

Confined Space Entry Permit

This permit must remain at job site until the entry is completed

Project Address: _____ Project No: _____
 Space Description: _____ Date: _____
 Purpose of Entry: _____ Time of Entry: _____
 Entry Supervisor: _____ Time Expires: _____
 Hazards and Controls _____ Check here if NO HAZARDS are Present: ☐

Atmospheric Hazards (check if present)		Controls Required (check if required)	
Oxygen levels below 19.5%		Initial testing (O ₂ , LEL, CO, H ₂ S)	
Oxygen levels above 23.5%		Continuous monitoring (O ₂ , LEL, CO, H ₂ S)	
Flammable/combustible gases, vapors or dust (specify):		Other testing* (specify type and duration):	
Toxic gases, vapors or dust (specify):		Ventilation – Blower w/ sufficient duct length	
Pressurized atmosphere		Air purifying respirator (circle)	
Other (specify):		Mask type: Half-face Full-face Cartridge: P100 Combo P100/organic vapor Other (specify):	
Configuration Hazard (specify):		Lines Broken-Capped or Blanked	
Engulfment Hazard (specify):		Purge-Flush and Vent	
Shock hazard/electrocution		Lockout De-energize-Tested and Verified	
Slips, trips, falls (specify):		If Early Warning System is required, is it installed and operational:	
Moving parts (specify):		Lighting (Explosion Proof)	
Connecting pipes, drains, ducts (specify):		Form of Communication (circle): Voice Radio Other:	
Biological hazard (specify):		Visual Contact with Attendant	
Other (specify):		Ground Fault Circuit Interrupter	
Person Protective Equipment (check if required)		Rescue / Retrieval (check if required)	
Safety glasses / goggles (circle one)		Full body harness	
Hearing protection		Retrieval tripod with winch	
Hard hat		Lanyard and lifeline	
Steel-toed/steel shank shoes		Coordination with Responsible Person	
		Coordination with local EMS and verify EMS is available the entire duration of the entry operation. If EMS become unavailable, require immediate notification and suspend entry operations until EMS becomes available	
Disposable coveralls (Tyvek)		SCBA available for rescue	
Shoe covers		Other (specify):	
Gloves (circle): Disposable Chemical Protective Leather		Fire Extinguisher	
Face shield			
Other (specify):			

Atmospheric Testing

Test Interval (circle): Initial Prior to Each Entry Continuous

Tester's Name: _____

	Time of Test							
	Initials of Tester							
Parameter	Acceptable Entry Criteria	Initial Test	Test 2	Test 3	Test 4	Test 5	Test 6	Test 7
% Oxygen	19.5% to 23.5%							
% LEL*	Less than 5%							
Carbon Monoxide	Less than 25 ppm							
Hydrogen sulfide	Less than 10 ppm							

List other gases or parameters to be tested in blank fields.

Was evacuation of space required at any time? __ YES __ NO

If so, why? _____

Time of evacuation: _____ Time of re-entry: _____

Controls or actions taken to correct reason for evacuation: _____

Testing Instrument Used	Manufacturer	Serial No.	Date of Last Calibration

Permit Authorization

I certify that I have reviewed the permit, understand the hazards that are or may be present, and have verified that the appropriate controls have been implemented. I understand the procedures necessary to ensure safe entry. No entry can be initiated until this permit is completed and signed by all Entrants, Attendants and the Entry Supervisor.

Authorized Entrants

Name: _____ Signature: _____ Date: _____

Name: _____ Signature: _____ Date: _____

Name: _____ Signature: _____ Date: _____

Authorized Attendants

Name: _____ Signature: _____ Date: _____

Name: _____ Signature: _____ Date: _____

Entry Supervisor

Name: _____ Signature: _____ Date: _____

PERMIT CLOSED AT: Date: _____ Time: _____ By: _____

Electrical Safety

The person(s) responsible for electrical safety on this project are;

Electrical Contractor: _____

The Hazardous Energy Control Policy must include all known and potential energy sources, including but not limited to;

- electrical
- pneumatic
- plumbing and steam

All electrical power is considered to be **energized** until the responsible electrician or appropriate **competent** person has **verified** and **tested** the system to make sure that it has been **de-energized**.

- The electrical safety program for this project shall include the effective management of the following;

Electrical Cords

- **Must be protected from physical damage**
 - flexible cords must be free of damage, splices and taps
 - flexible cords shall be properly maintained and stored
 - twisted cords shall be removed from service and destroyed to prevent future use
 - free of splices
 - flexible cords should not be so placed that they are considered a trip and fall hazard
 - flexible cords shall have the appropriate grounding pins, or shall be double-insulate

Lighting

- shall be adequate for the job site and per specifications.
- lighting shall be of the appropriate wattage, and placed in fixtures, including temporary in a manner specified by the lighting manufacturer
- emergency lighting is required if work on the project will extend to after daylight hours
- emergency lighting is required for below grade areas of the project and other areas where natural lighting is not available, in the event of a power failure

Power Tools

- portable electrical equipment and tools must be grounded or double insulated
- the tools shall be free of damage, and if not removed from service

- Any power tool removed from service, because of damage, shall be labeled "Do Not Use."

Ground Fault Circuit Interrupters (GFCI)

- GFCI protected equipment and tools can be accomplished by one of the following;
- a GFCI outlet
- an outlet protected by a GFCI breaker, or
- a portable GFCI pigtail
- GFCI protection for all power tools and flexible cords is required for the duration of the project.
- When permanent wiring for the building / project or site has been completed, GFCI protection shall still be required. All contractors on site shall either;
- obtain power from a permanently wired GFCI protected outlet, or
- utilize a GFCI adapter / pigtail between the power supply and the flexible cord or tool being used

Lock-Out / Tag-Out

- As part of the Hazardous Energy Control Policy, "The Joint Venture" must have a written Lockout / Tag out program on site.
- The Lockout / Tag out program shall take all types of hazardous energy into consideration.
- For this project, the following systems will need to be part of the Lockout /

Chemical

Electrical

HVAC

Plumbing

Pneumatic

Steam

Other(s)

Check off or otherwise identify all forms of energy that apply to the project

- “The Joint Venture” can default to the electrical contractor’s lockout / tagout program.
- As part of the Hazardous Energy Control Policy, “The Joint Venture” must identify the Lockout / Tagout program that will be used on site. This program, typically the most stringent shall be used by all of the contractors working on site, and shall incorporate the owners Hazardous Energy Program, as the owner will most likely be part of a hazardous energy control / shutdown.
- For this project, “The Joint Venture” will use and train to the Hazardous Energy Control Policy of:

☐ **General Contractor**

☒ **Electrical Sub-Contractor**

Owner

☐ _____

Check off the appropriate program to be used for this project

Trenching and Excavation

GENERAL REQUIREMENTS

Protection of employees is required against cave-ins except when the excavation is in stable rock or less than five feet deep and where examination by a competent person provides no evidence that a cave-in should be expected; and against falling rock, soil or other material, by use of scaling to remove loose rock or soil

Material or equipment must be kept at least two feet from the edge of the trench

Daily inspection of excavations and adjacent areas by a competent person, and removal of exposed employees if evidence of possible cave-ins, failure of protective systems, hazardous atmospheres or other hazardous conditions, until necessary precautions have been taken

A competent person means one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary or dangerous to employees and, and who has the authority to take immediate corrective action or measures to eliminate them

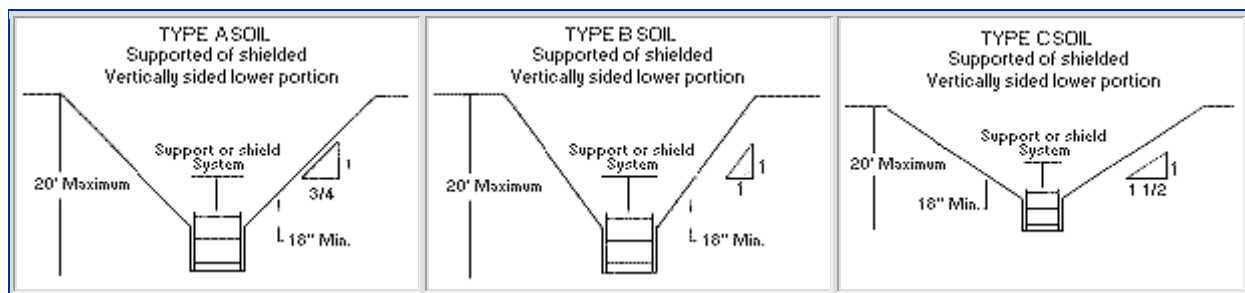
Ramps, runways, ladders or stairs as a means of access or egress must be within 25 feet of an employee work area if a trench is four feet deep or more

Support systems such as shoring, bracing, or underpinning to ensure the stability of adjacent structures such as buildings, walls or sidewalks

The standard allows an employer to use a trench box or shield that is either designed or approved by a registered professional engineer (R.P.E.) or is based on tabulated data by an R.P.E

The standard allows construction workers to remain inside trench shields that are being repositioned, provided that the shields are moved horizontally only and the shields are not stable and level on a flat surface.

FIGURE V:2-12. SLOPE AND SHIELD CONFIGURATIONS.



□ **SLOPING AND BENCHING**

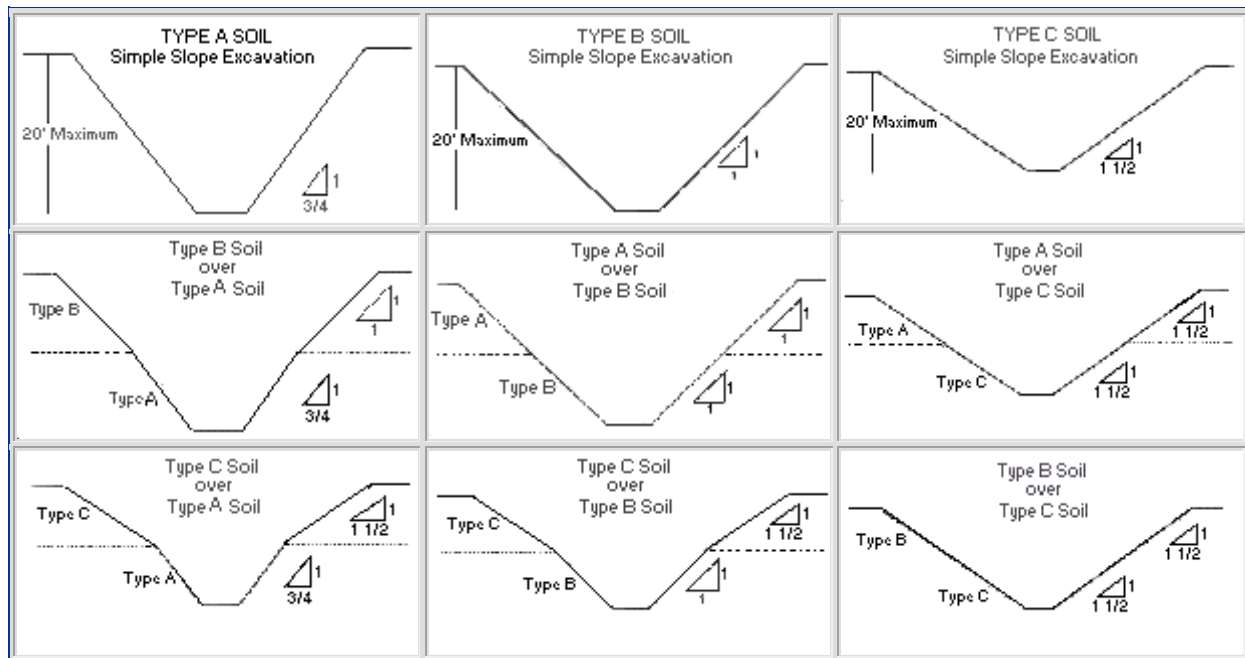
- A. **Sloping.** Maximum allowable slopes for excavations less than 20 ft (6.09 m) based on soil type and angle to the horizontal are as follows:

TABLE V:2-1. ALLOWABLE SLOPES.

Soil type	height/Depth ratio	Slope angle
Stable Rock	Vertical	90°
Type A	¾:1	53°
Type B	1:1	45°
Type C	1½:1	34°
Type A (short-term)	½:1	63°

(For a maximum excavation depth of 12 ft)

FIGURE V:2-13. SLOPE CONFIGURATIONS: EXCAVATIONS IN LAYERED SOILS.



SPECIAL HEALTH AND SAFETY CONSIDERATIONS

- A. **Competent Person.** The designated competent person should have and be able to demonstrate the following:

- Training, experience, and knowledge of:
 - soil analysis;
 - use of protective systems; and
 - requirements of 29 CFR Part 1926 Subpart P.
- Ability to detect:
 - conditions that could result in cave-ins;
 - failures in protective systems;
 - hazardous atmospheres; and
 - other hazards including those associated with confined spaces.
- Authority to take prompt corrective measures to eliminate existing and predictable hazards and to stop work when required.

B. Surface Crossing of Trenches. Surface crossing of trenches should be discouraged; however, if trenches must be crossed, such crossings are permitted only under the following conditions:

- Vehicle crossings must be designed by and installed under the supervision of a registered professional engineer.
- Walkways or bridges must be provided for foot traffic. These structures shall:
 - have a safety factor of 4;
 - have a minimum clear width of 20 in (0.51 m);
 - be fitted with standard rails; and
 - extend a minimum of 24 in (.61 m) past the surface edge of the trench.

C. Ingress and Egress. Access to and exit from the trench require the following conditions:

- Trenches 4 ft or more in depth should be provided with a fixed means of egress.
- Spacing between ladders or other means of egress must be such that a worker will not have to travel more than 25 ft laterally to the nearest means of egress.
- Ladders must be secured and extend a minimum of 36 in (0.9 m) above the landing.
- Metal ladders should be used with caution, particularly when electric utilities are present.

D. Exposure to Vehicles. Procedures to protect employees from being injured or killed by vehicle traffic include:

- Providing employees with and requiring them to wear warning vests or other suitable garments marked with or made of reflectorized or high-visibility materials.
- Requiring a designated, trained flagperson along with signs, signals, and barricades when necessary.

E. **Exposure to Falling Loads.** Employees must be protected from loads or objects falling from lifting or digging equipment. Procedures designed to ensure their protection include:

- Employees are not permitted to work under raised loads.
- Employees are required to stand away from equipment that is being loaded or unloaded.
- Equipment operators or truck drivers may stay in their equipment during loading and unloading if the equipment is properly equipped with a cab shield or adequate canopy.

F. **Warning Systems for Mobile Equipment.** The following steps should be taken to prevent vehicles from accidentally falling into the trench:

- Barricades must be installed where necessary.
- Hand or mechanical signals must be used as required.
- Stop logs must be installed if there is a danger of vehicles falling into the trench.
- Soil should be graded away from the excavation; this will assist in vehicle control and channeling of run-off water.

G. **Hazardous Atmospheres and Confined Spaces.** Employees shall not be permitted to work in hazardous and/or toxic atmospheres. Such atmospheres include those with:

- Less than 19.5% or more than 23.5% oxygen;
- A combustible gas concentration greater than 20% of the lower flammable limit; and
- Concentrations of hazardous substances that exceed those specified in the *Threshold Limit Values for Airborne Contaminants* established by the ACGIH (American Conference of Governmental Industrial Hygienists).

All operations involving such atmospheres must be conducted in accordance with OSHA requirements for occupational health and environmental controls (see Subpart D of 29 CFR 1926) for personal protective equipment and for lifesaving equipment (see Subpart E of 29 CFR 1926). Engineering controls (e.g., ventilation) and respiratory protection may be required.

When testing for atmospheric contaminants, the following should be considered:

- Testing should be conducted before employees enter the trench and should be done regularly to ensure that the trench remains safe.
- The frequency of testing should be increased if equipment is operating in the trench.
- Testing frequency should also be increased if welding, cutting, or burning is done in the trench.

Employees required to wear respiratory protection must be trained, fit-tested, and enrolled in a respiratory protection program. Some trenches qualify as confined spaces. When this occurs, compliance with the Confined Space Standard is also required.

H. **Emergency Rescue Equipment.** Emergency rescue equipment is required when a hazardous atmosphere exists or can reasonably be expected to exist. Requirements are as follows:

- Respirators must be of the type suitable for the exposure. Employees must be trained in their use and a respirator program must be instituted.
- Attended (at all times) lifelines must be provided when employees enter bell-bottom pier holes, deep confined spaces, or other similar hazards.
- Employees who enter confined spaces must be trained.

I. **Standing Water and Water Accumulation.** Methods for controlling standing water and water accumulation must be provided and should consist of the following if employees are permitted to work in the excavation:

- Use of special support or shield systems approved by a registered professional engineer.
- Water removal equipment, i.e. well pointing, used and monitored by a competent person.
- Safety harnesses and lifelines used in conformance with 29 CFR 1926.104.
- Surface water diverted away from the trench.
- Employees removed from the trench during rainstorms.
- Trenches carefully inspected by a competent person after each rain and before employees are permitted to re-enter the trench.

J. **Inspections.** Inspections shall be made by a competent person and should be documented. The following guide specifies the frequency and conditions requiring inspections:

- Daily and before the start of each shift;
- As dictated by the work being done in the trench;
- After every rainstorm;
- After other events that could increase hazards, e.g. snowstorm, windstorm, thaw, earthquake, etc.;
- When fissures, tension cracks, sloughing, undercutting, water seepage, bulging at the bottom, or other similar conditions occur;
- When there is a change in the size, location, or placement of the spoil pile; and
- When there is any indication of change or movement in adjacent structures.

LOCATION:				DATE:	
TIME OF INSPECTION(S)					
WEATHER CONDITIONS:				APPROX. TEMP.:	
CREW LEADER:			SUPERVISOR:		
	DEPTH =				
	TOP =	W	L	<input type="checkbox"/> <input type="checkbox"/> Saturated soil / standing or seeping water	
	BOTTOM =	W	L	<input type="checkbox"/> <input type="checkbox"/> Cracked or fissured wall(s)	
				<input type="checkbox"/> <input type="checkbox"/> Bulging wall(s)	
<input type="checkbox"/> Solid rock (most stable)		<input type="checkbox"/> Yes		<input type="checkbox"/> <input type="checkbox"/> Floor heaving	
<input type="checkbox"/> Average soil		<input type="checkbox"/> No		<input type="checkbox"/> <input type="checkbox"/> Frozen soil	
<input type="checkbox"/> Fill material				<input type="checkbox"/> <input type="checkbox"/> Super-imposed loads	
<input type="checkbox"/> Loose sand				<input type="checkbox"/> <input type="checkbox"/> Vibration	
				<input type="checkbox"/> <input type="checkbox"/> Depth greater than 10'	
(Walls MUST be vertical—NO voids)				<input type="checkbox"/> <input type="checkbox"/> Spoils at least 2 feet from edge of trench	
				<input type="checkbox"/> <input type="checkbox"/> Equipment at least 2 feet from edge	
<input type="checkbox"/> Timber				<input type="checkbox"/> <input type="checkbox"/> Backhoe at end of trench	
<input type="checkbox"/> Pneumatic				<input type="checkbox"/> <input type="checkbox"/> Compressor, etc. at remote location	
<input type="checkbox"/> Hydraulic					
<input type="checkbox"/> Screw Jacks				<input type="checkbox"/> <input type="checkbox"/> Located in protected area	
<input type="checkbox"/> Trench Shield				<input type="checkbox"/> <input type="checkbox"/> Within 25 feet of safe travel	
				<input type="checkbox"/> <input type="checkbox"/> Secured	
<input type="checkbox"/> Trench Box				<input type="checkbox"/> <input type="checkbox"/> Extends 36 inches above the landing	
Sloping: ? 1:1 (45°) ? 1 ½:1 (34°)				<input type="checkbox"/> <input type="checkbox"/> Leads to safe landing	
<input type="checkbox"/> <input type="checkbox"/> Gas detector used?				<input type="checkbox"/> <input type="checkbox"/> Shoring equip. & matls inspected prior to use?	
<input type="checkbox"/> <input type="checkbox"/> Confined space permit issued?				<input type="checkbox"/> <input type="checkbox"/> Is trench SAFE to enter?	
COMMENTS:					

Scaffold Safety Highlights

1. Only qualified persons should design, build or inspect scaffolds. Each application must be planned to ensure that the scaffolding conforms to all specified assembly requirements.
2. Lean to scaffolds and makeshift platforms are prohibited.
3. Only materials currently being used should be stored on scaffolds. Materials are to be placed over cross members at all times. All materials should be removed from the scaffold nightly.
4. All scaffolds should be designed to carry four times the maximum intended load. At no time, should the scaffold be overloaded. Unstable objects such as barrels, boxes, and loose bricks should not be used to support scaffolds.
5. All scaffolds over ten feet high are required to have load footprints and limits that can be obtained from the scaffold manufacturer. A copy of all load footprints and limits should be given to any supplier stocking material on the scaffold.
6. All scaffolds must be maintained in safe condition and scaffolds damaged or weakened must be replaced immediately.
7. Scaffolds more than ten feet above the ground must have standard guardrails and toe boards attached.
8. Scaffolds should be braced and tied horizontally and vertically at intervals according to specified regulations.
9. Scaffolds with any dimension less than 45 inches should be equipped with outriggers or secured and guarded with standard four feet high railings.
10. Mobile scaffolds should be equipped with guardrails, midrails, toe boards, and outriggers.
11. All casters should be locked. Mobile scaffolds should not be used if there is a change in the floor level elevation.
12. Scaffold tags should be completed and attached to each scaffold prior to it being used.
13. Safe access must be available to each working level at all times. Workers should never climb a scaffold's cross bracing. Both hands should be free of tools/materials when ascending or descending a scaffold. Employees should not propel themselves while working on scaffolds.
14. At the start of each shift, a competent person should inspect each scaffold for requirements of the standard and as needed.
15. Adjusting or leveling screw jacks must not be extended more than 12 inches of thread.
16. Swinging stages boatswain chains, floats and needle beams require special approval by a safety representative before use plus require independent life lines and required training.
- 17. All persons occupying scaffold must have scaffold user training.**
18. All scaffold components must be inspected prior to installation

Fall Protection

In accordance with the requirements of OSHA 29 CFR 1926.500, **all employers are required to provide fall protection equipment and training to their employees when working at elevations is 6' or more, above a lower level**, which includes but is not limited to the ground, platforms, roof or dangerous equipment. Each subcontractor on this project is responsible for their employees, as well as to be sure the sub-contractor has a written fall protection program and a competent person, and shall have a "competent person" on-site at all times.

For this project, the following work activities and fall protection height requirements are;

General Fall Protection	6'
Excavations	6'
Scaffolding / Staging	6'
Roof Work	6'

For work on the roof, the contractor will utilize the following safety practices;

—	Fall Protection Equipment	—	Guardrails	—	Warning Lines	—
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Guardrails shall be at least 42" in height (+/- 3") with mid rails and toe boards in place. If materials are placed on the elevated surfaces, higher than the level of the toe board, a protective measure shall be attached to the elevated surface (guardrail system) to prevent the storage from being displaced, over the edge of the toe boards. If the protective measure used is netting/screening or similar attached to the guardrail system is used on the exterior scaffold / staging, its use must be approved of by a "competent person" for the scaffolding / staging company and the local fire department for fire rating.

All wall openings, including windows with elevation differences >6' shall be properly protected with suitable guardrails or other recognized fall protection systems. When holes or openings are used for the passage of materials, such as through a window or elevated level of scaffolding/staging, the opening must be guarded on at least 3 sides when being used for the transfer of materials, and the 4th side, when not being used should be protected with a suitable (removable) guardrail or gate as specified by the competent person.

Guardrails are required around points of access, such as a ladder-way. The open side of the opening shall have a gate, or be off-set to prevent person(s) from falling through or into the opening. When the use of ladders or stilts are required that places the user above the level of fall protection, the competent person shall select an appropriate means of fall protection to cover the increase in height.

Options include the use of harness and lifelines, extending the guardrail system up, or placing the workers in a guardrail system in an elevated platform. When using warning lines for fall protection, in place of guardrail systems, the warning lines must be;

- Rigged and supported to a height of 39' Rigged and supported to a height of 39 – 45"
- the lowest point is 34' the lowest point is 34" – 39"
- be flagged every 6'

Fall Protection Equipment including, but not limited to harnesses, lanyards, deceleration devices, anchors, straps and other fall protection equipment shall be:

Inspected by a competent person before each use for damage and deficiencies

- Any fall protection equipment that has been damaged, must be removed from service and labeled out-of-service.
- Kept clean and placed in suitable containers to prevent exposure to abuse, damage and adverse environmental conditions.
- Holes ≥ 2 " (inches) in diameter in a walk or work area must be covered or otherwise protected to prevent items, materials and tools from falling through.
- The hole cover must be labeled "HOLE" or "COVER"
- All ramps, stairs and walkways, including those that are temporary are required to have hand / guard rails on both sides if there are ≥ 3 steps, or a drop of $\geq 6'$.

Roof Work

- All roof work which is greater than 6' above a lower level is required to have fall protection, including flat and low-slope roofs.
- A competent person must identify the appropriate means of fall protection to be used, for the work being performed.

For this project, the roof slopes are:

No Slope (Flat)

☐ $< 4:12$ ☐ $> 4:12, < 6:12$ ☐ $> 6:12, < 8:12$ ☐ $\geq 8:12$

the use of the following types of fall protection will be required:

Controlled Access Zones

Guardrails

Monitor(s)

☐ **Scaffold/Staging**

Warning Lines

☐ **Other:**

For this project the use of a roof monitor

is
permitted

is not
permitted



If a roof monitor is used as fall protection, the roof must be flat (no pitch) and less than 50' in length and width, the monitor is not permitted to perform any work, shall wear a reflective vest or blue hard hat and shall not permit any equipment to be running during the roof work.

Warning lines, if used on the roof for fall protection must:

- be placed at least 6' back from the roofs edge,
- be flagged every 6' in contrasting color,
- not be permitted (at any point) to be lower than 34" above the roof, and
- be able to withstand a force of 16 lbs. applied at the stanchions

No person, unless actually performing work between the warning line and the roofs edge is permitted outside of the warning line.

FIRE PREVENTION

Whenever the fire detection system must be altered, shut-down or removed from service, the local fire department shall be notified in advance.

- “The Joint Venture” shall also notify the owner and verify notification of the owner's insurance company.

In the event of a fire alarm, all persons within the building are required to evacuate as referenced in the Emergency Action Program section referenced at the beginning of the site specific environmental health and safety program.

Fire Extinguishers

Extinguishers shall be conspicuously placed in appropriate areas of the construction or project site. As a minimum, a suitable (code compliant) extinguisher must be placed at;

- each EXIT door on all floors
- within 25' of all hot work activities and operations, as well as on each welding cart
- no greater than 100 feet between units

Fire Extinguishers on site shall have the following;

- annual (in date) inspection tag
- a gauge indicating fully charged, and
- pin with security seal

Fire extinguishers shall only be used by personnel who have been trained to use this equipment

Persons without training shall evacuate the building

In the event of a fire emergency, regardless of size, the following shall occur;

- Notify person(s) within the immediate vicinity of the fire, and request that they evacuate.
- Leave the area or room, and if possible close the door to the room
- Activate the closest fire alarm pull station, which is typically located next to the stairs or exit door.
- From a safe location, such as outside by cell phone, dial the local emergency number or 911 and report the emergency.
- If the above requirements have been completed, you are trained, and you are comfortable with the size of the fire and the use of the extinguisher, then attempt to extinguish the fire, but do not place yourself at risk.
- Report all fires, and complete the appropriate incident reports. Return any damaged, defective, discharged or outdated extinguisher to the project superintendent for replacement.

Fire Suppression

The fire suppression systems (sprinkler, standpipe or other specialized system) shall be installed and maintained in accordance with the requirements of the Massachusetts State Building Code, 780 CMR 9.

- For alterations and renovations, existing sprinklers and/or standpipes must remain in place and operational until it is absolutely necessary to remove parts thereof.
- Whenever the fire suppression system must be altered, shut-down or removed from service, the local fire department shall be notified in advance.

HEATING EQUIPMENT

- Heating equipment used on site shall meet the requirements of OSHA 29 CFR 1926.53; 1926.154 and the local and state fire prevention regulations.
 - Permits are required for the use of salamanders and other heating equipment that utilize natural gas and/or propane.
 - Propane gas tanks and cylinders require;
 - permits for the storage and use of gas
 - a suitable base
 - gas cylinders require a chain or strap to secure
 - No flammable or combustible gases or liquids, or open flames can be located near any means of egress on a construction site. If heaters are located in close proximity to a door, the fuel supplying same shall be a minimum of 25' from the door.
 - When heating devices are utilized on site, which require combustible fuels, including coal, fuels, gases and wood, an approved carbon monoxide detector shall be used to verify that levels are carbon monoxide do not exceed 30ppm.
 - L.P.G. Cylinders must be protected by contact with motorized vehicles.
 - Non-vented open flame heaters will not be used.
 - No propane-type heating units will be used in an enclosed building.

Concrete and Masonry

SCOPE AND APPLICATION

The standard, Subpart Q, prescribes performance-oriented requirements designed to help protect all construction workers from the hazards associated with concrete and masonry construction operations at construction, demolition, alteration or repair worksites. Other relevant provisions in both general industry and construction standards (29 CFR Part 1910 and 1926) also apply to these operations.

GENERAL REQUIREMENTS

Cleaning of masonry: No cleaning agents that contain acid shall be used.

Construction Loads

Employers must not place construction loads on a concrete structure or portion of a concrete structure unless the employer determines, based on information received from a person who is qualified in structural design, that the structure or portion of the structure is capable of supporting the intended loads.

Reinforcing Steel

All protruding reinforcing steel, onto and into which employees could fall, must be guarded to eliminate the hazard of impalement.

Concrete Buckets

Employees must not be permitted to ride concrete buckets.

Working Under Loads

Employees must not be permitted to work under concrete buckets while the buckets are being elevated or lowered into position.

To the extent practicable, elevated concrete buckets must be routed so that no employee or the fewest employees possible are exposed to the hazards associated with falling concrete buckets.

Personal Protective Equipment

Employees must not be permitted to apply a cement, sand, and water mixture through a pneumatic hose unless they are wearing protective head and face equipment.

Employees must not be permitted to place or tie reinforcing steel more than 6 feet above any adjacent working surfaces unless they are protected by the use of a safety belt or equivalent fall protection meeting the criteria in OSHA standards on Personal Protective and Life Saving Equipment (29 CFR 1926 Subpart E).

Equipment and Tools

The standard also includes requirements for the following equipment and operations:

- Bulk cement storage,
- Concrete mixers,
- Power concrete trowels,
- Concrete buggies,
- Concrete pumping systems,
- Concrete buckets,
- Tremies,
- Bull floats,
- Masonry saws, and
- Lockout/tagout procedures.

CAST-IN-PLACE CONCRETE

General Requirements for Formwork

Formwork must be designed, fabricated, erected, supported, braced, and maintained so that it will be capable of supporting without failure all vertical and lateral loads that might be applied to the formwork. As indicated in the Appendix to the standard, formwork that is designed, fabricated, erected, supported, braced and maintained in conformance with Sections 6 and 7 of the *American National Standard for Construction and Demolition Operations - Concrete and Masonry Work* (ANSI A10.9-1983) also meets the requirements of this paragraph.

Drawings or Plans

Drawings and plans, including all revisions for the jack layout, formwork (including shoring equipment), working decks and scaffolds, must be available at the jobsite.

Shoring and Reshoring

All shoring equipment (including equipment used in reshoring operations) must be inspected prior to erection to determine that the equipment meets the requirements specified in the formwork drawings.

Damaged shoring equipment must not be used for shoring. Erected shoring equipment must be inspected immediately prior to, during, and immediately after concrete placement. Shoring equipment that is found to be damaged or weakened after erection must be immediately reinforced.

- Designed by a qualified designer and the erected shoring must be inspected by an engineer qualified in structural design,
- Vertically aligned,
- Spliced to prevent misalignment, and
- Adequately braced in two mutually perpendicular directions at the splice level. Each tier also must be diagonally braced in the same two directions.

Adjustment of single-post shores to raise formwork must not be made after the placement of concrete.

Reshoring must be erected, as the original forms and shores are removed, whenever the concrete is required to support loads in excess of its capacity.

Reinforcing Steel

Reinforcing steel for walls, piers, columns, and similar vertical structures must be adequately supported to prevent overturning and collapse.

Employers must take measures to prevent unrolled wire mesh from recoiling. Such measures may include, but are not limited to, securing each end of the roll or turning over the roll.

Removal of Formwork

- The plans and specifications stipulate conditions for removal of forms and shores, and such conditions have been followed, or
- The concrete has been properly tested with an appropriate American Society for Testing and Materials (ASTM) standard test method designed to indicate the concrete compressive strength, and the test results indicate that the concrete has gained sufficient strength to support its weight and superimposed loads.

Reshoring must not be removed until the concrete being supported has attained adequate strength to support its weight and all loads in place upon it.

Limited Access Zone is Required;

- Equal to the height of the wall to be constructed plus 4 feet, and shall run the entire length of the wall;
- Restricted to entry only by employees actively engaged in constructing the wall; and
- Kept in place until the wall is adequately supported to prevent overturning and collapse unless the height of wall is more than 8 feet and unsupported; in which case, it must be braced. The bracing must remain in place until permanent supporting elements of the structure are in place.
- Workers not allowed under concrete buckets when being elevated or lowered.
- Workers must wear protective head, face, and eye equipment when placing concrete with a pneumatic hose.
- Manually guided concrete troweling machine must be equipped with automatic controls to shut off power when hands are removed.
- Compressed air hoses must be provided with positive fail-safe joint connectors.
- Concrete buckets must have positive safety features or similar devices to prevent accidental dumping.
- Tremie Sections must be secured with wire rope (or equivalent materials) in addition to regular couplings or connections.
- Drawing or plans for the jack layout, framework, working decks, and scaffolds must be available on site.
- Shoring and Reshoring
 - Inspected prior to erection
 - Damaged equipment shall not be used
 - Inspected immediately prior to swing and immediately after concrete placement
 - Damaged equipment immediately removed from service
- No adjustments to single post shores to raise formwork made after placement of concrete
- Reshoring must be erected as original forms are removed

Precast Concrete

SUMMARY

OSHA's standard includes the following:

- Expands and toughens protection against masonry wall collapses by requiring bracing and a limited access zone prior to the construction of a wall;
- Permits employers to use several more recently developed methods of testing concrete instead of just the one currently recognized method; and
- Sets and clarifies requirements for both cast-in-place concrete and precast concrete during construction.

Compliance with the common-sense requirements of the OSHA standard discussed here should greatly reduce or eliminate the injuries and accidents that occur too frequently during concrete and masonry construction.

HOUSEKEEPING

- Contractors are responsible for the overall housekeeping practices on the site.
- In the event contractors do not comply, the service will be subcontracted to others and the responsible contractor/ subcontractor may be back-charged.
- As a minimum, the aisles, exits and other parts of the means of egress shall be properly maintained and free of unnecessary storage and waste.
- Sawdust and other combustible materials such as cardboard and paper shall be removed daily to reduce the risk of injury and fire.
- Trip and fall hazards shall be removed as soon as possible, especially in areas considered to be walk / work surfaces
- Dumpsters ≥ 6 cubic yards in size, located on a construction site require a permit from the fire department.
 - The dumpster shall not be placed up against the building under construction, unless approved by the local fire department.
 - The dumpster, in accordance with the requirements of the building code shall be immediately emptied, when full.

Housekeeping practices on this project is extremely important. In order to reduce the risk of fire, prevent injuries and reduce the risk of a regulatory inspection, housekeeping must be maintained.

- Waste shall be discarded in a suitable container.
- Sawdust and rags should be placed in a metal (approved) container with tight (proper-fitting) lid.
- All waste containers (inside the building) shall be emptied at least daily.
- Corridors and other walk / work areas shall not be used for storage.

Flammable / Combustible Liquids

- Shall be placed in appropriate containers and cabinets.
- The cabinets and containers shall be NFPA compliant, as required by the local building and fire departments.
- Shall not be located in a means of egress or exit.
- Shall be labeled properly (without abbreviation). The name of the chemical and the appropriate hazard must appear on the “appropriate” container.

Steel Erection (Subpart R)

Requirements

In accordance with the requirements of OSHA, all employers are required to provide **fall protection**, equipment and training to their employees when working at elevations above a lower level, which includes but is not limited to the ground, platforms, structural steel members, roofs or dangerous equipment. Steel erectors on this project are responsible for their steel erection. Contractor and any subcontractor must have a written fall protection program and a competent person. A "competent person" must be on-site at all times.

FALL PROTECTION REVIEW

Permanent floors shall be installed as soon as practical following the erection of structural members. At no time shall there be more than four floors or 48 feet of unfinished bolting or welding above the foundation or uppermost secured floor.

Temporary Flooring

The erection floor shall be solidly planked or decked over its entire surface except for access openings. Planking shall be not less than 2 inches thick, full size, undressed, and shall be laid tight and secured against movement.

Perimeter Protection

A safety railing of one-half inch diameter wire rope shall be installed and maintained approximately 42 inches (+/- 3"), around the periphery of all decked floors following the completion of structural steel erection on that floor. The distance between uprights should typically not exceed 8 feet. Wire rope must not deflect more than 3 inches under a downward force of 200 pounds. Wire rope clamps must be installed per the chart contained in Subpart R

Erection Plan

An erection plan consisting of the following items will be prepared and reviewed with the Project Manager prior to start of work.

General Requirements:

A qualified person shall approve all changes in the safety erection plan.
A copy of the erection plan with all approved changes shall be maintained at the jobsite.
The implementation of the erection plan shall be under the supervision of a competent person.

FALL PROTECTION

Each employee engaged in a steel erection activity that is on a walking/working surface with an unprotected side or **edge 6 feet or greater above a lower level shall be protected from fall hazards by guardrail systems, safety net systems, personal fall arrest systems, positioning device systems or fall restraint systems.**

Bundles of sheets or small material shall be so secured as to prevent them from falling.

When setting structural steel, each piece shall be secured with not less than two bolts at each connection and drawn up wrench tight before the load is released.

Material shall not be hoisted to a structure unless it is ready to be put into place and secured.

When loads are being hoisted, all personnel are to be prevented from walking under the lift. No one shall be permitted to ride the load for any reason under any circumstances whatsoever.

A tag line shall be used to control loads.

For the protection of other crafts on the project, signs shall be posted in the erection area marked, "DANGER - MEN WORKING OVERHEAD."

"Christmas Tree" rigging, or the lifting of more than one member at one time shall conform to the requirements of Subpart R.

Components of an Erection Plan

Task	Complete	Date
The sequence of erection activity, developed in coordination with the controlling contractor, that includes the following:		
Material deliveries (Schedule)		
Material staging and storage areas		
Coordination with other trades and construction activities.		
A description of the crane and derrick selection and placement procedures, including the following:		
Site preparation;		
Path for overhead loads		
Critical lifts, including rigging supplies and equipment.		
A description of steel erection activities and procedures, including the following:		
Stability considerations requiring temporary bracing and guying;		
Erection bridging terminus point;		
Anchor rod (anchor bolt) notifications regarding repair, replacement and modifications;		
Columns and beams (including joists and purlins);		
Connections (ie: Double connections)		
Decking: Fall arrest, CDZ		
Ornamental and miscellaneous iron (Fall Arrest Method)		
A description of the fall protection procedures that will be used to comply with project requirements		
A description of the procedures that will be used to comply with Falling object protection		
A description of the special procedures required for hazardous non-routine tasks.		
Training for performing steel erection operations as required		
A list of the qualified and competent persons.		
A description of the procedures that will be utilized in the event of rescue or emergency response.		
(d) Other plan information. The plan:		
Includes the identification of the site and project; and		
Is signed and dated by the qualified person(s) responsible for its preparation and modification.		

Subpart R

What activities are covered?

Scope

1926.750

(a) This subpart sets forth requirements to protect employees from the hazards associated with steel erection activities involved in the construction, alteration, and/or repair of single and multi-story buildings, bridges, and other structures where steel erection occurs. The requirements of this subpart apply to employers engaged in steel erection unless otherwise specified. This subpart does not cover electrical transmission towers, communication and broadcast towers, or tanks.

Note to paragraph (a): Examples of structures where steel erection may occur include but are not limited to the following: Single and multi-story buildings; systems-engineered metal buildings; lift slab/tilt-up structures; energy exploration structures; energy production, transfer and storage structures and facilities; auditoriums; malls; amphitheaters; stadiums; power plants; mills; chemical process structures; bridges; trestles; overpasses; underpasses; viaducts; aqueducts; aerospace facilities and structures; radar and communication structures; light towers; signage; billboards; scoreboards; conveyor systems; conveyor supports and related framing; stairways; stair towers; fire escapes; draft curtains; fire containment structures; monorails; aerial ways; catwalks; curtain walls; window walls; store fronts; elevator fronts; entrances; skylights; metal roofs; industrial structures; hi-bay structures; rail, marine and other transportation structures; sound barriers; water process and water containment structures; air and cable supported structures; space frames; geodesic domes; canopies; racks and rack support structures and frames; platforms; walkways; balconies; atriums; penthouses; car dumpers; stackers/ reclaimers; cranes and craneways; bins; hoppers; ovens; furnaces; stacks; amusement park structures and rides; and artistic and monumental structures.

(b)(1) Steel erection activities include hoisting, laying out, placing, connecting, welding, burning, guying, bracing, bolting, plumbing and rigging structural steel, steel joists and metal buildings; installing metal decking, curtain walls, window walls, siding systems, miscellaneous metals, ornamental iron and similar materials; and moving point-to-point while performing these activities.

(2) The following activities are covered by this subpart when they occur during and are a part of steel erection activities: rigging, hoisting, laying out, placing, connecting, guying, bracing, dismantling, burning, welding, bolting, grinding, sealing, caulking, and all related activities for construction, alteration and/or repair of materials and assemblies such as structural steel; ferrous metals and alloys; non-ferrous metals and alloys; glass; plastics and synthetic composite materials; structural metal framing and related bracing and assemblies; anchoring devices; structural cabling; cable stays; permanent and temporary bents and towers; false work for temporary supports of permanent steel members; stone and other non- precast concrete architectural materials mounted on steel frames; safety systems for steel erection; steel and metal joists; metal decking and raceway systems and accessories; metal roofing and accessories; metal siding; bridge flooring; cold formed steel framing; elevator beams; grillage; shelf racks; multi-purpose supports; crane rails and accessories; miscellaneous, architectural and ornamental metals and metal work; ladders; railings;

handrails; fences and gates; gratings; trench covers; floor plates; castings; sheet metal fabrications; metal panels and panel wall systems; louvers; column covers; enclosures and pockets; stairs; perforated metals; ornamental iron work, expansion control including bridge expansion joint assemblies; slide bearings; hydraulic structures; fascia's; soffit panels; penthouse enclosures; skylights; joint fillers; gaskets; sealants and seals; doors; windows; hardware; detention/security equipment and doors, windows and hardware; conveying systems; building specialties; building equipment; machinery and plant equipment, furnishings and special construction.

For this project, the following work activities and fall protection height requirements are;

General Fall Protection	6 Feet
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Connectors / Deck Installers	6 Feet
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Guardrails shall be at least 42" in height (+/- 3") with mid rails and toe boards in place. If materials are placed on the elevated surfaces, higher than the level of the toe board, a protective measure shall be attached to the elevated surface (guardrail system) to prevent the storage from being displaced, over the edge of the toe boards

All wall openings, including windows with elevation differences >6' shall be properly protected with suitable guardrails or other recognized fall protection systems. When holes or openings are used for the passage of materials, such as through a window or elevated level of scaffolding/staging, the opening must be guarded on at least 3 sides when being used for the transfer of materials, and the 4th side, when not being used should be protected with a suitable (removable) guardrail or gate as specified by the competent person.

Guardrails are required around points of access, such as a ladder-way. The open side of the opening shall have a gate, or be off-set to prevent person(s) from falling through or into the opening. When the use of ladders or stilts are required that places the user above the level of fall protection, the competent person shall select an appropriate means of fall protection to cover the increase in height.

Welding / Hot-Work

Brazing, cutting, heating, soldering, welding and other spark producing work on this job requires the acquisition of a Hot Work Permit, as required by the local fire department and OSHA.

Hot Work Permit

- The basic requirements of a Hot Work Permit are;
 - The area(s) in which the Hot Work will be performed must be inspected
 - All containers, pipes and tanks that were used for other than water or steam shall first be purged and cleaned
 - All combustible material shall be located at least 35' away from the Hot Work Area
 - Fire extinguishers must be of proper size and type for the Hot Work activity, and shall be located within 25' of the Hot Work Area
 - Exhaust ventilation or other smoke evacuation / neutralization system shall be used at the area of Hot Work to reduce employee exposure.

A fire watch must be maintained for at least 1 hour after hot work has ended when inside of a structure or building.

Permits may be obtained.....

HOT WORK PERMIT

Company Name:

Date:

Work Location:

Type of Work:

Start Time:

Finish Time:

CHECKLIST FOR HOT WORK

	Yes	No
Person doing hot work has been trained in safe operation of equipment		
Appropriate PPE (eye protection, helmet, protective clothing, respirator, gloves, etc.) available		
Welding flash screens will be used		
Charged, Inspected Fire extinguishers placed for immediate use		
Floors swept clean of combustible materials		
Combustible floors protected with fire-resistant shields		
Combustible materials and supplies moved away from hot work location or adequately covered.		
Wall and floor openings near work location have been covered		
Ignition source not to be used near flammable vapors or liquids, or containers that have contained flammable vapors or liquids		
Fire hazards that can't be moved protected by appropriate means		
Equipment to be used is in good condition and inspected regularly		
On-site contractors advised of hot work		
Warning sign(s) posted to warn other workers		
If working in confined space, confined space permit has been issued		
Inspect work area after work is complete		
Maintain a fire watch during operations and for 30 minutes after work has been completed		

Authorized Signature Date

For specific requirements, refer to General Industry Standards 1910.146, 1910.252, 1910.253, 1910.254, 1910.272, and Construction Standards 1926.803, 1926.350, 1926.352, 1926.343.

MATERIAL HANDLING AND STORAGE

GENERAL

When storing materials, do not leave materials in aisles, walkways, stairways, roads or other points of entry or exit. When moving or lifting materials by hand, avoid stress or strain.

Flammable liquids and grease shall be stored in a "No Smoking" area and properly separated from other stored material.

Each container will be identified as to its contents.

"Hitching a ride" on tractors, cranes, forklifts or other vehicles is dangerous. Ride in cab of truck or where seat is provided. Jumping on/off moving vehicle is prohibited.

STACKING

Materials should be segregated as to kind, size and length, and placed in neat and orderly stacks that are racked, blocked or interlocked to prevent falling, collapsing or tripping hazards.

Stacks of materials will be arranged to allow passageways between them and be well marked and visible at night.

RIGGING

Good rigging is essential for moving construction materials and equipment and at the same time keep them under control.

Never swing loads over the heads of workers in the area.

Only qualified flagmen and signalmen are to direct operation, using hand signals established as standard for the industry.

Use the correct lifting technique and utilize hoisting equipment or engage the help of a fellow worker whenever heavy or unwieldy objects are to be moved.

Use softeners where slings pass over sharp edges or corners.

*Tag lines must be used to control loads and keep workers away.

Do not overload any part of your rigging. Check loads just off the ground for stability before hoisting. Insure that the center of gravity is directly below the hook.

Never leave a suspended load unattended until safely landed.

Never allow loads, booms, or rigging to approach within ten (10) feet of energized electrical lines rated 50 KV or lower unless the lines are de-energized. For lines rated greater than 50 KV or for moving loads, refer to O.S.H.A. Standards.

- Always operate cranes on firm, level ground or use mats, particularly for near-capacity lifts without-riggers.

Rope off or barricade a space 360 degree around all cranes operating on your jobsite to the extent of the swing radius of the rear of the rotating structure.

Rigging and Sling Safety

1. Load Angle Factor - Choosing Slings

To determine the safe working load:

- a. Length of leg (sling) divided by Height to Hook = Load Angle Factor
- b. Load Angle Factor multiplied by Weight of Load = Stress
- c. OR: 10 ft. ÷ 8 ft. to hook = 1.25 Load Angle Factor
- d. $1.25 \times 2000 = 2500$ lbs... each leg- Safe Working Load Rating for your slings

2. Wire Rope

- a. Made from preformed strands
- b. Better load distribution
- c. Prevents unraveling when cut
- d. More flexible
- e. Many uses
- f. Less susceptible to corrosion, overtension, wear and crushing

3. Wire Rope Construction

- a. Lay: Direction of winding of wires in strands and strands in rope. Usually, 2 basic lays, Regular Lay and Lang Lay
- b. Regular Lay - Wires are laid in one direction, strands are laid in opposite, Strong, withstands crushing and distortion due to short length of exposed wires
- c. Lang Lay – Wires and strands are laid in same direction. Used in multiple sling hoisting as it has a tendency to untwist

4. Synthetic Slings

- a. Available in nylon or polyester
- b. Nylon is resistant to many alkalis
- c. Polyester is resistant to many acids
- d. Polyester stretches only half as much as nylon
- e. Advantages to Synthetic Slings
- f. Width and texture prevent scratches
- g. Very flexible, mold to the shape of the load
- h. Not affected by moisture, no corrosion, non sparking
- i. Can absorb heavier shocks than other materials
- j. Available in a number of configurations

5. Slings

- a. Inspect daily for excessive wear
- b. Look for
 - i. Colored threads,
 - ii. Cuts, crushes, abrasions, melts
 - iii. Burns, chemical or heat
 - iv. Knots
- c. Dispose of all slings which show signs of wear. Do not keep them with usable slings.

6. Rigging Hardware – Hooks: carbon steel, alloy steel, bronze,

- a. Quenched and tempered
- b. Rated capacity permanently displayed

- c. Anchor Shackles: Screw pin, round pin, safety pin
 - d. Chain Shackles: Screw pin, round pin, safety pin
 - e. Turnbuckles, Eye Bolts, Clips, Load Binders, Chain Falls
7. Weight Determinations
- a. Use drawings, catalogs, bills of lading
 - b. Use information on the load, paint, plate, tagged
 - c. Weigh the load, scale, dynamometer, crane load scale
 - d. Calculate the weight
8. Center of Gravity –
- a. It's directly under the Hook
 - b. The point at which the object will balance
 - c. Locate CG, hook should be directly above it
 - d. If a load tilts when it is lifted, weight on one leg will increase, other will decrease
 - e. *Points of attachment should lie above the CG*

Stairways and Ladders

- Only Type 1AA, Type 1A, Type 1, and Type 2 ladders shall be used on this project. Do not exceed the rated load capacity.
- All ladders shall be inspected before use, and shall be removed from service if broken, damaged or unsafe
 - The above referenced ladder must be tagged “Do Not Use” and reported to the supervisor by the person performing the inspection
 - Ladders shall not be painted or covered in any manner that will hide cracks and other defects
 - Ladders shall have all of the appropriate warning and danger labels in place, maintained in legible condition
- Ladders must be utilized in a manner specified by the manufacturer
- “The Joint Venture” shall determine the type of fall protection that shall be used when working with a ladder on the job site
 - Tying the ladder off, or having a person “spot” the ladder are possibilities
- The ladder must be the appropriate size and type for the work being performed
- Metal ladders shall not be used around electrical equipment such as power lines, transformers and electric panels

Extension or Straight Ladders shall...

- be pitched at the required 4:1 ratio
- be tied or otherwise secured to the structure or elevated surface to prevent tipping or falling. Do not use the rope designed for adjusting the ladders height to secure the ladder.
- be extended at least 3 feet above the elevated surface to be accessed
 - The top 3 rungs of the extension, or straight ladder shall not be used as a step

Fixed Ladders shall...

- be made and installed for the environment it is intended to serve
- be manufactured and installed in accordance with the ANSI Standard for Fixed Ladders
 - construction
 - elevations
 - fall protection
 - spacing from walls (≥ 7 " from wall to rung)
- Both permanent and temporary fixed ladders
- be inspected by a “competent person” for structural integrity and general safety

Job Made Ladders shall...

- be constructed in accordance with the requirements of OSHA and ANSI

Step Ladders shall...

- be opened completely with spreaders locked in place

- not be used as straight ladders
- be tall enough to perform the necessary work
- The top 2 steps of a step ladder shall not be used for standing

LASERS

- The contractors "competent Person(s)" is responsible for the use of Lasers on the job Site
- Lasers are regulated by their hazards. The laser(s) being used on his site are;



Class I	Class II	Class IIIa	Class IIIb	Class IV
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- Class II and IIIa lasers are often found on construction sites for the purpose of aligning and leveling.
- In order to use a laser on a construction site, the employee must be properly trained, and have proof of training
- When the laser is not being actively used (breaks, lunch, or other extended periods of > 10 minutes) the laser shall be shut-off.
- The competent person must insure that all entrances to the work area where lasers are being used shall be labeled with the appropriate approved DANGER or WARNING signs that indicate that a Class II or IIIa laser is in use
 - Lasers must have appropriate labels, stickers and warnings affixed, which shall be maintained in good condition
 - Reflective surfaces, including mirrors shall not be located in areas where lasers are in use.
 - Specialized protective eyewear may be required

EQUIPMENT GUARDING

- Machine guarding shall meet the requirements of OSHA
- All exposed blades shall be guarded to prevent accidental injury
- All belts and pulley's will be protected with a suitable guard to prevent accidental contact
- All table saws shall have the appropriate blade guards, anti-kickback devices and push sticks
- The GC shall be responsible for determining what equipment shall have guards, and the appropriate guard for the equipment or machine.
 - Guards shall be used and installed in accordance with manufacturers specification

Permits Required

For this project, the following permits will be required;

☐ **Air Quality
for
Demolition**

☐ **Asbestos**

☐ **Building** ☐ Alteration ☐ Construction ☐ Demolition ☐ Renovation

Dig safe

☐ **Dumpster** ☐ (≥ 6
cubic yards)

☐ **Electrical**

☐ **Excavation**

☐ **Fire
Detection**

_____ **Fire
Suppression**

☐ **Flammable
Liquid**

☐ **Gas** ☐ Natural ☐ Propane

_____ **Hot Work**

_____ **Plumbing**

_____ **Salamanders**

_____ **Other(s):**

AERIAL LIFTS

- Personnel lifts such as articulating booms, single person upright lifts (i.e. Genie, JLG and Uprights) and scissors lifts shall be used in a manner specified by the manufacturer, in accordance with the requirements of OSHA 29 CFR 1910.66.
- All articulating booms, including and truck mounted articulating booms are required to have personal fall protection equipment, consisting of approved full body harness and lanyards.
- Scissors Lifts, and Upright Lifts that are equipped with a guardrail system do not require the use of a full body harness and lanyard, as the cage (guardrail) is considered fall protection.
 - **Exception:** If manufacturers specifications or company policy indicate that the full body harness and lanyard (or similar) is required, the use of same shall be mandated.
- **Any person using a personnel lift must be properly trained, in accordance with manufacturer's specifications**
- All lifts shall bear the following manuals and warnings, in legible condition;
 - The operators manual shall be located on the lift at all times, for ease of reference
 - All danger and warning stickers shall be attached to the lift and shall be in legible condition
- Personnel lifts shall be inspected before each use, and must be removed from service if a deficiency is noted
 - All safety devices and related equipment shall be tested as part of the inspection for proper operation.
 - The lift, if damaged or otherwise impaired shall be tagged "Do Not Use" to prevent use, until repaired.
 - Lifts shall only be repaired or altered by a service technician approved by the manufacturer.
- Whenever a lift is utilized (exterior or interior), the area / site shall be inspected for hazards, which include, but are not limited to;
 - Overhead concerns (i.e. beams and columns, lights, sprinklers, etc.)
 - Flooring and ground abnormalities (i.e. holes, unstable / soft ground, floor vents and grates)

POWER TOOLS

- All hand and power tools shall be maintained in safe condition.
 - Electrical cords shall be without damage or splice.
 - Badly twisted primary and extension cords shall be removed from service
 - On all construction sites, the use of Ground Fault Circuit Interrupters (GFCI) is required.
 - When the electrical service has been completed, inspected and approved for the site, and the temporary service has been removed or is no longer in use, the use of GFCI (including pigtailed and fixed) is still required.
- Guards shall be used on all equipment with exposed and moving parts that have the potential to place employees at risk.
 - Guards shall have openings small enough to prevent accidental finger access/exposure
 - Guards removed for maintenance and repair shall be replaced immediately after the work is performed
 - If the guard(s) must be removed, the power to the equipment, machine or power tool shall be unplugged or de-energized by circuit breaker or disconnect.
 - See Lock-Out / Tag-Out requirements in the Electrical section
- Blade guards are required for all table saws
 - Push-sticks shall be located next to, and shall be used for work on table saws, as required.
- Air compressors used for pneumatic equipment shall not be used for removing dust or other particulates from clothing or equipment / tools unless the pressure has been regulated down to below 15 psi.
- Any and all tools found to be damaged or defective shall be removed from service, and tagged **"Do Not Use"** to prevent accidental use. Damaged or defective equipment and tools shall include, but not be limited to;
 - missing ground (pin)
 - equipment and tools from which a shock was received
 - equipment, tools and cords that have been taped to cover physical damage
- Contractors using tools in hazardous areas shall verify that the equipment or tools can be used in that type of environment.
 - Flammable and Combustible Liquids - Intrinsically Safe Equipment
 - Wet Areas - Ground Fault Circuit Interrupters

SAWS

- Any automatic cutoff saw that strokes continuously without the operator being able to control each stroke shall not be used.
- Saw frames or tables shall be constructed with lugs cast on the frame or with an equivalent means to limit the size of the saw blade that can be mounted, to avoid over-speed caused by mounting a saw larger than intended.
- A mechanical or electrical power control shall be provided on each machine to make it possible for the operator to cut off the power from each machine without leaving his position at the point of operation.
- All portions of the saw blade shall be enclosed or guarded, except for the working portion of the blade between the bottom of the guide rolls and the table. Band saw wheels shall be fully encased. The outside periphery of the enclosure shall be solid. The front and back of the band wheels shall be either enclosed by solid material or by wire mesh or perforated metal. Such mesh or perforated metal shall be not less than 0.037 inch (U.S. Gage No. 20), and the openings shall be not greater than 3/8". Solid material used for this purpose shall be of an equivalent strength and firmness. The guard for the portion of the blade between the sliding guide and the upper-saw-wheel guard shall protect the saw blade at the front and outer side. This portion of the guard shall be self-adjusting to raise and lower with the guide. The upper-wheel guard shall be made to conform to the travel of the saw on the wheel.
- Hand-fed circular rip saws and hand-fed circular crosscut table saws. Unless fixed or manually adjustable enclosures or guarding provides equivalent protection, hand-fed circular rip saws and hand-fed circular crosscut table saws shall be guarded as follows to keep employees clear of any danger zones.
- All cracked saws shall be removed from service.
- **All table saws must be equipped with a magnetic disconnect switch. This device prevents automatic re-start of the saws motor after a power outage.**

Powered Industrial Trucks / Fork Lifts / Lulls

Powered Industrial Trucks (including Forklifts) shall be operated in accordance with the requirements of **OSHA 29 CFR 1910.178. This includes Certification of Training on the OSHA Powered Industrial Truck Standard.**

The operator, must at a minimum, must be evaluated every 3 years.

Contractors/subcontractors are responsible for the safe operation of the powered industrial trucks and shall insure that the following requirements are met;

The operator is capable of operating the forklift.

The operator has a current Massachusetts hydraulic license. **(Department of Public Safety)**

The operator has proof of training, and documentation to prove successful completion of a class, such as a certification card.

The powered industrial trucks used on this job site have been inspected by an authorized representative of the manufacturer within the last year.

All manuals, tags, labels and warnings are in place on the truck, and are legible.

The powered industrial truck has been evaluated for operation within the building.

Lifts used inside shall have carbon monoxide scrubbing systems or be properly exhausted to prevent carbon monoxide accumulation.

Site Security

Pedestrian, Personnel and Vehicle Protection

- “The Joint Venture” shall discuss site security and personnel and vehicle safety with the owner, before any work is initiated.
- It is the responsibility of “The Joint Venture” to, when necessary, meet with and address any issues that may fall under the jurisdiction of the local fire and police departments.
- Contractors, coordinating with “The Joint Venture” shall take steps necessary to protect the public and maintain work areas that meet or adjoin public ways, sidewalks, building entrances (aisles, corridors, lobbies and other common areas), stairways and roads.
 - The contractor shall erect, install and maintain the appropriate barricades, barriers, fences, guardrails, overhead protection, partitions, signs, shields, and/or other interim controls protect the health, safety and well-being of the general public.
 - Warning signs must be conspicuously posted and adequate in number for protection of the general public.
 - When signs used for exits must be temporarily blocked or obstructed, the signs shall be covered or otherwise blanked to prevent use.

Temporary exits shall be identified from the former exits with new signage with directional arrows to permit safe egress of the public and workforce.

The Exit signs shall be red or green in color, with each letter at least 6” in height with a $\frac{3}{4}$ ” stroke (width).

- Work shall only be performed during appropriate hours, subject to the requirements of the city or town, and as specified by contract.
- All guardrails to protect the general public and workforce from the potential of fall shall be of adequate strength, and shall be able to withstand a down and outward pressure of 200lbs, in accordance with OSHA

Smoking

Smoking is not allowed on school grounds!

Motor Vehicles

All vehicles, regardless of size shall be operated by a competent, licensed operator in accordance with the requirements of the appropriate state, Department of Transportation (DOT) and Registry of Motor Vehicles (RMV).

Any vehicle greater than 26,000lbs, or as specified by the owner, general contractor shall have operators who are evaluated randomly, or as needed for alcohol and drugs as specified by the Department of Transportation.

- Any operator, believed to be under the influence of alcohols, drugs or other medication (including over-the-counter) cough/cold and/or sleep medications shall be removed from vehicle operation, tested in accordance with the DOT and, if determined to be under the influence, shall be driven home by a means other than by themselves in their respective vehicle.
- Any vehicle greater than 10,000 lbs. or higher.
- Vehicles shall be inspected, repaired or serviced by qualified mechanics / personnel.
- All vehicles shall be inspected before each shift by the operator / competent person. All safety issues shall be immediately repaired, or the vehicle removed from service and labeled as out-of-service to prevent unauthorized operation or use.
- Vehicle operators shall not, while driving, utilize cell phones or consume food and/or beverages.
- Vehicle operators shall not operate vehicles unless seat belts are in use
- Vehicles used for the transport of materials shall have the materials properly secured and/or covered.
 - Dump trucks shall utilize covers or tarps when transporting any material over a public way
 - Gas cylinders shall be transported in the upright position, and shall be secured by chain or strap
- Vehicles in tow shall be attached by solid bar, not by chain
- All construction vehicles shall be equipped with the appropriate, charged, inspected and conspicuously placed fire extinguisher
- All passengers in a vehicle shall be seated and shall wear seat belts.
 - Personnel shall not be permitted to ride in the cargo area or pick-up body regardless of length of trip.
- Vehicles not in use shall have the keys removed from the ignition, and placed in a safe location to prevent unauthorized use.
- Riding within the bed of pickup trucks is prohibited.

Weather Conditions

1. Spring

- Thawing – ground that was once frozen may now be subject to thawing action. Care must be taken when placing heavy loads on ground level that may shift due to thawing action.

2. Summer

- Heat Related Illnesses – the Emergency Action Plan must be kept up to date in order to handle heat related illnesses such as heat exhaustion and heat stroke which may arise in the summer months.
- First Aid – members of the Emergency Action Plan must be properly trained in order to handle such heat related illnesses.
- Drinking Water – adequate potable drinking water must be provided on site so that the workers can drink ample fluids throughout the day.

3. Autumn

- Housekeeping – fallen leaves, branches, limbs, etc... that may create a housekeeping situation on must be cleaned up before it creates a slip/fall hazard.

4. Winter

- Clothing – adequate layers of clothing must be worn so that the workers are adequately protected from frigid conditions.
- Snow and Ice – all outside work areas, walkways, sidewalks, etc... must be properly cleared, sanded/salted and maintained to prevent a possible slip hazard.
- Cold Related Illnesses – the Emergency Action Plan must be kept up to date in order to handle cold related illnesses such as frost bite and hypothermia, which could arise during the winter months.
- First Aid – members of the Emergency Action Plan must be properly trained in order to handle cold related illnesses.
- Building Access – if permanent elements of the building design are missing during construction (i.e. snow guards, gutters, canopies, etc...), and then attention should be given to those accessible areas around the building perimeter in order to deal with the elements such as rain and snow.

ACCIDENT INVESTIGATION REPORT

Date & Time of Accident:
Location:
Accident Description:
Workers Involved:
Preventive Action Recommendations:
Corrective Actions Taken:

ACTIVE SHOOTER

An Active Shooter is an individual actively engaged in killing or attempting to kill people in a confined and populated area; in most cases, active shooters use firearms(s) and there is no pattern or method to their selection of victims.

Active shooter situations are unpredictable and evolve quickly. Typically, the immediate deployment of law enforcement is required to stop the shooting and mitigate harm to victims.

Because active shooter situations are often over within 10 to 15 minutes, before law enforcement arrives on the scene, individuals must be prepared both mentally and physically to deal with an active shooter situation.

Good practices for coping with an active shooter situation:

- ☐ Be aware of your environment and any possible dangers
 - ☐ Take note of the two nearest exits in any facility you visit
 - ☐ If you are in an office, stay there and secure the door
 - ☐ If you are in a hallway, get into a room and secure the door
 - ☐ As a last resort, attempt to take the active shooter down. When the shooter is at close range and you cannot flee, your chance of survival is much greater if you try to incapacitate him/her.
-
- ☐ **CALL 911 WHEN IT IS SAFE TO DO SO!**

HOW TO RESPOND WHEN AN ACTIVE SHOOTER IS IN YOUR VICINITY

Quickly determine the most reasonable way to protect your own life.

- 1. Evacuate.** If there is an accessible escape path, attempt to evacuate the premises. Be sure to:
 - ☐ Have an escape route and plan in mind
 - ☐ Evacuate regardless of whether others agree to follow
 - ☐ Leave your belongings behind
 - ☐ Help others escape, if possible
 - ☐ Prevent individuals from entering an area where the active shooter may be
 - ☐ Keep your hands visible
 - ☐ Follow the instructions of any police officers
 - ☐ Do not attempt to move wounded people
 - ☐ Call 911 when you are safe
- 2. Hide out.** If evacuation is not possible, find a place to hide where the active shooter is less likely to find you. Your hiding place should:
 - ☐ Be out of the active shooter's view
 - ☐ Provide protection if shots are fired in your direction (i.e., an office with a closed and locked door)
 - ☐ Do not trap yourself or restrict your options for movement

- ☐ To prevent an active shooter from entering your hiding place:
 - ☐ Lock the door
 - ☐ Blockade the door with heavy furniture

If the active shooter is nearby:

- ☐ Lock the door
- ☐ Silence your cell phone and/or pager
- ☐ Turn off any source of noise (i.e., radios, televisions)
- ☐ Hide behind large items (i.e., cabinets, desks)
- ☐ Remain quiet

If evacuation and hiding out are not possible:

- ☐ Remain calm
- ☐ Dial 911, if possible, to alert police to the active shooter's location
- ☐ If you cannot speak, leave the line open and allow the dispatcher to listen

3. Take action against the active shooter. As a last resort, and only when your life is in imminent danger, attempt to disrupt and/or incapacitate the active shooter by:

- ☐ Acting as aggressively as possible against him/her
- ☐ Throwing items and improvising weapons
- ☐ Yelling
- ☐ Committing to your actions

HOW TO RESPOND WHEN LAW ENFORCEMENT ARRIVES

Law enforcement's purpose is to stop the active shooter as soon as possible. Officers will proceed directly to the area in which the last shots were heard.

- ☐ Officers usually arrive in teams of four (4)
- ☐ Officers may wear regular patrol uniforms or external bulletproof vests, Kevlar helmets, and other tactical equipment
- ☐ Officers may be armed with rifles, shotguns, handguns
- ☐ Officers may use pepper spray or tear gas to control the situation
- ☐ Officers may shout commands, and may push individuals to the ground for their safety.

How to react when law enforcement arrives:

- ☐ Remain calm and follow officers' instructions
- ☐ Put down any items in your hands (i.e., bags, jackets)
- ☐ Immediately raise hands and spread fingers
- ☐ Keep hands visible at all times
- ☐ Avoid making quick movements toward officers such as holding on to them for safety
- ☐ Avoid pointing, screaming and/or yelling
- ☐ Do not stop to ask officers for help or direction when evacuating, just proceed in the direction from which officers are entering the premises

Information to provide to law enforcement or 911 operator:

- ☐ Location of the active shooter
- ☐ Number of shooters, if more than one
- ☐ Physical description of shooter/s
- ☐ Number and type of weapons held by the shooter/s
- ☐ Number of potential victims at the location

CONSTRUCTION MANAGERS SITE SPECIFIC SAFETY PLAN

Notes: The first officers to arrive to the scene will not stop to help injured persons. Expect rescue teams comprised of additional officers and emergency medical personnel to follow the initial officers. These rescue teams will treat and remove any injured persons. They may also call upon able-bodied individuals to assist in removing the wounded from the premises.

Once you have reached a safe location or an assembly point, you will likely be held in that area by law enforcement until the situation is under control, and all witnesses have been identified and questioned. Do not leave until law enforcement authorities have instructed you to do so.

Date inspection conducted: _____ **Location:** _____

Name(s) of those participating in this inspection: _____

INDICATE EITHER: A = Acceptable/Yes; U = Unacceptable/No; N/A = Not Applicable

PERSONAL PROTECTIVE EQUIPMENT		EMERGENCY ITEMS	
Safety glasses and/or goggles available + being used?		Emergency evacuation map posted near work area?	
Protective eyewear use is specified in writing?		Emergency phone numbers posted and known by all?	
Face shield available for bulk liquid tasks? Grinding?		Emergency eyewash and/or shower units accessible?	
Hand protection used/worn as required?		First aid kit available at work site?	
Foot protection worn as required?		First aid trained competent person available?	
Hearing protection worn where required?		BBP kit available/BBP trained individual on site?	
Hard hats worn when falling object hazard is present?		Fire extinguishers readily available (not blocked)?	
Supplies on hand for incidental chemical spills?		Fire extinguishers inspected monthly/yearly as needed?	

ELECTRICAL SAFETY ISSUES		ELECTRICAL SAFETY ISSUES	
GFCI's used for all portable electrical hand tools?		Strain relief integrity for cords and plugs in tact?	
Extension cords rated for hard or extra hard usage? (2 wire ribbon cord is unacceptable for industrial usage)		For extension cords; hard usage cord includes three wire cord marked = S, ST, SO, STO, SJ, SJO, SJT + SJTO	
Certified or listed equipment is used per manufacturer?		Electrical cords inspected & have all prongs in tact?	
Electrical panels are labeled appropriately?		Strain relief in tact for all flexible cords & plug fittings?	
Electrical panel knockouts are in place?		Portable generators are grounded per NEC requirements?	
Light bulbs for illumination protected from breakage?		Electric power tools are double insulated or grounded?	

CONSTRUCTION MANAGERS SITE SPECIFIC SAFETY PLAN

CONSTRUCTION SAFETY & HEALTH ISSUES		CONSTRUCTION SAFETY & HEALTH ISSUES	
General housekeeping is neat and orderly?		Flammable liquids are in OSHA/FM metal safety cans?	
MSDS openly available to all employees?		Flammable liquids storage containers labeled properly?	
Concrete work? Silica dust training documented for all?		Fire extinguisher readily available, accessible + inspected?	
All hazardous containers labeled appropriately?		Impact style air tools have safety clips or retainers on them?	
Lockout/Tagout is being used for appropriate tasks?		Pneumatic power tools have hoses secured?	
Hot work permits used for grinding, cutting, welding?		Compressed air used for cleaning limited to 30 psi ?	
Confined space entry work? Check training/permit/etc.		Compressed gas cylinders not in use have caps in place?	

Copy the completed inspection sheet to: _____

If marked "U" for unacceptable or no; list the appropriate corrective action on the reverse side

CONSTRUCTION SAFETY & HEALTH ISSUES		CONSTRUCTION SAFETY & HEALTH ISSUES	
Compressed gas cylinders stored secured + upright?		Wall openings + floor holes are covered or guarded?	
Oxygen/acetylene torch units have flash back arrestors?		100% fall protection in place above 6 feet in height?	
Grinders (portable + stationary) have guards in place?		Employees operating lifts are trained on the equipment?	
Stationary grinding wheel tool rest is 1/8 inch or less?		Fall protect. full body harness+ lanyard used at all times?	
Stationary grinding wheel tongue guard is 1/4 inch or less?		Excavation? Ladders used > 4 feet deep? Extend 3 feet?	
Grinders are inspected, ring tested + free of defects?		Excavation? Protection from cave-ins for >5 feet deep?	
Safety glasses + face shield used for grinding tasks?		Rebar caps used for protruding reinforced steel posts?	

CONSTRUCTION SAFETY & HEALTH ISSUES		CONSTRUCTION SAFETY & HEALTH ISSUES	
Ladders are safe and inspected as appropriate?		Portable circular saws equipped with protective guards?	
Stair rails = req'd at 30" change in elevation or 4 risers?		Unsafe hand tools are prohibited?	
Stairs or ladder provided for access points > 19" high?		Impact tools, hammers kept free of splinters/mushrooms?	
Extension + straight ladders extend 3' beyond landing?		Wire rope used for lifting? Deterioration is absent?	
Stepladder or commercial stepstool used for high access?		Web slings used for lifting? Deterioration is absent?	
Step ladders are only used in open position?		Crane use? Written lift plan on file listing load capacities?	
Scaffolding = guardrails used? competent person on site?		Hooks used for lifting have safety latch in place?	

CORRECTIVE ACTION PLAN

LIST ITEM, THE PERSON RESPONSIBLE AND EXPECTED COMPLETION DATE !			
ACTION ITEM	PERSON (S) RESPONSIBLE	TO BE DONE BY	STATUS

Status column should be marked = either listed as "open", "in process, or "closed"

Signature of lead inspector: _____

LIFT TRUCK DAILY INSPECTION CHECKLIST

TRUCK ID # _____ MAKE _____

DATE _____ SHIFT _____

HOURLY METER READING: START _____ END _____

PLACE AN O.K. IN THE CORRECT COLUMN IF THE ITEM IS WITHOUT DEFECT

ITEM	Start of shift	During shift	End of shift	Comments if not O.K.
Lights				
Tires				
Brakes				
Horn				
Hour meter & gauges				
Steering				
Hydraulic controls				
Other:				
If applicable:				
Battery Connections				
Charge				
Fuel level				
Oil level & pressure				
Water level				
Fan Belt				

Overall remarks: _____

Defects reported to: _____

Operator's Signature: _____

DO NOT OPERATE AN UNSAFE LIFT TRUCK

Hot Work Permit

Before initiating hot work, can this job be avoided? Is there a safer way?

This Hot Work permit is required for any temporary operation involving open flames or producing heat and/or sparks. This includes, but is not limited to: Brazing, Grinding, Cutting, Soldering, Thawing Pipe, Torch Applied Roofing, Powder Driven Fasteners, Metal Chop Saw Use, and Welding.

Instructions:

1. Verify precautions listed below or do not proceed with work.
2. Complete this permit and issue to person(s) performing the work.
3. Retain this copy in the project file.

Project Name:	Date:	Shift:	Contractor Name:
Location of Work:			
Type of hot work:			
Purpose of work:			
Name of person(s) doing the work:		Training certificate number:	
Name of fire watch person:		Training Certificate number:	

I verify the above location has been examined, the precautions checked on the Precautions Checklist below to minimize the chance of fire.		
Permit Authorizing Individual (PAI): _____		
Contractors Supervisor's Name:		Signature:
Duration (Hrs):	Start Time:	Stop Time:

Hot Work Permits may not be authorized for more than one shift!

Yes	No	N/A	Item
			Are water hoses or fire extinguishers available and in good repair?
			Is hot work equipment in good repair?
			Have flammable materials within 35 ft. been removed or covered with fire blankets or mats?
			Have explosive atmosphere been eliminated? Test results:
			Has the work surface area been cleaned of grease, paint, etc.?
			Have combustible floors been wet down, covered with damp sand or covered with fire resistant sheets?
			Have surface areas below work area been protected?
			Have access ways below work area been barricaded?
			Are UV shields in place?
			Has enclosed equipment been cleansed of all combustibles?
			Have all containers been purged of flammable liquids and vapors?

CONSTRUCTION MANAGERS SITE SPECIFIC SAFETY PLAN

			Will fire watch be provided during and for 30 minutes after work, or 60 minutes on a roof, including coffee and/or lunch breaks?
			Has fire watch been provided with suitable fire extinguishing devices?
			Has the fire watch person been trained in use of fire extinguishing devices and in sounding alarm(s) or other emergency communications?
			Has additional fire watch been assigned to adjoining areas, above and below?
			Has the person performing the hot work, the fire watch and supervisor had the required training under Massachusetts Hot Work Safety Code?
			Other:
			Other:

510 COTTAGE STREET, SPRINGFIELD, MA 01104 | 12 EAST WORCESTER STREET SUITE 2A, WORCESTER, MA 01604



NEAR-MISS REPORT

<i>(Enter company name and address)</i>	
1. Name of Person involved (Last, First, Middle Initial)	2. Title/Position of Person Involved
3. Name of Person Completing Form (Last, First, Middle Initial)	4. Title of Person Completing Form
5. Department	6. Contact Phone Number
7. Witness Name (Last, First, Middle Initial)	8. Witness Phone Number
9. Date & Time of Incident Date: _____ Time: _____ AM/PM	10: Near-Miss Location – Site of Incident (Building name, Room No., Stairs, Hallway, etc.) If outside of building, give location in reference to nearest building. _____ _____ _____
11. Near-Miss Description (Describe fully the protocol/procedures being followed including all substances, equipment, and machinery being used which was related to the near-miss Use additional sheets if necessary) _____ _____ _____ _____ _____ _____	
12. Personal Protective Equipment (PPE) Used (if applicable) _____ _____	
13. Severity – Circle the level of severity which you feel could occur if such an incident evolved (Example: High = fatality, permanent disability, high dollar loss; Medium = temporary disability, some dollar loss; Low = minor or no injury, no lost dollar. Consider such factors as physical injuries, damage to equipment or property, and environmental impact) HIGH MEDIUM LOW	
14. Probability – Circle the level of probability that a person or property may be exposed to a similar situation, and that required hazards or system failures may be present or likely. (Example: High = tasks occur frequently and by numerous individuals; Medium = tasks occur on a regular basis by certain individuals; Low = tasks occur infrequently by few individuals. Also consider such criteria as complexity of the system, latent and human factors, etc.) HIGH MEDIUM LOW	

CONSTRUCTION MANAGERS SITE SPECIFIC SAFETY PLAN

15. Corrective Actions (what should be done or has been done to prevent recurrence of this incident? E.g. employee training, change of procedures, purchasing of equipment, etc.)

16. Miscellaneous Information (Provide any other information or recommendations which you feel are pertinent to the incident)

Shelter-in-Place



Chemical, biological, or radiological contaminants may be released into the environment in such quantity and/or proximity to a place of business that it is safer to remain indoors rather than to evacuate employees. Such releases may be either accidental or intentional. Examples of situations that might result in a decision by an employer to institute "shelter-in-place" include an explosion in an ammonia refrigeration facility across the street, or a derailed and leaking tank car of chlorine on the rail line behind your place of business.

"Shelter-in-place" means selecting an interior room or rooms within your facility, or ones with no or few windows, and taking refuge there. In many cases, local authorities will issue advice to shelter-in-place via TV or radio.

- [Preparing to stay or go](#)
- [Shelter-in-place procedures](#)
- [Additional Information](#)

Related information:

- [Evacuation Elements](#)
- [Fight or Flee?](#)

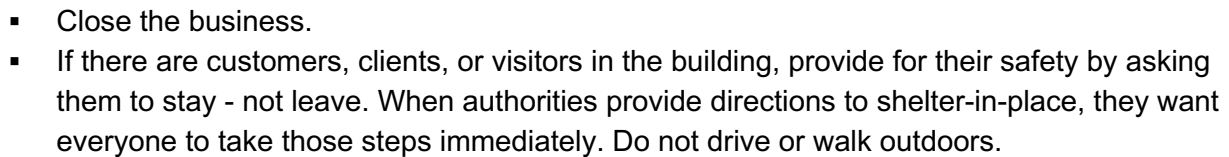
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PREPARING TO STAY OR GO





Specific procedures for shelter-in-place at a worksite may include the following:



- Unless there is an imminent threat, ask employees, customers, clients, and visitors to call their emergency contact to let them know where they are and that they are safe.



Close or tape-off all vents in the room used for shelter-in-place

- Turn on call-forwarding or alternative telephone answering systems or services. If the business has voice mail or an automated attendant, change the recording to indicate that the business is closed, and that staff and visitors are remaining in the building until authorities advise it is safe to leave.
- Quickly lock exterior doors and close windows, air vents, and fireplace dampers. Have employees familiar with your building's mechanical systems turn off all fans, heating and air conditioning systems, and clothes dryers. Some systems automatically provide for exchange of inside air with outside air. These systems, in particular, need to be turned off, sealed, or disabled.
- If you are told there is danger of explosion, close the window shades, blinds, or curtains.
- Gather essential disaster supplies, such as nonperishable food, bottled water, battery-powered radios, first-aid supplies, flashlights, batteries, duct tape, plastic sheeting, and plastic garbage bags.
- Select interior room(s) above the ground floor, with the fewest windows or vents. The room(s) should have adequate space for everyone to be able to sit. Avoid overcrowding by selecting several rooms if necessary. Large storage closets, utility rooms, pantries, copy and conference rooms without exterior windows will work well. Avoid selecting a room with mechanical equipment like ventilation blowers or pipes, because this equipment may not be able to be sealed from the outdoors.
- It is ideal to have a hard-wired telephone in the room(s) you select. Call emergency contacts and have the phone available if you need to report a life-threatening condition. Cellular telephone equipment may be overwhelmed or damaged during an emergency.



Tape plastic sheeting over vents, windows, and doors to prevent contaminated air from entering the room

- Take your emergency supplies and go into the room you have designated. Seal all windows, doors, and vents with plastic sheeting and duct tape or anything else you have on hand.
- Consider precutting plastic sheeting (heavier than food wrap) to seal windows, doors, and air vents. Each piece should be several inches larger than the space you want to cover so that it lies flat against the wall. Label each piece with the location of where it fits. [See image at right]
- Write down the names of everyone in the room, and call your business' designated emergency contact to report who is in the room with you, and their affiliation with your business (employee, visitor, client, customer).
- Listen to the radio, watch television, or use the Internet for further instructions until you are told all is safe or to evacuate. Local officials may call for evacuation in specific areas at greatest risk in your community.

Fine Classification System for Unsafe Acts/Conditions at Fontaine/W.T. Rich Construction Projects

This document outlines Fontaine/W.T. Rich program to fine companies, not individuals, whose employees are uncooperative in maintaining a safe site as part of the Projects Disciplinary Action Program. The subcontractor agrees to adhere to the fine schedule for violations about which he/she was notified by the site Supervisor, Project Manager, or Construction Management Representative and their agents.

The subcontractor agrees to have these fines withheld from monies due him/her. Any violation of this agreement will be cause for suspension of operations until the agreement is fully complied with. All monetary amounts outlined may be doubled for a second offense.

At the conclusion of the project, all funds collected will be donated on the behalf of the contractors employed on the project to a local charity.

Authorized Signature Fontaine/W.T. Rich

Name of Subcontractor/Individual

Subcontractor Authorized Signature

Company Name

Date

CONSTRUCTION MANAGERS SITE SPECIFIC SAFETY PLAN

Fine	Item #	Project Management
\$200	A1	Any action or in-action which could result in permanent injury or death will be fined with no warning. This may result in dismissal of worker and immediate foreman.
\$100	A2	Employees did not receive safety training.
\$100	A3	New employee did not attend safety orientation.
\$100	A4	All employees did not attend and sign a weekly safety meeting.
\$100	A5	Appropriate first-aid supplies were not available on project.
		Hazard Communication
\$100	B1	Written Haz-Com program is not immediately available.
\$100	B2	Reliable procedure is not established for hazard communication.
\$100	B3	All employees have not received Haz-com training.
\$100	B4	Containers are not properly labeled.
\$100	B5	Complete SDS Index not available on project.
		Electrical
\$100	C1	Approved GFCI is not in use on all 120 volt, single-phase, 15 & 20 ampere receptacle outlets which are not part of the permanent structural wiring.
\$100	C2	Daily visual inspection of cords, plugs, tools, equipment, etc. not conducted.
		Fire Protection
\$100	D1	Employees have not been trained in evacuation, emergency firefighting response and equipment use.
\$100	D2	Adequate number of fire extinguishers is not available.
\$100	D3	"Hot Work" permit not obtained.
		Construction Area
\$100	E1	General Duty Clause Violation
\$100	E2	Defective tools and equipment are not tagged to prevent use.
\$100	E3	Electrical cords are not routed away from stairways, walkways and driveways.
\$100	E4	Flammable and combustibles are not stored properly.
\$100	E5	Fire extinguishers are not fully charged, inspected and tags current.
		Housekeeping
\$100	F1	Debris not removed on regular basis
\$100	F2	Building exits obstructed
\$100	F3	Snow, ice, water not removed as necessary.
\$100	F4	Material staging area not reasonably organized
\$100	F5	Nails not removed from lumber.
Fine	Item #	Flammable and Combustible Liquids
\$100	G1	Storage and handling containers not approved and labeled.

CONSTRUCTION MANAGERS SITE SPECIFIC SAFETY PLAN

\$100	G2	Inside storage not in compliance with regulations
\$100	G3	Required firefighting equipment not properly located and fully operational
\$100	G4	Outside storage not in compliance with regulations.
\$100	G5	Flammable and combustible liquids stored in passage ways, stairways and exits.
\$100	G6	"Danger, no smoking" signs not posted.
\$100	G7	Storage location not at required distance from buildings.
\$100	G8	Storage cabinets not available where required.
		Compressed Gas Cylinders
\$100	H1	Cylinder hoisting not performed properly.
\$100	H2	Cylinder valves not closed with caps in place.
\$100	H3	Oxygen and gas cylinders not separated by a fire-resistant partition or required distance.
\$100	H4	Cylinders not upright and secured
		Temporary Electrical
\$100	I1	Extension cords not 3-wired and rated for hard or extra hard usage.
\$100	I2	Temporary lighting not properly supported, protected and adequate.
\$100	I3	Circuits not properly labeled, grounded and inspected.
\$100	I4	Breakers not adequately labeled
		Signs and Barricades
\$100	J1	Proper fences, barricades and signs not properly installed to warn persons of a potential hazard
		Site Clearing
\$100	K1	Dig Safe not contacted.
\$100	K2	Overhead or adjacent utilities, encumbrances, structures, etc. not identified and protected.
\$100	K3	Dig Safe numbers not current.
		Trenching and Excavation
\$200	L1	Employees not protected from cave-ins, sliding, falling, or rolling loads, hazardous atmospheres or water accumulation.
\$200	L2	Excavation in excess of 20 feet deep, protective system not designed by a qualified person(s).
\$100	L3	Safe access not provided for employees.
\$200	L4	Protective systems defective, damaged or improperly installed
\$200	L5	Proper slopes or benching not maintained, spoil piles not 2 feet or more from edge of bank.
\$100	L6	A trained competent person not available to monitor all excavation procedures.
\$100	L7	Soil not tested by a competent person to determine soil type
\$100	L8	Excavations not properly barricaded.
\$100	L9	Excavations not inspected as required.
		Ladders and Stairways

CONSTRUCTION MANAGERS SITE SPECIFIC SAFETY PLAN

\$100	M1	Employees not trained in ladder and stairway safety by a competent person.
\$100	M2	Ladders not inspected regularly.
\$100	M3	Stair rails, hand rails, and guard rails missing.
\$100	M4	Ladders not tagged to indicate type and capacity.
\$100	M5	Job-made ladders not constructed as required.
\$100	M6	Employee using a ladder in an unsafe manner
		Scaffolding
\$100	N1	Guard rails with toe boards not installed as required.
\$100	N2	Scaffold not erected plumb, level and secured.
\$100	N3	Safe access not provided for scaffolds.
\$100	N4	Scaffold components and accessories not defect free.
\$100	N5	Scaffolding not designed, erected, dismantled, moved or altered under the supervision of a trained, competent person.
\$100	N6	Scaffold overloading.
\$100	N7	Improper scaffold access
		Personal Protective Equipment
\$100	O1	Fall protection/full arrest equipment not used when and where they are required.
\$100	O2	Approved hard hats not worn by all employees.
\$100	O3	Required eye protection not used.
\$100	O4	Required reflective vest/clothing not used.
\$100	O5	Proper respiratory protection not provided
		Fall Protection
\$100	P1	Floor, wall and roof openings not protected with standard guards rails or solid covers.
\$100	P2	Open sides of roofs, floors, platforms, bridges, decks, etc. Not properly protected.
\$100	P3	Guard rails not maintained and in compliance.
	P4	Personal fall arrest not used or is not used correctly
\$100		Power Tools
\$100	Q1	Tools are not properly grounded.
\$100	Q2	Employees not trained to use power tools safely.
\$100	Q3	Required guards not in place and operational.
		Concrete
\$100	S1	Protruding reinforcing steel onto or into which any employees could fall not guarded to eliminate the hazard of impalement.
\$100	S2	Workers not trained to avoid the hazards of concrete burns and inhalation of dust.
\$100	S3	Personal protective equipment such as gloves, boots, hard hats eye and face protection not used.
\$100	S4	Form work has not been designed, fabricated, erected, supported, braced and maintained to support vertical and lateral loads without failure.

CONSTRUCTION MANAGERS SITE SPECIFIC SAFETY PLAN

\$100	S5	Safe shoring and form removal procedures not established.
\$100	S6	Required distances not maintained between overhead electrical power lines and concrete placement equipment.
		Masonry
\$100	T1	Walls not properly supported.
\$100	T2	Controlled access zone not established as required.
\$100	T3	Planking not scaffold grade.
\$100	T4	Respiratory protection not used during sawing, mortar mixing or other silica dust generating activities.
\$100	T5	Masonry saws not properly grounded.
		Structural Steel
\$100	U1	Workers not using the required fall protection, arrest equipment.
\$100	U2	The area beneath the steel erection not designated off limits to unauthorized employees.
\$100	U3	Hoisting equipment and accessories not inspected as required.
\$100	U4	Tag lines not used to control loads.
\$100	U5	Proper erection bolting and bracing procedures not followed.
\$100	U6	Floor and roof openings not protected.
		Welding
\$100	V1	Employees have not been properly trained in welding and cutting operations.
\$100	V2	Flash screens not used where required.
\$100	V3	Fire extinguisher not provided near hot-work locations.
\$100	V4	Torches, hoses, gauges, regulators, etc. not free of defects.
\$100	V5	Compressed gas cylinders are not stored and used properly, secured upright, caps on when not in use, segregated from electrical and heat hazards.
		Motor Vehicles
\$100	W1	Operators not properly trained and licensed.
\$100	W2	Vehicles not inspected daily before use.
\$100	W3	Driver and all passengers not using provided seat restraints.
Fine	Item #	Heavy Equipment
\$100	X1	Workers "riding" on heavy equipment.
\$100	X2	Inspection and maintenance not performed as required.
\$100	X3	Operators not properly trained and or authorized.
\$100	X4	Audible reverse warning is not operational.
\$100	X5	ROPS protection not provided.
\$100	X6	Equipment does not have seat belts.
\$100	X7	Cab glass must be free of defect/damage.
\$100	X8	Access roads not properly maintained.
\$100	X9	Fire extinguishers not provided in equipment.
		Cranes
\$200	Y1	Overhead power lines not de-energized, removed or protected.

CONSTRUCTION MANAGERS SITE SPECIFIC SAFETY PLAN

\$200	Y2	Required distance not maintained from live wires.
\$100	Y3	Load capacity and hand signal charts not posted and legible.
\$200	Y4	Crane not used as intended by manufacturer.
\$200	Y5	Operator not authorized for equipment use.
\$100	Y6	Annual inspection certificate missing.
\$100	Y7	Inspection and maintenance records not properly logged.
\$100	Y8	Glass not free of defects and distortion.
\$100	Y9	Trained signal person not used as required.
\$100	Y10	Swing radius of counterweight not properly barricaded.
\$100	Y11	Crane not positioned on solid level ground.
\$100	Y12	Outriggers not used as required.
\$100	Y13	Material handling equipment and accessories not inspected prior to use.
\$100	Y14	Qualified rigger not available as required.
		Aerial Lifts
\$100	Z1	Employees using aerial lifts not trained and authorized.
\$100	Z2	Manufacturer's operation and safety rules not followed.
\$100	Z3	Lift safety not inspected and all controls not tested prior to each day's use.
\$100	Z4	Lift not positioned on solid, level ground
\$100	Z5	Load limits exceeding manufacturer's specifications.
\$100	Z6	Workers in the lift basket not standing firmly on the floor.
\$100	Z7	Workers not using required fall protection/arrest system.
		Demolition
\$100	AA1	Not following the demolition plan.
\$100	AA2	Dust control inadequate.
\$100	AA3	Safety meetings not conducted to keep employees apprised of changing, dangerous or hazardous conditions.
		Crystalline Silica
\$100	BB1	Worker have not been properly trained to recognize and avoid the potential hazards
\$100	BB2	Adequate ventilation, vacuum system or wet methods not provided.
\$100	BB3	A written exposure control plan not developed
\$100	BB4	Controls based on Table 1 to minimize silica exposure are not in place
Fine	Item #	Confined Space Entry
\$100	CC1	Fire extinguishers not readily available.
\$100	CC2	Worker not properly trained.
\$200	CC3	A comprehensive hazard assessment has not been conducted.
\$200	CC4	Required safety equipment not available.
\$100	CC5	Entry permit system not completed.
\$200	CC6	Atmospheric testing not conducted as required.
\$100	CC7	Confined space not adequately ventilated.

CONSTRUCTION MANAGERS SITE SPECIFIC SAFETY PLAN

\$200	CC8	All affected persons not trained to understand the hazards, precautions, use of required personal protection.
\$100	CC9	Properly trained rescue personnel with essential rescue equipment not immediately available.
\$100	CC10	Company safety policy not available.
\$200	CC11	Employees have not received safety training.

Section 00 73 00c
INSURANCE REQUIREMENTS

The Subcontractor, at its own expense, shall purchase and maintain in full force and effect, such insurance in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, insurance policies as outlined below. Such policies shall protect the Contractor from claims which may arise out of or result from the Subcontractor's (or anyone directly or indirectly employed by the Subcontractor) operations performed under the Contract. The Subcontractor shall be required to provide Certificates of Insurance, and, upon demand, any policy or endorsement, evidencing the following coverage.

- D.1 Insurance covering claims under workmen's compensation, disability benefit and other similar employee benefit acts. Insurance also covering claims for damages because of bodily injury, occupational disease or sickness, or death of his employees with the following limits:

Workmen's Compensation:	Statutory
Employer's Liability:	
Bodily Injury by Accident (per Accident):	\$500,000
Bodily Injury by Disease (per Employee):	\$500,000
Bodily Injury by Disease (Policy Limit):	\$500,000

- D.2 Commercial General Liability insurance, which shall include a blanket contractual liability insuring the indemnification obligations of this Agreement, broad form property damage liability, and personal injury liability coverage extensions. Such policy shall not exclude X, C, U exposures. Commercial general liability policy shall include products and completed operations liability. Further, products and completed operations liability shall be maintained in full force and effect for a period of three (3) years following final completion of the Work. All coverage required under commercial general liability should be provided on an occurrence form with the following minimum limits: (Per Project Aggregate)

Each Occurrence	\$1,000,000
Personal & Adv. Injury	\$1,000,000
Products-Comp Op Agg	\$1,000,000
General Aggregate	\$2,000,000
Medical Expense	\$10,000

The required limits may be satisfied by a combination of a primary policy and an excess or umbrella policy.

- D.3 Umbrella form Excess liability coverage covering all work performed by the Subcontractor under this Contract.

<u>Umbrella Coverage</u>	<u>Contract Amount</u>
Less than \$1,000,000	Not Required
\$1,000,001-\$5,000,000	\$5,000,000
\$5,000,001-\$10,000,000	\$10,000,000
Greater than \$10,000,001	\$25,000,000

- D.4 Automobile Liability (Bodily Injury and Property Damage Liability) including coverage for all owned, non-owned, and hired automobiles. A compulsory Massachusetts automobile policy is acceptable for vehicles registered in Massachusetts only.

Bodily Injury (per Occurrence)	\$1,000,000
Property Damage (per Occurrence)	\$1,000,000
OR	
Bodily Injury and Property Damage (per occurrence)	\$1,000,000
Combined Single Limit	

The policy shall include a CA9948 Pollution Endorsement

- D.5 Contractor's Equipment Coverage on an "All Risk" basis, covering physical damage to all tools and equipment, including automotive equipment used by the Subcontractor with limits at least high enough to provide for replacement of items critical to Project efforts.

- D.6 Contractor's Pollution Liability

The subcontractor shall purchase and maintain coverage for bodily injury and property damage resulting from liability arising out of pollution related exposures such as asbestos abatement, lead paint abatement, tank removal, removal of contaminated soil, etc. The insurance policy shall cover the liability of the subcontractor during the process of removal, storage, transport and disposal of hazardous waste and contaminated soil and/or asbestos abatement. The policy shall include coverage for on-Site and off-Site bodily injury and loss of, damage to, or loss of use of property, directly or indirectly arising out of the discharge, dispersal, release or escape of smoke, vapors, soot, fumes, acids, alkalis, toxic chemicals, liquids or gas, waste materials or other irritants, contaminants or pollutants into or upon the land, the atmosphere or any water source or body of water, whether it be gradual or sudden and accidental. The policy shall also include defense and clean-up costs. The Owner and the MBLC shall be named as additional insureds and coverage must be on an occurrence basis. The amount of coverage shall be as follows unless a higher amount is specified in Section 8 below, in which case the CM shall provide the additional coverage:

Limit of Liability	\$1,000,000 per occurrence \$3,000,000 aggregate
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- D.7 If any operations performed within the scope of this Contract require the use of any aircraft or watercraft (owned or unowned), Subcontractor shall maintain liability insurance satisfactory to the Contractor.
- D.8 Fontaine/W.T. Rich LLC, CONSTRUCTION MANAGER shall be named "additional insured" on the General Liability, Automobile and Excess Liability (Umbrella) policies. General Liability Additional Insured status shall be specifically provided by Additional Insured Form CG2010(1185), or equivalent, and shall apply on a primary and non-contributing basis before any other Insurance or self-Insurance, including any

deductible, maintained by, or provided to the additional insureds, and shall be for the duration of the contract, including the Completed Operations Period. All policies shall be endorsed to Waive all Rights of Subrogation in favor of Fontaine/W.T. Rich, and CONSTRUCTION MANAGER. Policies shall not be canceled, materially changed or non-renewed without thirty (30) days advance notice to Fontaine/W.T. Rich, CONSTRUCTION MANAGER. *"Failure to provide Additional Insured status shall result in Fontaine/W.T. Rich purchasing and owners & Contractors Protective Liability policy (OCP) on behalf of the Subcontractor. The premium for this policy will be back-charged to your contract"*. In addition, THE OWNER, City of Worcester and Lamoureux Pagano & Associates, Inc. shall be added as additional insureds on the policies aforementioned.

- D.9 Such other kinds of insurance as may be required by the Contractor or by the General Contract Documents, each such policy to be in the amount stipulated in the General Contract Documents unless a different amount is hereinafter designated or is otherwise prescribed in writing by the Contractor.

D.10 Indemnification

To the fullest extent permitted by law, the subcontractor shall indemnify, defend (with counsel subject to the supervision of the Attorney General of the Commonwealth of Massachusetts as required by M.G.L. c.12, S. 3) and hold harmless Fontaine/W.T. Rich, the City of Worcester, The Owner, Lamoureux Pagano & Associates, Inc., and their officers, agents, divisions, agencies, employees, representatives, successors and assignees from and against all claims, damages, losses, and expenses, including but not limited to court costs and attorneys' fees, arising out of or resulting from the performance of the Work, including but not limited to those arising or resulting from:

- Labor performed or furnished and/or materials used or employed in the performance of the Work;
- Violations by the subcontractor, any sub-subcontractor, or by any person directly or indirectly employed or used by any of them in the performance of the Work or anyone for whose acts any of them may be liable of any laws;
- Violations of any provision of the Contract by the subcontractor, its suppliers or any other person or firm providing labor and/or materials for the work.;
- Injuries to any persons or damage to any property in connection with the Work; or
- Any act, omission, or neglect of subcontractor's Personnel.

The subcontract shall be obligated as provided above, regardless of whether or not such claims, damages, losses and/or expenses, are caused in whole or in part by the actions or inactions of a party indemnified hereunder. In any and all claims by the subcontractor's Personnel against parties indemnified hereunder, the subcontractor's indemnification obligation set forth above shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the subcontractor under worker's or workmen's compensation acts, disability benefit acts or other employee benefit acts. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described.

D.11 Waiver of Subrogation

Coverage shall include premium for temporary occupancy. Coverage shall include a Waiver of Subrogation in favor of Fontaine/W.T. Rich, Construction Manager, THE OWNER, City of Worcester and Lamoureux Pagano & Associates, Inc.

End of Section

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CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:		
	PHONE (A/C, No. Ext):	FAX (A/C, No):	
	E-MAIL ADDRESS:		
	INSURER(S) AFFORDING COVERAGE		NAIC #
	INSURER A :		
	INSURER B :		
INSURED	INSURER C :		
	INSURER D :		
	INSURER E :		
	INSURER F :		

COVERAGES**CERTIFICATE NUMBER:****REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE \$
	<input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence) \$
							MED EXP (Any one person) \$
							PERSONAL & ADV INJURY \$
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE \$
	<input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC						PRODUCTS - COMP/OP AGG \$
	OTHER:						\$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident) \$
	<input type="checkbox"/> ANY AUTO						BODILY INJURY (Per person) \$
	<input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS						BODILY INJURY (Per accident) \$
	<input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident) \$
							\$
	UMBRELLA LIAB <input type="checkbox"/> OCCUR						EACH OCCURRENCE \$
	EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE						AGGREGATE \$
	DED <input type="checkbox"/> RETENTION \$						\$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						<input type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) <input type="checkbox"/> Y / N <input type="checkbox"/> N / A						E.L. EACH ACCIDENT \$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE \$
							E.L. DISEASE - POLICY LIMIT \$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER**CANCELLATION**

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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FINAL BID PACKAGE SCHEDULE

Activity ID	Activity Name	Orig Dur (Days)	% Comp	Start	Finish																																
						Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2					
PERM 1010	Building Permit	20	0%	06/Feb/19	06/Mar/19	<div>Building Permit</div>																															
Submittals & Fabrication		439		11/Jun/18 A	01/Jun/20	<div>Early Enabling Work - EP1</div> <div>Site Work - EP2</div> <div>Cast-In-Place Concrete - EP3</div> <div>Retaining Wall 21, 22 & 23</div> <div>Structural Steel - EP3</div> <div>Steel Anchor Bolts</div> <div>HVAC Basic Materials</div> <div>Plumbing Basic Materials</div> <div>Electrical Basic Materials</div> <div>Fire Protection</div> <div>HVAC Roof Top Units - Submittal for Steel</div> <div>Roof Systems</div> <div>Framing and Sheathing</div> <div>Doors Frames</div> <div>Photovoltaic System</div> <div>Miscellaneous Metals</div> <div>Transformers</div> <div>Switch Gear</div> <div>Curtainwalls</div> <div>Storefronts</div> <div>Windows</div> <div>Boilers, Chillers</div> <div>HVAC Pumps & Equipment</div> <div>Masonry Veneer</div> <div>Metal Wall Panels</div> <div>Fiber Cement Wall Panel System</div> <div>Elevators</div> <div>Applied Fire Proofing</div> <div>WDC</div> <div>HVAC Roof Top Units - Fabrication</div> <div>Paint</div> <div>Finish Carpentry</div> <div>Flooring, Resilient, Linoleum, Rubber</div> <div>Porcelain Tile</div> <div>Carpeting</div> <div>Casework/Cabinetry</div> <div>Countertops</div> <div>Doors and Hardware</div> <div>Plumbing Fixtures</div> <div>Terrazzo Flooring</div> <div>Epoxy Flooring, Sealed Concrete Flooring</div> <div>Resilient Athletic/Wood Flooring</div> <div>Laboratory Equipment/Hoods</div> <div>Fire Stopping</div> <div>Joint Sealants</div> <div>Signage</div> <div>RestroomAccessories</div> <div>Appliances</div> <div>Gymnasium Equipment</div> <div>Theater Equipment</div> <div>Food Service Equipment</div> <div>Landscaping</div> <div>Site Furnishings</div>																															
SUB1015	Early Enabling Work - EP1	10	100%	11/Jun/18 A	22/Jun/18 A																																
SUB1020	Site Work - EP2	5	100%	01/Nov/18 A	21/Dec/18 A																																
SUB1030	Cast-In-Place Concrete - EP3	40	15%	15/Jan/19 A	08/Mar/19																																
SUB1090	Retaining Wall 21, 22 & 23	40	0%	21/Jan/19	18/Mar/19																																
SUB1100	Structural Steel - EP3	110	0%	24/Jan/19	28/Jun/19																																
SUB1180	Steel Anchor Bolts	40	0%	25/Jan/19	22/Mar/19																																
SUB1270	HVAC Basic Materials	60	0%	10/Apr/19	03/Jul/19																																
SUB1280	Plumbing Basic Materials	60	0%	10/Apr/19	03/Jul/19																																
SUB1290	Electrical Basic Materials	65	0%	10/Apr/19	11/Jul/19																																
SUB1300	Fire Protection	100	0%	10/Apr/19	29/Aug/19																																
SUB1330	HVAC Roof Top Units - Submittal for Steel	35	0%	10/Apr/19	29/May/19																																
SUB1360	Roof Systems	70	0%	10/Apr/19	18/Jul/19																																
SUB1060	Framing and Sheathing	100	0%	10/Apr/19	29/Aug/19																																
SUB1470	Doors Frames	100	0%	10/Apr/19	29/Aug/19																																
SUB1025	Photovoltaic System	120	0%	10/Apr/19	27/Sep/19																																
SUB1050	Miscellaneous Metals	100	0%	10/Apr/19	30/Aug/19																																
SUB1420	Transformers	140	0%	10/Apr/19	28/Oct/19																																
RW3 1000	Switch Gear	140	0%	10/Apr/19	28/Oct/19																																
SUB1040	Curtainwalls	150	0%	10/Apr/19	11/Nov/19																																
SUB1440	Storefronts	150	0%	10/Apr/19	11/Nov/19																																
SUB1110	Windows	150	0%	10/Apr/19	11/Nov/19																																
SUB1320	Boilers, Chillers	120	0%	10/Apr/19	30/Sep/19																																
SUB1340	HVAC Pumps & Equipment	140	0%	10/Apr/19	28/Oct/19																																
SUB1230	Masonry Veneer	110	0%	10/Apr/19	16/Sep/19																																
SUB1490	Metal Wall Panels	110	0%	10/Apr/19	16/Sep/19																																
SUB1500	Fiber Cement Wall Panel System	110	0%	10/Apr/19	16/Sep/19																																
SUB1430	Elevators	160	0%	10/Apr/19	27/Nov/19																																
SUB1450	Applied Fire Proofing	70	0%	11/Apr/19	22/Jul/19																																
SUB1480	WDC	70	0%	11/Apr/19	22/Jul/19																																
SUB1460	HVAC Roof Top Units - Fabrication	100	0%	30/May/19	18/Oct/19																																
SUB1200	Paint	100	0%	03/Jul/19	26/Nov/19																																
SUB1120	Finish Carpentry	120	0%	05/Jul/19	24/Dec/19																																
SUB1130	Flooring, Resilient, Linoleum, Rubber	120	0%	05/Jul/19	24/Dec/19																																
SUB1140	Porcelain Tile	120	0%	05/Jul/19	24/Dec/19																																
SUB1150	Carpeting	100	0%	05/Jul/19	26/Nov/19																																
SUB1160	Casework/Cabinetry	110	0%	05/Jul/19	10/Dec/19																																
SUB1170	Countertops	110	0%	05/Jul/19	10/Dec/19																																
SUB1190	Doors and Hardware	100	0%	05/Jul/19	26/Nov/19																																
SUB1370	Plumbing Fixtures	100	0%	05/Jul/19	26/Nov/19																																
SUB1510	Terrazzo Flooring	150	0%	05/Jul/19	06/Feb/20																																
SUB1520	Epoxy Flooring, Sealed Concrete Flooring	100	0%	05/Jul/19	26/Nov/19																																
SUB1530	Resilient Athletic/Wood Flooring	120	0%	05/Jul/19	24/Dec/19																																
SUB1540	Laboratory Equipment/Hoods	100	0%	05/Jul/19	26/Nov/19																																
SUB1070	Fire Stopping	60	0%	30/Sep/19	24/Dec/19																																
SUB1080	Joint Sealants	60	0%	30/Sep/19	24/Dec/19																																
SUB1210	Signage	120	0%	28/Oct/19	17/Apr/20																																
SUB1220	RestroomAccessories	80	0%	28/Oct/19	21/Feb/20																																
SUB1240	Appliances	100	0%	28/Oct/19	20/Mar/20																																
SUB1550	Gymnasium Equipment	100	0%	28/Oct/19	20/Mar/20																																
SUB1560	Theater Equipment	100	0%	28/Oct/19	20/Mar/20																																
SUB1570	Food Service Equipment	150	0%	28/Oct/19	01/Jun/20																																
SUB1310	Landscaping	100	0%	27/Nov/19	17/Apr/20																																
SUB1400	Site Furnishings	120	0%	27/Nov/19	15/May/20																																
MEP BIM/3D Coordination		74		25/Apr/19	08/Aug/19																																
M1060	MEP Kick-off Meeting	1	0%	25/Apr/19	25/Apr/19																																
M1050	Coordinate and Sign-off - Underslab MEP's	30	0%	25/Apr/19	07/Jun/19																																
M1080	Coordinate and Sign-off - Underslab MEP Shafts	30	0%	25/Apr/19	07/Jun/19																																
M1070	Coordinate and Sign-off - Roof	30	0%	15/May/19	26/Jun/19																																
4F1000	Coordinate and Sign-off - Third Floor	30	0%	30/May/19	11/Jul/19																																
M1000	Coordinate and Sign-off - Second Floor	30	0%	13/Jun/19	25/Jul/19																																
M1030	Coordinate and Sign-off - First Floor	30	0%	27/Jun/19	08/Aug/19																																
Mock Ups		234		15/Apr/19	17/Mar/20																																
Exterior Mock Up		61		15/Apr/19	10/Jul/19																																

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- Summary
- Actual Work
- Remaining Work
- Remaining Level of Effort
- Critical Remaining Work
- Actual Milestone
- Milestone
- Critical Milestone

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



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W.T. Rich Company, Inc.

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[illegible]

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	Summary		Critical Remaining Work
	Actual Work		Actual Milestone
	Remaining Work		Milestone
	Remaining Level of Effort		Critical Milestone

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W.T. Rich Company, Inc.

FINAL BID PACKAGE SCHEDULE	
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Activity ID	Activity Name	Orig Dur (Days)	% Comp	Start	Finish	2018					2019				2020			2021				2022				2023				2024																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
						Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Site 2050	Install Site Lighting at Roads North, East and West of Existing Bldg	20	0%	27/Jul/20	21/Aug/20																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

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	Remaining Work		Milestone
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FINAL BID PACKAGE SCHEDULE

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						Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	FDK 1000	Excavate for wall Footings Kitchen	30	0%	13/May/19	24/Jun/19																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							

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FINAL BID PACKAGE SCHEDULE

[illegible]

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W.T. Rich Company, Inc.

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						Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
	Slab-on-Grade Auto Shop, PreK	55		07/Nov/19	28/Jan/20																											
B2slb 250	Install Under slab MEP and drainage	40	0%	07/Nov/19	07/Jan/20																											
B2slb 260	Prep and Place SOG - Ground FloorAuto Shop, PreK	15	0%	08/Jan/20	28/Jan/20																											
	Egress Stairs & CMU Walls	68		28/Nov/19	05/Mar/20																											
B2slb 120	Construct Stair & elevator shaft	30	0%	28/Nov/19	10/Jan/20																											
B2slb 200	Construct CMU Walls, Gym , Automotive	60	0%	28/Nov/19	24/Feb/20																											
B2slb 100	Install metal pan stairs	40	0%	10/Dec/19	05/Feb/20																											
B2slb 110	Place concrete stairs	20	0%	06/Feb/20	05/Mar/20																											
	Fire Proofing	107		23/Oct/19	26/Mar/20																											
FP 100	Pod 1 - Install MEP Hangers & Dry Wall Clips	20	0%	23/Oct/19	19/Nov/19																											
FP 110	Pod 1 Fire Proofing	20	0%	06/Nov/19	05/Dec/19																											
FP 200	Pod 2 - Install MEP Hangers & Dry Wall Clips	20	0%	20/Nov/19	19/Dec/19																											
FP 210	Pod 2 Fire Proofing	20	0%	06/Dec/19	06/Jan/20																											
FP 300	Pod 3 - Install MEP Hangers & Dry Wall Clips	20	0%	20/Dec/19	20/Jan/20																											
FP 310	Pod 3 Fire Proofing	20	0%	07/Jan/20	03/Feb/20																											
FPA 500	Building B1 - Install MEP Hangers & Dry Wall Clips Auditorium	20	0%	10/Jan/20	06/Feb/20																											
FPA 510	Building B1 Fire proofing	20	0%	24/Jan/20	21/Feb/20																											
FPK 400	Building AB - Install MEP Hangers & Dry Wall Clips	20	0%	27/Jan/20	24/Feb/20																											
FPK 410	Building AB Fire Proofing	20	0%	10/Feb/20	09/Mar/20																											
FPG 600	B2 Install MEP Hangers & Dry Wall Clips	20	0%	13/Feb/20	12/Mar/20																											
FPG 610	Building B2 Apply Spray & Intumescent Fire Proofing (Gym, Shops)	20	0%	28/Feb/20	26/Mar/20																											
	Roofing	250		04/Sep/19	27/Aug/20																											
	Roofing and Roof Mounted Items Academics Pod 1	190		04/Sep/19	03/Jun/20																											
A1ROO1000	Install roof blocking and mechanical curbs	15	0%	04/Sep/19	24/Sep/19																											
A1ROO1030	Install Roof Leaders	10	0%	11/Sep/19	24/Sep/19																											
A1ROO1020	Install roofing system	15	0%	02/Oct/19	22/Oct/19																											
A1ROO1040	Install rooftop HVAC units and other equipment	15	0%	23/Oct/19	12/Nov/19																											
A1ROO1050	Roofing work complete	0	0%	13/Nov/19	13/Nov/19																											
A1ROO1060	Install Solar PV System	20	0%	05/May/20	03/Jun/20																											
	Roofing and Roof Mounted Items Academic Pod 2	190		02/Oct/19	01/Jul/20																											
A2ROO1000	Install roof blocking and mechanical curbs	15	0%	02/Oct/19	22/Oct/19																											
A2ROO1030	Install Roof Leaders	10	0%	16/Oct/19	29/Oct/19																											
A2ROO1020	Install roofing system	15	0%	30/Oct/19	19/Nov/19																											
A2ROO1040	Install rooftop HVAC units and other equipment	15	0%	20/Nov/19	12/Dec/19																											
A2ROO1050	Roofing work complete	0	0%	04/Feb/20	04/Feb/20																											
A1000	Install Solar PV System	20	0%	03/Jun/20	01/Jul/20																											
	Roofing and Roof Mounted Items Academic Pod 3	195		23/Oct/19	30/Jul/20																											
A3ROO1000	Install roof blocking and mechanical curbs	15	0%	23/Oct/19	12/Nov/19																											
A3ROO1030	Install Roof Leaders	10	0%	06/Nov/19	19/Nov/19																											
A3ROO1020	Install roofing system	15	0%	29/Nov/19	19/Dec/19																											
A3ROO1040	Install rooftop HVAC units and other equipment	15	0%	20/Dec/19	13/Jan/20																											
A3ROO1050	Roofing work complete	0	0%	14/Jan/20	14/Jan/20																											
A1010	Install Solar PV System	20	0%	01/Jul/20	30/Jul/20																											
	Roofing and Roof Mounted Items B1	193		26/Nov/19	27/Aug/20																											
CROOF 1010	Install roof blocking and mechanical curbs	15	0%	26/Nov/19	16/Dec/19																											
CROOF 1000	Install roofing system	20	0%	11/Dec/19	09/Jan/20																											

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Activity ID	Activity Name	Orig Dur (Days)	% Comp	Start	Finish	2018					2019				2020			2021				2022				2023				2024	
						Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2			
B2ROO 170	Install Solar PV System	20	0%	30/Jul/20	27/Aug/20	<div><div></div> Install Solar PV System</div>																									
Envelope		258		28/May/19	02/Jun/20																										
Envelope Academic Pod 1		105		26/Sep/19	27/Feb/20																										
A1EX1000	Frame and Sheath Exterior Walls Pod 1	40	0%	26/Sep/19	20/Nov/19																										
A1EX1010	Install Air-Vapor Barrier	10	0%	24/Oct/19	06/Nov/19																										
A1EX1100	Install Masonry Veneer	30	0%	07/Nov/19	20/Dec/19																										
A1EX1020	Install Windows	20	0%	23/Dec/19	21/Jan/20																										
A1EX1040	Install Storefronts	20	0%	23/Dec/19	21/Jan/20																										
A1EX1030	Install Curtain Walls	20	0%	23/Dec/19	21/Jan/20																										
A1EX1060	Building Weather tight (for finishes)	0	0%	22/Jan/20	22/Jan/20																										
A1EX1050	Install Fiber Cement Panels	25	0%	22/Jan/20	26/Feb/20																										
A1EX1090	Install Metal Wall Panels	15	0%	22/Jan/20	11/Feb/20																										
A1EX1070	Exterior Envelope Complete Pod 1	0	0%	27/Feb/20	27/Feb/20																										
Envelope Academic Pod 2		100		24/Oct/19	19/Mar/20																										
A2EX1000	Frame and Sheath Exterior Walls Pod 2	40	0%	24/Oct/19	20/Dec/19																										
A2EX1020	Install Air-Vapor Barrier	10	0%	25/Nov/19	06/Dec/19																										
A2EX1080	Install Masonry Veneer	30	0%	09/Dec/19	21/Jan/20																										
A2EX1030	Install Windows	20	0%	22/Jan/20	19/Feb/20																										
A2EX1040	Install Storefronts	20	0%	22/Jan/20	19/Feb/20																										
A2EX1010	Install Curtain Walls	20	0%	22/Jan/20	19/Feb/20																										
A2EX1050	Install Fiber Cement Panels	25	0%	12/Feb/20	18/Mar/20																										
A2EX1090	Install Metal Wall Panels	15	0%	12/Feb/20	04/Mar/20																										
A2EX1060	Building Weather tight (for finishes)	0	0%	20/Feb/20	20/Feb/20																										
A2EX1070	Exterior Envelope Complete Pod 2	0	0%	19/Mar/20	19/Mar/20																										
Envelope Academic Pod 3		225		28/May/19	16/Apr/20																										
A3EX1100	Waterproof Elevator Pit exterior	5	0%	28/May/19	03/Jun/19																										
A3EX1000	Frame and Sheath Exterior Walls Pod 3	40	0%	25/Nov/19	21/Jan/20																										
A3EX1010	Install Air-Vapor Barrier	10	0%	23/Dec/19	07/Jan/20																										
A3EX1090	Install Masonry Veneer	30	0%	08/Jan/20	19/Feb/20																										
A3EX1020	Install Windows	20	0%	20/Feb/20	18/Mar/20																										
A3EX1040	Install Storefronts	20	0%	20/Feb/20	18/Mar/20																										
A3EX1030	Install Curtain Walls	20	0%	20/Feb/20	18/Mar/20																										
A3EX1050	Install Fiber Cement Panels	25	0%	12/Mar/20	15/Apr/20																										
A3EX1080	Install Metal Wall Panels	15	0%	12/Mar/20	01/Apr/20																										
A3EX1060	Building Weather tight (for finishes)	0	0%	19/Mar/20	19/Mar/20																										
A3EX1070	Exterior Envelope Complete Pod 3	0	0%	16/Apr/20	16/Apr/20																										
Exterior Envelope AB		95		05/Dec/19	21/Apr/20																										
KEXT 2010	Frame and Sheath Exterior Wall Kitchen, Caf	20	0%	05/Dec/19	03/Jan/20																										
KEXT 2040	Install Air-Vapor Barrier	10	0%	19/Dec/19	03/Jan/20																										
KEXT 2120	Install Masonry Veneer	20	0%	06/Jan/20	31/Jan/20																										
KEXT 2050	Install Windows	20	0%	03/Feb/20	02/Mar/20																										
KEXT 2060	Install Curtainwalls	20	0%	03/Feb/20	02/Mar/20																										
KEXT 2070	Install Storefronts	20	0%	18/Feb/20	16/Mar/20																										
KEXT 2130	Install Metal Wall Panels	25	0%	03/Mar/20	06/Apr/20																										
KEXT 2110	Install Fiber Cement Panels	30	0%	10/Mar/20	20/Apr/20																										
KEXT 2090	Building Weather tight (for finishes)	0	0%	17/Mar/20	17/Mar/20																										
KEXT 2100	Exterior Envelope Complete	0	0%	21/Apr/20	21/Apr/20																										
Exterior Envelope B1		110		26/Nov/19	30/Apr/20																										
B1EXT 2010	Frame and Sheath Exterior Walls	20	0%	26/Nov/19	23/Dec/19																										
B1EXT 2040	Install Air-Vapor Barrier	15	0%	10/Dec/19	31/Dec/19																										
B1EXT 2130	Install Masonry Veneer	30	0%	02/Jan/20	12/Feb/20																										
B1EXT 2050	Install Windows	20	0%	13/Feb/20	12/Mar/20																										
B1EXT 2070	Install Storefronts	20	0%	13/Feb/20	12/Mar/20																										
B1EXT 2060	Install Curtain Walls	30	0%	13/Feb/20	26/Mar/20																										
B1EXT 2110	Install Fiber Cement Panels	20	0%	06/Mar/20	02/Apr/20																										
B1EXT 2140	Install Metal Wall Panels	20	0%	06/Mar/20	02/Apr/20																										
B1EXT 2100	Exterior Envelope Complete	0	0%		02/Apr/20																										
B1EXT 2120	Install Translucent Panels	20	0%	03/Apr/20	30/Apr/20																										
B1EXT 2090	Building Weather tight for finishes/TAB	0	0%		30/Apr/20																										
Exterior Envelope B2		110		27/Dec/19	02/Jun/20																										
B2EXT 100	Frame and Sheath Exterior Walls	20	0%	27/Dec/19	24/Jan/20																										
B2EXT 110	Install Air-Vapor Barrier	15	0%	13/Jan/20	31/Jan/20																										
B2EXT 190	Install Masonry Veneer	30	0%	03/Feb/20	16/Mar/20																										
B2EXT 120	Install Windows	20	0%	17/Mar/20	13/Apr/20																										
B2EXT 150	Install Storefronts	20	0%	17/Mar/20	13/Apr/20																										

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Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2							
B2EXT 160	Install Curtain Walls	30	0%	17/Mar/20	27/Apr/20																																				
B2EXT 170	Install Fiber Cement Panels	20	0%	07/Apr/20	04/May/20																																				
B2EXT 200	Install Metal Wall Panels	20	0%	07/Apr/20	04/May/20																																				
B2EXT 130	Building Weather tight for finishes/TAB	0	0%		27/Apr/20																																				
B2EXT 180	Install Translucent Panels	20	0%	05/May/20	02/Jun/20																																				
B2EXT 140	Exterior Envelope Complete	0	0%		02/Jun/20																																				
Interiors		323		13/Nov/19	23/Feb/21																																				
Academic Pods		265		13/Nov/19	01/Dec/20																																				
Pod 1		216		13/Nov/19	21/Sep/20																																				
First Floor Rough-in		60		13/Nov/19	10/Feb/20																																				
A1R 1000	Start Rough-in Work - First Floor	0	0%	13/Nov/19																																					
A1R 1010	Rough-in HVAC duct work	20	0%	13/Nov/19	12/Dec/19																																				
A1R 1020	Frame interior partitions w/door frames & blocking	20	0%	13/Nov/19	12/Dec/19																																				
A1R 1030	Rough-in plumbing	15	0%	13/Nov/19	05/Dec/19																																				
A1R 1040	Rough-in HVAC piping	15	0%	29/Nov/19	19/Dec/19																																				
A1R 1050	Rough-in sprinkler	15	0%	06/Dec/19	27/Dec/19																																				
A1R 1060	Rough-in electrical power, lighting	20	0%	13/Dec/19	13/Jan/20																																				
A1R 1080	Rough-in fire alarm	20	0%	30/Dec/19	27/Jan/20																																				
A1R 1090	Rough-in tel-data/security/PV	20	0%	30/Dec/19	27/Jan/20																																				
A1R 1070	Rough-in ATC controls	15	0%	07/Jan/20	27/Jan/20																																				
A1R 1100	MEP Inspections	10	0%	28/Jan/20	10/Feb/20																																				
A1R 1110	Complete Rough-in First Floor	0	0%		10/Feb/20																																				
Second Floor Rough-in		60		29/Nov/19	25/Feb/20																																				
A2R 1000	Start Rough-in Work - Second Floor	0	0%	29/Nov/19																																					
A2R 1010	Rough-in HVAC duct work	20	0%	29/Nov/19	27/Dec/19																																				
A2R 1020	Frame interior partitions w/door frames & blocking	20	0%	29/Nov/19	27/Dec/19																																				
A2R 1030	Rough-in plumbing	15	0%	29/Nov/19	19/Dec/19																																				
A2R 1040	Rough-in HVAC piping	15	0%	13/Dec/19	06/Jan/20																																				
A2R 1050	Rough-in sprinkler	15	0%	20/Dec/19	13/Jan/20																																				
A2R 1060	Rough-in electrical power, lighting	20	0%	30/Dec/19	27/Jan/20																																				
A2R 1080	Rough-in fire alarm	20	0%	14/Jan/20	10/Feb/20																																				
A2R 1090	Rough-in tel-data/security/PV	20	0%	14/Jan/20	10/Feb/20																																				
A2R 1070	Rough-in ATC controls	15	0%	21/Jan/20	10/Feb/20																																				
A2R 1100	MEP Inspections	10	0%	11/Feb/20	25/Feb/20																																				
A2R 1110	Complete Rough-in Second Floor	0	0%		25/Feb/20																																				
Third Floor Rough-in		60		13/Dec/19	10/Mar/20																																				
A3R 1000	Start Rough-in Work - Third Floor	0	0%	13/Dec/19																																					
A3R 1010	Rough-in HVAC duct work	20	0%	13/Dec/19	14/Jan/20																																				
A3R 1020	Frame interior partitions w/door frames & blocking	20	0%	13/Dec/19	14/Jan/20																																				
A3R 1030	Rough-in plumbing	15	0%	13/Dec/19	07/Jan/20																																				
A3R 1040	Rough-in HVAC piping	15	0%	30/Dec/19	21/Jan/20																																				
A3R 1050	Rough-in sprinkler	15	0%	07/Jan/20	28/Jan/20																																				
A3R 1060	Rough-in electrical power, lighting	20	0%	14/Jan/20	11/Feb/20																																				
A3R 1090	Rough-in tel-data/security/PV	20	0%	21/Jan/20	19/Feb/20																																				
A3R 1080	Rough-in fire alarm	20	0%	28/Jan/20	26/Feb/20																																				
A3R 1070	Rough-in ATC controls	15	0%	04/Feb/20	26/Feb/20																																				
A3R 1100	MEP Inspections	10	0%	25/Feb/20	10/Mar/20																																				
A3R 1110	Complete Rough-in Third Floor	0	0%		10/Mar/20																																				
First Floor Finishes		134		10/Feb/20	18/Aug/20																																				
A1F 1000	Start Finishes - First Floor	0	0%	10/Feb/20																																					
A1F 1010	Building Insulation	10	0%	10/Feb/20	24/Feb/20																																				
A1F 1020	Plumbing Insulation	10	0%</																																						

Start Date: 18/Oct/17

Finish Date: 29/Jul/22

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Layout: WSH Subs

Summary

Actual Work

Remaining Work

Remaining Level of Effort

Critical Remaining Work

Actual Milestone

Milestone

Critical Milestone

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Note: The projections are based upon activity earning type and performance to-date on in-progress activities. Every precaution has been taken to ensure this report is accurate and up-to-date. No liability is assumed for errors or omissions. Rounding errors may exist.

W.T. Rich Company, Inc.

FINAL BID PACKAGE SCHEDULE

Activity ID	Activity Name	Orig Dur (Days)	% Comp	Start	Finish		2018					2019				2020				2021				2022				2023				2024	
						Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
	A1F 1280 Epoxy Floor Prep & Finish	10	0%	04/May/20	15/May/20																												
	A1F 1170 Toilet plumbing fixtures	5	0%	18/May/20	22/May/20																												
	A1F 1140 Millwork and casework	20	0%	22/May/20	19/Jun/20																												
	A1F 1200 Fire Alarm devices and finishes	8	0%	22/May/20	03/Jun/20																												
	A1F 1210 Floor prep & finishes (Reslient & Carpet)	20	0%	08/Jun/20	06/Jul/20																												
	A1F 1190 Finish painting/acoustical wall panels	15	0%	29/Jun/20	20/Jul/20																												
	A1F 1110 Doors and hardware	10	0%	07/Jul/20	20/Jul/20																												
	A1F 1270 Glass & Glazing	1	0%	07/Jul/20	07/Jul/20																												
	A1F 1240 Misc. Division 10, 11, and 12	10	0%	15/Jul/20	28/Jul/20																												
	A1F 1220 ATC finishes	5	0%	21/Jul/20	27/Jul/20																												
	A1F 1230 Electrical finishes and trim-out	5	0%	21/Jul/20	27/Jul/20																												
	A1F 1250 Clean-up and work list	15	0%	29/Jul/20	18/Aug/20																												
	A1F 1260 Complete Finishes - First Floor	0	0%		18/Aug/20																												
	Second Floor Finishes	137		25/Feb/20	04/Sep/20																												
	A2F 1000 Start Finishes - Second Floor	0	0%	25/Feb/20																													
	A2F 1010 Building Insulation	10	0%	25/Feb/20	09/Mar/20																												
	A2F 1020 Plumbing Insulation	10	0%	25/Feb/20	09/Mar/20																												
	A2F 1030 HVAC Insulation	15	0%	25/Feb/20	16/Mar/20																												
	A2F 1050 Hang Drywall pod 1 level 2	20	0%	16/Mar/20	10/Apr/20																												
	A2F 1060 Drywall Tape and Finish pod 1 level 2	20	0%	23/Mar/20	17/Apr/20																												
	A2F 1070 Painting - prime and one finish coat	10	0%	06/Apr/20	17/Apr/20																												
	A2F 1120 Install wall tile	10	0%	06/Apr/20	17/Apr/20																												
	A2F 1080 Acoustical ceiling grid	15	0%	09/Apr/20	29/Apr/20																												
	A2F 1040 HVAC terminal equipment	15	0%	16/Apr/20	06/May/20																												
	A2F 1090 Light fixtures	15	0%	16/Apr/20	06/May/20																												
	A2F 1100 Interior storefronts/glass and glazing	8	0%	20/Apr/20	29/Apr/20																												
	A2F 1130 Sprinkler drops and heads	10	0%	20/Apr/20	01/May/20																												
	A2F 1280 Epoxy Floor Prep & Finish	10	0%	20/Apr/20	01/May/20																												
	A2F 1150 HVAC drops/RGD's	10	0%	30/Apr/20	13/May/20																												
	A2F 1170 Toilet plumbing fixtures	5	0%	04/May/20	08/May/20																												
	A2F 1160 Sprinkler Pipe Test	4	0%	04/May/20	07/May/20																												
	A2F 1180 Acoustical ceilings finish	15	0%	08/May/20	29/May/20																												
	A2F 1200 Fire Alarm devices and finishes	8	0%	01/Jun/20	10/Jun/20																												
	A2F 1140 Millwork and casework	20	0%	17/Jun/20	16/Jul/20																												
	A2F 1290 Laboratory Equipment/Hoods	20	0%	17/Jun/20	16/Jul/20																												
	A2F 1300 Epoxy Countertops	20	0%	17/Jun/20	16/Jul/20																												
	A2F 1210 Floor prep & finishes (Reslient & Carpet)	20	0%	01/Jul/20	30/Jul/20																												
	A2F 1190 Finish painting/acoustical wall panels	10	0%	23/Jul/20	06/Aug/20																												
	A2F 1110 Doors and hardware	5	0%	30/Jul/20	06/Aug/20																												
	A2F 1270 Glass & Glazing	8	0%	30/Jul/20	11/Aug/20																												
	A2F 1240 Misc. Division 10, 11, and 12	10	0%	31/Jul/20	14/Aug/20																												
	A2F 1220 ATC finishes	5	0%	06/Aug/20	13/Aug/20																												
	A2F 1230 Electrical finishes and trim-out	5	0%	06/Aug/20	13/Aug/20																												
	A2F 1250 Clean-up and work list	15	0%	14/Aug/20	04/Sep/20																												
	A2F 1260 Complete Finishes - Second Floor	0	0%		04/Sep/20																												
	Third Floor Finishes	136		10/Mar/20	21/Sep/20																												
	A3F 1000 Start Finishes - Third Floor	0	0%	10/Mar/20																													
	A3F 1010 Building Insulation	10	0%	10/Mar/20	24/Mar/20																												
	A3F 1020 Plumbing Insulation	10	0%	10/Mar/20	24/Mar/20																												
	A3F 1030 HVAC Insulation	15	0%	10/Mar/20	31/Mar/20	</																											

Start Date: 18/Oct/17

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Note: The projections are based upon activity earning type and performance to-date on in-progress activities. Every precaution has been taken to ensure this report is accurate and up-to-date. No liability is assumed for errors or omissions. Rounding errors may exist.

W.T. Rich Company, Inc.

FINAL BID PACKAGE SCHEDULE

Activity ID	Activity Name	Orig Dur (Days)	% Comp	Start	Finish		2018					2019				2020				2021				2022				2023				2024	
						Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
	A3F 1170	Toilet plumbing fixtures	5	0%	09/Jun/20	15/Jun/20																											
	A3F 1210	Floor prep & finishes (Reslient Linoleum)	20	0%	10/Jun/20	09/Jul/20																											
	A3F 1200	Fire Alarm devices and finishes	8	0%	17/Jun/20	29/Jun/20																											
	A3F 1190	Finish painting/acoustical wall panels	10	0%	24/Jun/20	09/Jul/20																											
	A3F 1240	Misc. Division 10, 11, and 12	10	0%	26/Jun/20	13/Jul/20																											
	A3F 1110	Doors and hardware	5	0%	01/Jul/20	09/Jul/20																											
	A3F 1270	Glass & Glazing	5	0%	01/Jul/20	09/Jul/20																											
	A3F 1220	ATC finishes	5	0%	06/Jul/20	13/Jul/20																											
	A3F 1230	Electrical finishes and trim-out	5	0%	06/Jul/20	13/Jul/20																											
	A3F 1250	Clean-up and work list	15	0%	07/Jul/20	28/Jul/20																											
	A3F 1260	Complete Finishes - Third Floor	0	0%		21/Sep/20																											
Pod 2			216		07/Jan/20	09/Nov/20																											
First Floor Rough-in			60		07/Jan/20	31/Mar/20																											
B1R 1000	Start Rough-in Work - First Floor		0	0%	07/Jan/20																												
B1R 1010	Rough-in HVAC duct work		20	0%	07/Jan/20	03/Feb/20																											
B1R 1020	Frame interior partitions w/door frames & blocking		20	0%	07/Jan/20	03/Feb/20																											
B1R 1030	Rough-in plumbing		15	0%	07/Jan/20	27/Jan/20																											
B1R 1040	Rough-in HVAC piping		15	0%	21/Jan/20	10/Feb/20																											
B1R 1050	Rough-in sprinkler		15	0%	28/Jan/20	18/Feb/20																											
B1R 1060	Rough-in electrical power, lighting		20	0%	04/Feb/20	03/Mar/20																											
B1R 1080	Rough-in fire alarm		20	0%	19/Feb/20	17/Mar/20																											
B1R 1090	Rough-in tel-data/security/PV		20	0%	19/Feb/20	17/Mar/20																											
B1R 1070	Rough-in ATC controls		15	0%	26/Feb/20	17/Mar/20																											
B1R 1100	MEP Inspections		10	0%	18/Mar/20	31/Mar/20																											
B1R 1110	Complete Rough-in First Floor		0	0%		31/Mar/20																											
Second Floor Rough-in			60		21/Jan/20	14/Apr/20																											
B2R 1000	Start Rough-in Work - Second Floor		0	0%	21/Jan/20																												
B2R 1010	Rough-in HVAC duct work		20	0%	21/Jan/20	18/Feb/20																											
B2R 1020	Frame interior partitions w/door frames & blocking		20	0%	21/Jan/20	18/Feb/20																											
B2R 1030	Rough-in plumbing		15	0%	21/Jan/20	10/Feb/20																											
B2R 1040	Rough-in HVAC piping		15	0%	04/Feb/20	25/Feb/20																											
B2R 1050	Rough-in sprinkler		15	0%	11/Feb/20	03/Mar/20																											
B2R 1060	Rough-in electrical power, lighting		20	0%	19/Feb/20	17/Mar/20																											
B2R 1080	Rough-in fire alarm		20	0%	04/Mar/20	31/Mar/20																											
B2R 1090	Rough-in tel-data/security/PV		20	0%	04/Mar/20	31/Mar/20																											
B2R 1070	Rough-in ATC controls		15	0%	11/Mar/20	31/Mar/20																											
B2R 1100	MEP Inspections		10	0%	01/Apr/20	14/Apr/20																											
B2R 1110	Complete Rough-in Second Floor		0	0%		14/Apr/20																											
Third Floor Rough-in			60		20/Feb/20	13/May/20																											
B3R 1000	Start Rough-in Work - Third Floor		0	0%	20/Feb/20																												
B3R 1010	Rough-in HVAC duct work		20	0%	20/Feb/20	18/Mar/20																											
B3R 1020	Frame interior partitions w/door frames & blocking		20	0%	20/Feb/20	18/Mar/20																											
B3R 1030	Rough-in plumbing		15	0%	20/Feb/20	11/Mar/20																											
B3R 1040	Rough-in HVAC piping		15	0%	05/Mar/20	25/Mar/20																											
B3R 1050	Rough-in sprinkler		15	0%	12/Mar/20	01/Apr/20																											
B3R 1060	Rough-in electrical power, lighting		20	0%	19/Mar/20	15/Apr/20																											
B3R 1080	Rough-in fire alarm		20	0%	02/Apr/20	29/Apr/20																											
B3R 1090	Rough-in tel-data/security/PV		20	0%	02/Apr/20	29/Apr/20																											
B3R 1070	Rough-in ATC controls		15	0%	09/Apr/20	29/Apr/20																											

Start Date: 18/Oct/17

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Summary

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Worcester South High Community School

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Note: The projections are based upon activity earning type and performance to-date on in-progress activities. Every precaution has been taken to ensure this report is accurate and up-to-date. No liability is assumed for errors or omissions. Rounding errors may exist.

W.T. Rich Company, Inc.

FINAL BID PACKAGE SCHEDULE

Activity ID	Activity Name	Orig Dur (Days)	% Comp	Start	Finish	Q4	2018					2019				2020				2021				2022				2023				2024	
							Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
B1F 1150	HVAC drops/RGD's	10	0%	15/Jun/20	26/Jun/20																												
B1F 1160	Sprinkler pipe test	4	0%	17/Jun/20	22/Jun/20																												
B1F 1280	Epoxy Floor Prep & Finish	10	0%	17/Jun/20	30/Jun/20																												
B1F 1140	Millwork and casework	20	0%	23/Jun/20	21/Jul/20																												
B1F 1180	Acoustical ceilings finish	15	0%	29/Jun/20	20/Jul/20																												
B1F 1170	Toilet plumbing fixtures	10	0%	01/Jul/20	15/Jul/20																												
B1F 1210	Floor prep & finishes (Reslient & Carpet)	25	0%	08/Jul/20	11/Aug/20																												
B1F 1200	Fire Alarm devices and finishes	8	0%	21/Jul/20	30/Jul/20																												
B1F 1190	Finish painting/acoustical wall panels	15	0%	05/Aug/20	25/Aug/20																												
B1F 1110	Doors and hardware	10	0%	12/Aug/20	25/Aug/20																												
B1F 1270	Glass & Glazing	8	0%	12/Aug/20	21/Aug/20																												
B1F 1240	Misc. Division 10, 11, and 12	15	0%	20/Aug/20	10/Sep/20																												
B1F 1220	ATC finishes	5	0%	26/Aug/20	01/Sep/20																												
B1F 1230	Electrical finishes and trim-out	5	0%	26/Aug/20	01/Sep/20																												
B1F 1290	Interior Signage	10	0%	26/Aug/20	09/Sep/20																												
B1F 1250	Clean-up and work list	20	0%	11/Sep/20	08/Oct/20																												
B1F 1260	Complete Finishes - First Floor	0	0%		08/Oct/20																												
Second Floor Finishes		135		14/Apr/20	22/Oct/20																												
B2F 1000	Start Finishes - Second Floor	0	0%	14/Apr/20																													
B2F 1010	Building Insulation	10	0%	14/Apr/20	27/Apr/20																												
B2F 1020	Plumbing Insulation	10	0%	14/Apr/20	27/Apr/20																												
B2F 1030	HVAC Insulation	15	0%	14/Apr/20	04/May/20																												
B2F 1050	Hang Drywall P2L2	20	0%	04/May/20	01/Jun/20																												
B2F 1060	Drywall Tape and Finish P2L2	20	0%	11/May/20	08/Jun/20																												
B2F 1070	Painting - prime and one finish coat	15	0%	26/May/20	15/Jun/20																												
B2F 1080	Acoustical ceiling grid	15	0%	05/Jun/20	25/Jun/20																												
B2F 1040	HVAC terminal equipment	20	0%	12/Jun/20	10/Jul/20																												
B2F 1090	Light fixtures	15	0%	12/Jun/20	02/Jul/20																												
B2F 1100	Interior storefronts/glass and glazing	8	0%	16/Jun/20	25/Jun/20																												
B2F 1120	Install wall tile	10	0%	16/Jun/20	29/Jun/20																												
B2F 1130	Sprinkler drops and heads	10	0%	16/Jun/20	29/Jun/20																												
B2F 1150	HVAC drops/RGD's	10	0%	26/Jun/20	10/Jul/20																												
B2F 1160	Sprinkler pipe test	4	0%	30/Jun/20	06/Jul/20																												
B2F 1280	Epoxy Floor Prep & Finish	10	0%	30/Jun/20	14/Jul/20																												
B2F 1140	Millwork and casework	20	0%	07/Jul/20	03/Aug/20																												
B2F 1180	Acoustical ceilings finish	15	0%	13/Jul/20	31/Jul/20																												
B2F 1170	Toilet plumbing fixtures	10	0%	15/Jul/20	28/Jul/20																												
B2F 1300	Epoxy Countertops	20	0%	20/Jul/20	14/Aug/20																												
B2F 1310	Laboratory Equipment/Hoods	20	0%	20/Jul/20	14/Aug/20																												
B2F 1200	Fire Alarm devices and finishes	8	0%	03/Aug/20	12/Aug/20																												
B2F 1210	Floor prep & finishes (Reslient & Carpet)	25	0%	03/Aug/20	04/Sep/20																												
B2F 1190	Finish painting/acoustical wall panels	15	0%	24/Aug/20	14/Sep/20																												
B2F 1240	Misc. Division 10, 11, and 12	15	0%	31/Aug/20	21/Sep/20																												
B2F 1110	Doors and hardware	10	0%	08/Sep/20	21/Sep/20																												
B2F 1270	Glass & Glazing	8	0%	08/Sep/20	17/Sep/20																												
B2F 1290	Interior Signage	10	0%	08/Sep/20	21/Sep/20																												
B2F 1220	ATC finishes	5	0%	15/Sep/20	21/Sep/20																												
B2F 1230	Electrical finishes and trim-out	5	0%	15/Sep/20	21/Sep/20																												

Start Date: 18/Oct/17
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Summary

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Note: The projections are based upon activity earning type and performance to-date on in-progress activities. Every precaution has been taken to ensure this report is accurate and up-to-date. No liability is assumed for errors or omissions. Rounding errors may exist.

W.T. Rich Company, Inc.

FINAL BID PACKAGE SCHEDULE

Activity ID	Activity Name	Orig Dur (Days)	% Comp	Start	Finish		2018					2019				2020			2021				2022				2023				2024	
						Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
	B3F 1160	Sprinkler pipe test	4	0%	30/Jul/20	04/Aug/20																										
	B3F 1280	Epoxy Floor Prep & Finish	10	0%	30/Jul/20	12/Aug/20																										
	B3F 1140	Millwork and casework	20	0%	05/Aug/20	01/Sep/20																										
	B3F 1180	Acoustical ceilings finish	15	0%	05/Aug/20	25/Aug/20																										
	B3F 1310	Laboratory Equipment/Hoods	20	0%	05/Aug/20	01/Sep/20																										
	B3F 1300	Epoxy Countertops	20	0%	12/Aug/20	09/Sep/20																										
	B3F 1170	Toilet plumbing fixtures	10	0%	13/Aug/20	26/Aug/20																										
	B3F 1200	Fire Alarm devices and finishes	8	0%	26/Aug/20	04/Sep/20																										
	B3F 1210	Floor prep & finishes (Reslient & Carpet)	25	0%	26/Aug/20	30/Sep/20																										
	B3F 1190	Finish painting/acoustical wall panels	15	0%	17/Sep/20	07/Oct/20																										
	B3F 1240	Misc. Division 10, 11, and 12	15	0%	17/Sep/20	07/Oct/20																										
	B3F 1290	Interior Signage	10	0%	24/Sep/20	07/Oct/20																										
	B3F 1110	Doors and hardware	10	0%	01/Oct/20	14/Oct/20																										
	B3F 1270	Glass & Glazing	8	0%	01/Oct/20	12/Oct/20																										
	B3F 1220	ATC finishes	5	0%	08/Oct/20	14/Oct/20																										
	B3F 1230	Electrical finishes and trim-out	5	0%	08/Oct/20	14/Oct/20																										
	B3F 1250	Clean-up and work list	20	0%	13/Oct/20	09/Nov/20																										
	B3F 1260	Complete Finishes - Third Floor	0	0%		09/Nov/20																										
	Pod 3		210		04/Feb/20	01/Dec/20																										
	First Floor Rough-in		60		04/Feb/20	28/Apr/20																										
	C1R 1000	Start Rough-in Work - First Floor	0	0%	04/Feb/20																											
	C1R 1010	Rough-in HVAC duct work	20	0%	04/Feb/20	03/Mar/20																										
	C1R 1020	Frame interior partitions w/door frames & blocking	20	0%	04/Feb/20	03/Mar/20																										
	C1R 1030	Rough-in plumbing	15	0%	04/Feb/20	25/Feb/20																										
	C1R 1040	Rough-in HVAC piping	15	0%	19/Feb/20	10/Mar/20																										
	C1R 1050	Rough-in sprinkler	15	0%	26/Feb/20	17/Mar/20																										
	C1R 1060	Rough-in electrical power, lighting	20	0%	04/Mar/20	31/Mar/20																										
	C1R 1080	Rough-in fire alarm	20	0%	18/Mar/20	14/Apr/20																										
	C1R 1090	Rough-in tel-data/security/PV	20	0%	18/Mar/20	14/Apr/20																										
	C1R 1070	Rough-in ATC controls	15	0%	25/Mar/20	14/Apr/20																										
	C1R 1100	MEP Inspections	10	0%	15/Apr/20	28/Apr/20																										
	C1R 1110	Complete Rough-in First Floor	0	0%		28/Apr/20																										
	Second Floor Rough-in		60		19/Feb/20	12/May/20																										
	C2R 1000	Start Rough-in Work - Second Floor	0	0%	19/Feb/20																											
	C2R 1010	Rough-in HVAC duct work	20	0%	19/Feb/20	17/Mar/20																										
	C2R 1020	Frame interior partitions w/door frames & blocking	20	0%	19/Feb/20	17/Mar/20																										
	C2R 1030	Rough-in plumbing	15	0%	19/Feb/20	10/Mar/20																										
	C2R 1040	Rough-in HVAC piping	15	0%	04/Mar/20	24/Mar/20																										
	C2R 1050	Rough-in sprinkler	15	0%	11/Mar/20	31/Mar/20																										
	C2R 1060	Rough-in electrical power, lighting	20	0%	18/Mar/20	14/Apr/20																										
	C2R 1080	Rough-in fire alarm	20	0%	01/Apr/20	28/Apr/20																										
	C2R 1090	Rough-in tel-data/security/PV	20	0%	01/Apr/20	28/Apr/20																										
	C2R 1070	Rough-in ATC controls	15	0%	08/Apr/20	28/Apr/20																										
	C2R 1100	MEP Inspections	10	0%	29/Apr/20	12/May/20																										
	C2R 1110	Complete Rough-in Second Floor	0	0%		12/May/20																										
	Third Floor Rough-in		60		04/Mar/20	27/May/20																										
	C3R 1000	Start Rough-in Work - Third Floor	0	0%	04/Mar/20																											
	C3R 1010	Rough-in HVAC duct work	20	0%	04/Mar/20	31/Mar/20																										
	C3R 1020	Frame interior partitions w/door frames & blocking	20	0%	04/Mar/20	31/Mar/20																										
	C3R 1030	Rough-in plumbing	15	0%	04/Mar/204																											

Start Date: 18/Oct/17

Finish Date: 29/Jul/22

Data Date: 20/Jan/19

Print Date: 22/Jan/19

Layout: WSH Subs

Summary

Actual Work

Remaining Work

Remaining Level of Effort

Critical Remaining Work

Actual Milestone

Milestone

Critical Milestone

Worcester South High Community School

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Note: The projections are based upon activity earning type and performance to-date on in-progress activities. Every precaution has been taken to ensure this report is accurate and up-to-date. No liability is assumed for errors or omissions. Rounding errors may exist.

W.T. Rich Company, Inc.

FINAL BID PACKAGE SCHEDULE

[illegible]

Start Date: 18/Oct/17
Finish Date: 29/Jul/22
Data Date: 20/Jan/19
Print Date: 22/Jan/19
Layout: WSH Subs

	Summary		Critical Remaining Work
	Actual Work		Actual Milestone
	Remaining Work		Milestone
	Remaining Level of Effort		Critical Milestone

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W.T. Rich Company, Inc.

FINAL BID PACKAGE SCHEDULE

[illegible]

Start Date: 18/Oct/17
Finish Date: 29/Jul/22
Data Date: 20/Jan/19
Print Date: 22/Jan/19
Layout: WSH Subs

	Summary		Critical Remaining Work
	Actual Work		Actual Milestone
	Remaining Work		Milestone
	Remaining Level of Effort		Critical Milestone

Worcester South High Community School
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



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W.T. Rich Company, Inc.

FINAL BID PACKAGE SCHEDULE

[illegible]

Start Date:	18/Oct/17
Finish Date:	29/Jul/22
Data Date:	20/Jan/19
Print Date:	22/Jan/19
Layout:	WSH Subs

	Summary		Critical Remaining Work
	Actual Work		Actual Milestone
	Remaining Work		Milestone
	Remaining Level of Effort		Critical Milestone

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W.T. Rich Company, Inc.

FINAL BID PACKAGE SCHEDULE

Activity ID	Activity Name	Orig Dur (Days)	% Comp	Start	Finish	Q4	2018					2019				2020			2021				2022				2023				2024	
							Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
	EGR1080	Rough-in fire alarm	20	0%	20/May/20	17/Jun/20																										
	EGR1090	Rough-in tel-data/security/PV	20	0%	20/May/20	17/Jun/20																										
	EGR1100	MEP Inspections	15	0%	12/Jun/20	02/Jul/20																										
	EGR1110	Complete Rough-in Ground Floor East	0	0%		02/Jul/20																										
	B2 First Floor Rough in Gymnasium/Locker Rooms		80		27/Mar/20	20/Jul/20																										
	GYMR 100	Start Rough-in Work -Gym	0	0%	27/Mar/20																											
	GYMR 110	Rough-in HVAC duct work	20	0%	27/Mar/20	23/Apr/20																										
	GYMR 120	Frame interior partitions w/door frames & blocking	25	0%	03/Apr/20	07/May/20																										
	GYMR 130	Masonry Walls	25	0%	03/Apr/20	07/May/20																										
	GYMR 140	Rough-in plumbing	25	0%	17/Apr/20	21/May/20																										
	GYMR 150	Rough-in HVAC piping	20	0%	17/Apr/20	14/May/20																										
	GYMR 160	Rough-in sprinkler	20	0%	17/Apr/20	14/May/20																										
	GYMR 170	Rough-in electrical power, lighting	25	0%	01/May/20	05/Jun/20																										
	GYMR 180	Rough-in ATC controls	15	0%	01/Jun/20	19/Jun/20																										
	GYMR 190	Rough-in fire alarm	20	0%	01/Jun/20	26/Jun/20																										
	GYMR 200	Rough-in tel-data	20	0%	01/Jun/20	26/Jun/20																										
	GYMR 210	MEP Inspections	15	0%	29/Jun/20	20/Jul/20																										
	GYMR 220	Complete Rough-in Gym	0	0%		20/Jul/20																										
	B2 Ground Floor Finishes Lobby, Admin		143		05/Jun/20	29/Dec/20																										
	C1F 1000	Start Finishes - Ground Floor	0	0%	05/Jun/20																											
	C1F 1010	Building Insulation	10	0%	05/Jun/20	18/Jun/20																										
	C1F 1020	Plumbing Insulation	10	0%	05/Jun/20	18/Jun/20																										
	C1F 1030	HVAC Insulation	15	0%	05/Jun/20	25/Jun/20																										
	C1F 1050	Hang Drywall B2Lobby	20	0%	25/Jun/20	23/Jul/20																										
	C1F 1060	Drywall Tape and Finish B2Lobby	20	0%	02/Jul/20	30/Jul/20																										
	C1F 1070	Painting - prime and one finish coat	15	0%	17/Jul/20	06/Aug/20																										
	C1F 1080	Acoustical ceiling grid	15	0%	29/Jul/20	18/Aug/20																										
	C1F 1040	HVAC terminal equipment	20	0%	05/Aug/20	01/Sep/20																										
	C1F 1090	Light fixtures	15	0%	05/Aug/20	25/Aug/20																										
	C1F 1100	Interior storefronts/glass and glazing	8	0%	07/Aug/20	18/Aug/20																										
	C1F 1120	Install wall tile	10	0%	07/Aug/20	20/Aug/20																										
	C1F 1130	Sprinkler drops and heads	10	0%	07/Aug/20	20/Aug/20																										
	C1F 1150	HVAC drops/RGD's	10	0%	19/Aug/20	01/Sep/20																										
	C1F 1160	Sprinkler pipe test	4	0%	21/Aug/20	26/Aug/20																										
	C1F 1140	Millwork and casework	20	0%	27/Aug/20	24/Sep/20																										
	C1F 1180	Acoustical ceilings finish	15	0%	02/Sep/20	23/Sep/20																										
	C1F 1280	Epoxy Floor Prep & Finish	10	0%	17/Sep/20	30/Sep/20																										
	C1F 1200	Fire Alarm devices and finishes	8	0%	24/Sep/20	05/Oct/20																										
	C1F 1210	Floor prep & finishes (Resilient & Carpet)	25	0%	24/Sep/20	28/Oct/20																										
	C1F 1300	Floor prep & finishes Terrazzo	25	0%	24/Sep/20	28/Oct/20																										
	C1F 1170	Toilet plumbing fixtures	10	0%	01/Oct/20	14/Oct/20																										
	C1F 1190	Finish painting/acoustical wall panels	15	0%	22/Oct/20	11/Nov/20																										
	C1F 1110	Doors and hardware	10	0%	29/Oct/20	11/Nov/20																										
	C1F 1270	Glass & Glazing	8	0%	29/Oct/20	09/Nov/20																										
	C1F 1240	Misc. Division 10, 11, and 12	15	0%	06/Nov/20	30/Nov/20																										
	C1F 1220	ATC finishes	5	0%	12/Nov/20	18/Nov/20																										
	C1F 1230	Electrical finishes and trim-out	5	0%	12/Nov/20	18/Nov/20																										
	C1F 1250	Clean-up and work list	20	0%	01/Dec/20	29/Dec/20																										
	C1F 1260	Complete Finishes - Ground Floor	0	0%		29/Dec/20																										
	B2 Ground Floor Finishes Auto, Prek		136		02/Jul/20	15/Jan/21																										
	EGF1000	Start Finishes - Ground Floor East	0	0%	02/Jul/20																											

Start Date: 18/Oct/17
Finish Date: 29/Jul/22
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Summary

Actual Work

Remaining Work

Remaining Level of Effort

Critical Remaining Work

Actual Milestone

Milestone

Critical Milestone

Worcester South High Community School
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January 21, 2019
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Note: The projections are based upon activity earning type and performance to-date on in-progress activities. Every precaution has been taken to ensure this report is accurate and up-to-date. No liability is assumed for errors or omissions. Rounding errors may exist.

W.T. Rich Company, Inc.

FINAL BID PACKAGE SCHEDULE

Activity ID	Activity Name	Orig Dur (Days)	% Comp	Start	Finish	2018					2019				2020				2021				2022				2023				2024	
						Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
	EGF1160	HVAC drops/RGD's	10	0%	24/Sep/20	07/Oct/20																										
	EGF1170	Sprinkler Pipe Test	4	0%	05/Oct/20	08/Oct/20																										
	EGF1090	Millwork and casework	20	0%	09/Oct/20	05/Nov/20																										
	EGF1200	Acoustical ceilings finish	15	0%	09/Oct/20	29/Oct/20																										
	EGF1180	Floor prep & finishes (Reslient)	25	0%	23/Oct/20	30/Nov/20																										
	EGF1220	Fire Alarm devices and finishes	8	0%	30/Oct/20	10/Nov/20																										
	EGF1230	Finish painting/acoustical wall panels	15	0%	20/Nov/20	14/Dec/20																										
	EGF1120	Doors and hardware	15	0%	01/Dec/20	21/Dec/20																										
	EGF1240	Misc. Division 10, 11, and 12	15	0%	01/Dec/20	21/Dec/20																										
	EGF1150	Glass & Glazing	10	0%	01/Dec/20	14/Dec/20																										
	EGF1250	ATC finishes	5	0%	08/Dec/20	14/Dec/20																										
	EGF1260	Electrical finishes and trim-out	5	0%	08/Dec/20	14/Dec/20																										
	EGF1270	Shop Equipment	10	0%	15/Dec/20	29/Dec/20																										
	EGF1280	Clean-up and work list	20	0%	17/Dec/20	15/Jan/21																										
	EGF1290	Complete Finishes - Ground Floor East	0	0%		15/Jan/21																										
	B2 First Floor Finishes Gymnasium/Locker Rooms		122		21/Jul/20	13/Jan/21																										
	GYMF 100	Start Finishes - Gym	0	0%	21/Jul/20																											
	GYMF 110	Building Insulation	10	0%	21/Jul/20	03/Aug/20																										
	GYMF 120	Plumbing Insulation	10	0%	21/Jul/20	03/Aug/20																										
	GYMF 130	HVAC Insulation	15	0%	21/Jul/20	10/Aug/20																										
	GYMF 190	Hang Drywall B2 Gym	20	0%	10/Aug/20	04/Sep/20																										
	GYMF 200	Drywall Tape and Finish B2 Gym	20	0%	17/Aug/20	14/Sep/20																										
	GYMF 210	Install Wall Tile	30	0%	17/Aug/20	28/Sep/20																										
	GYMF 220	Painting - prime and one finish coat	15	0%	31/Aug/20	21/Sep/20																										
	GYMF 350	Acoustical Ceiling Grid	10	0%	08/Sep/20	21/Sep/20																										
	GYMF 150	Sprinkler drops and heads	10	0%	15/Sep/20	28/Sep/20																										
	GYMF 140	HVAC terminal equipment	15	0%	22/Sep/20	12/Oct/20																										
	GYMF 160	Light fixtures	15	0%	22/Sep/20	12/Oct/20																										
	GYMF 170	HVAC drops	10	0%	22/Sep/20	05/Oct/20																										
	GYMF 240	Finish painting/wall graphics/acoustical wall panels	20	0%	22/Sep/20	19/Oct/20																										
	GYMF 180	Sprinkler pipe test	4	0%	29/Sep/20	02/Oct/20																										
	GYMF 230	Millwork and casework	30	0%	05/Oct/20	13/Nov/20																										
	GYMF 250	Fire Alarm devices and finishes	8	0%	20/Oct/20	29/Oct/20																										
	GYMF 270	ATC finishes	5	0%	20/Oct/20	26/Oct/20																										
	GYMF 280	Electrical finishes and trim-out	5	0%	20/Oct/20	26/Oct/20																										
	GYMF 260	Floor prep & finishes Reslient	5	0%	02/Nov/20	06/Nov/20																										
	GYMF 290	Misc. Division 10, 11, and 12	10	0%	05/Nov/20	18/Nov/20																										
	GYMF 300	Synthetic Wood Athletic Floor Prep, Installation, Cure	20	0%	09/Nov/20	08/Dec/20																										
	GYMF 310	Doors and hardware	5	0%	09/Dec/20	15/Dec/20																										
	GYMF 320	Gym Equipment, Bleachers	10	0%	09/Dec/20	22/Dec/20																										
	GYMF 330	Clean-up and work list Gym	15	0%	22/Dec/20	13/Jan/21																										
	GYMF 340	Complete Finishes - Gym	0	0%		13/Jan/21																										
	B1 Building		302		26/Nov/19	03/Feb/21																										
	B1 Ground Floor Rough -In ROTC, VOC		75		20/Mar/20	06/Jul/20																										
	WGR 1000	Start Rough-in Work - Ground Floor West	0	0%	20/Mar/20																											
	WGR 1010	Rough-in HVAC duct work	20	0%	20/Mar/20	16/Apr/20																										
	WGR 1020	Frame interior partitions w/door frames & blocking	25	0%	20/Mar/20	23/Apr/20																										
	WGR 1030	Rough-in plumbing	20	0%	20/Mar/20	16/Apr/20																										
	WGR 1040	Rough-in HVAC piping	20	0%	03/Apr/20	30/Apr/20																										
	WGR 1050	Rough-in sprinkler	15	0%	10/Apr/20	30/Apr/20																										
	WGR 1060	Rough-in electrical power, lighting	20	0%	24/Apr/20	21/May/20																										
	WGR 1070	Rough-in ATC controls	15	0%	15/May/20	05/Jun/20																										
	WGR 1080	Rough-in fire alarm	20	0%	15/May/20	12/Jun/20																										
	WGR 1090	Rough-in tel-data/security/PV	20	0%	15/May/20	12/Jun/20																										
	WGR 1100	MEP Inspections	15	0%	15/Jun/20	06/Jul/20																										
	WGR 1110	Complete Rough-in Ground Floor West	0	0%		06/Jul/20																										
	B1 First Floor Rough - In Upper Auditorium		118		26/Nov/19	12/May/20																										

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W.T. Rich Company, Inc.

FINAL BID PACKAGE SCHEDULE

Activity ID	Activity Name	Orig Dur (Days)	% Comp	Start	Finish	Q4	2018					2019				2020				2021				2022				2023				2024	
							Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
	AUDR 170	Rough-in ATC controls	10	0%	16/Mar/20	27/Mar/20																											
	AUDR 180	Rough-in tel-data/security/PV	20	0%	16/Mar/20	10/Apr/20																											
	AUDR 190	Rough-in theatrical equipment	20	0%	23/Mar/20	17/Apr/20																											
	AUDR 200	Rough-in fire alarm	20	0%	13/Apr/20	08/May/20																											
	AUDR 210	MEP Inspections - Upper Auditorium	10	0%	29/Apr/20	12/May/20																											
	AUDR 220	Complete Rough-in Upper Auditorium	0	0%		12/May/20																											
	B1 First Floor Rough-In Lower Auditorium		41		07/Aug/20	05/Oct/20																											
	LAR 105	Remove Shared Scaffolding	1	0%	07/Aug/20	07/Aug/20																											
	LAR 100	Start Rough-in Work - Lower Auditorium	0	0%	10/Aug/20																												
	LAR 140	Rough-in HVAC piping	15	0%	10/Aug/20	28/Aug/20																											
	LAR 150	Rough-in sprinkler	20	0%	10/Aug/20	04/Sep/20																											
	LAR 160	Rough-in electrical	20	0%	10/Aug/20	04/Sep/20																											
	LAR 230	Frame Partitions & Doors	15	0%	10/Aug/20	28/Aug/20																											
	LAR 170	Rough-in ATC controls	10	0%	31/Aug/20	14/Sep/20																											
	LAR 190	Rough-in tel-data/security/PV	10	0%	31/Aug/20	14/Sep/20																											
	LAR 180	Rough-in fire alarm	10	0%	08/Sep/20	21/Sep/20																											
	LAR 220	Rough-in theatrical equipment	10	0%	08/Sep/20	21/Sep/20																											
	LAR 200	MEP Inspections - Lower Auditorium	10	0%	22/Sep/20	05/Oct/20																											
	LAR 210	Complete Rough-in Lower Auditorium	0	0%		05/Oct/20																											
	B1 Ground Floor Finishes ROTC VOC		135		06/Jul/20	15/Jan/21																											
	WGF 1000	Start Finishes - Ground Floor West	0	0%	06/Jul/20																												
	WGF 1010	Building Insulation	15	0%	06/Jul/20	24/Jul/20																											
	WGF 1020	Plumbing Insulation	15	0%	06/Jul/20	24/Jul/20																											
	WGF 1030	HVAC Insulation	15	0%	06/Jul/20	24/Jul/20																											
	WGF 1050	Hang Drywall B1 Ground Floor	30	0%	27/Jul/20	04/Sep/20																											
	WGF 1060	Drywall Tape and Finish B1 Ground Floor	30	0%	03/Aug/20	14/Sep/20																											
	WGF 1120	Install wall tile	10	0%	24/Aug/20	04/Sep/20																											
	WGF 1070	Painting - prime and one finish coat	15	0%	31/Aug/20	21/Sep/20																											
	WGF 1080	Acoustical ceiling grid	15	0%	08/Sep/20	28/Sep/20																											
	WGF 1280	Epoxy Floor Prep & Finish	10	0%	08/Sep/20	21/Sep/20																											
	WGF 1040	HVAC terminal equipment	20	0%	15/Sep/20	12/Oct/20																											
	WGF 1090	Light fixtures	15	0%	15/Sep/20	05/Oct/20																											
	WGF 1130	Sprinkler drops and heads	10	0%	17/Sep/20	30/Sep/20																											
	WGF 1100	Interior storefronts/glass and glazing	8	0%	22/Sep/20	01/Oct/20																											
	WGF 1110	Doors and hardware	10	0%	22/Sep/20	05/Oct/20																											
	WGF 1170	Toilet plumbing fixtures	10	0%	22/Sep/20	05/Oct/20																											
	WGF 1270	Glass & Glazing	8	0%	22/Sep/20	01/Oct/20																											
	WGF 1150	HVAC drops/RGD's	10	0%	29/Sep/20	12/Oct/20																											
	WGF 1160	Sprinkler Pipe Test	4	0%	01/Oct/20	06/Oct/20																											
	WGF 1140	Millwork and casework	20	0%	07/Oct/20	03/Nov/20																											
	WGF 1180	Acoustical ceilings finish	15	0%	13/Oct/20	02/Nov/20																											
	WGF 1210	Floor prep & finishes (Reslient & Carpet)	25	0%	21/Oct/20	24/Nov/20																											
	WGF 1200	Fire Alarm devices and finishes	8	0%	03/Nov/20	12/Nov/20																											
	WGF 1190	Finish painting/acoustical wall panels	15	0%	11/Nov/20	03/Dec/20																											
	WGF 1240	Misc. Division 10, 11, and 12	15	0%	18/Nov/20	10/Dec/20																											
	WGF 1220	ATC finishes	5	0%	04/Dec/20	10/Dec/20																											
	WGF 1230	Electrical finishes and trim-out	5	0%	04/Dec/20	10/Dec/20																											
	WGF 1290	Shop Equipment	10	0%	04/Dec/20	17/Dec/20																											
	WGF 1250	Clean-up and work list	20	0%	17/Dec/20	15/Jan/21																											
	WGF 1260	Complete Finishes - Ground Floor West	0	0%		15/Jan/21																											
	B1 First Floor Finishes Upper Auditorium		61		12/May/20	06/Aug/20																											

FINAL BID PACKAGE SCHEDULE

Activity ID	Activity Name	Orig Dur (Days)	% Comp	Start	Finish											2018				2019				2020				2021				2022				2023				2024	
						Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2					
	UAF 230	Millwork and casework	20	0%	30/Jun/20	28/Jul/20																																			
	UAF 260	Finish painting/wall graphics/acoustical wall panels	10	0%	10/Jul/20	23/Jul/20																																			
	UAF 270	Fire Alarm devices and finishes	5	0%	24/Jul/20	30/Jul/20																																			
	UAF 300	ATC finishes	5	0%	24/Jul/20	30/Jul/20																																			
	UAF 310	Electrical finishes and trim-out	5	0%	24/Jul/20	30/Jul/20																																			
	UAF 320	Misc. Division 10, 11, and 12	5	0%	24/Jul/20	30/Jul/20																																			
	UAF 340	Install Theatrical Equipment	10	0%	24/Jul/20	06/Aug/20																																			
	UAF 360	Complete Finishes - Upper Auditorium	0	0%		06/Aug/20																																			
	B1 First Floor Finishes - Lower Auditorium	84		05/Oct/20	03/Feb/21																																				
	LAF 100	Start Finishes - Lower Auditorium	0	0%	05/Oct/20																																				
	LAF 110	Building Insulation	10	0%	05/Oct/20	16/Oct/20																																			
	LAF 120	Plumbing Insulation	10	0%	05/Oct/20	16/Oct/20																																			
	LAF 130	HVAC Insulation	15	0%	05/Oct/20	23/Oct/20																																			
	LAF 150	Hang Drywall B1 Lower Aud	15	0%	23/Oct/20	12/Nov/20																																			
	LAF 160	Drywall Tape and Finish B1 Lower Aud	15	0%	30/Oct/20	19/Nov/20																																			
	LAF 180	Acoustical Ceiling Grid	10	0%	30/Oct/20	12/Nov/20																																			
	LAF 170	Painting - prime and one finish coat	10	0%	06/Nov/20	19/Nov/20																																			
	LAF 140	HVAC terminal equipment	15	0%	13/Nov/20	07/Dec/20																																			
	LAF 190	Interior storefronts/glass and glazing	8	0%	20/Nov/20	03/Dec/20																																			
	LAF 220	Millwork and casework	20	0%	20/Nov/20	21/Dec/20																																			
	LAF 240	Finish painting/wall graphics/acoustical wall panels	10	0%	20/Nov/20	07/Dec/20																																			
	LAF 250	Fire Alarm devices and finishes	5	0%	20/Nov/20	30/Nov/20																																			
	LAF 260	Floor prep & finishes (Reslient)	10	0%	08/Dec/20	21/Dec/20																																			
	LAF 270	ATC finishes	5	0%	08/Dec/20	14/Dec/20																																			
	LAF 280	Electrical finishes and trim-out	5	0%	08/Dec/20	14/Dec/20																																			
	LAF 290	Misc. Division 10, 11, and 12	5	0%	08/Dec/20	14/Dec/20																																			
	LAF 330	Stage, Wood Floor Prep & Installation	15	0%	08/Dec/20	29/Dec/20																																			
	LAF 200	Doors and hardware	5	0%	22/Dec/20	29/Dec/20																																			
	LAF 320	Install Theatrical Equipment	10	0%	30/Dec/20	13/Jan/21																																			
	LAF 300	Clean-up and work list Auditorium	15	0%	14/Jan/21	03/Feb/21																																			
	LAF 310	Complete Finishes - Lower Auditorium	0	0%		03/Feb/21																																			
	Elevators	283		14/Jan/20	23/Feb/21																																				
	ELE 1030	Waterproof Elevator Pits 1 & 2	10	0%	14/Jan/20	27/Jan/20																																			
	ELEV 100	Construct Hoistways & Penthouses Elev 1&2	30	0%	28/Jan/20	10/Mar/20																																			
	ELEV 110	Electrical Rough in Elevators	15	0%	27/Mar/20	16/Apr/20																																			
	ELEV 120	Hoistway & Cab Finishes	80	0%	04/May/20	25/Aug/20																																			
	ELEV 130	Call for State Inspection	20	0%	27/Jan/21	23/Feb/21																																			
	Electrical Room	63		04/Feb/20	01/May/20																																				
	ELEC1000	Frame /blocking / sheetrock elec room walls	5	0%	04/Feb/20	10/Feb/20																																			
	ELEC1010	Install Housekeeping pads	5	0%	11/Feb/20	18/Feb/20																																			
	ELEC1020	Prime & Paint First Coat	4	0%	19/Feb/20	24/Feb/20																																			
	RW3 1010	Install Transformer	15	0%	19/Feb/20	10/Mar/20																																			
	ELEC1030	Run feeds from new service to transformer	5	0%	11/Mar/20	17/Mar/20																																			
	ELEC1040	Rough-in Supporting MEP's	10	0%	11/Mar/20	24/Mar/20																																			
	ELEC1050	Install switchgear and main distribution panels	30	0%	11/Mar/20	21/Apr/20																																			
	ELEC1060	Electrical terminations and testing	15	0%	01/Apr/20	21/Apr/20																																			

FINAL BID PACKAGE SCHEDULE

Activity ID	Activity Name	Orig Dur (Days)	% Comp	Start	Finish	2018					2019				2020				2021				2022				2023				2024	
						Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
	1SIT 1040	Install steel reinforcement	20	0%	25/Mar/21	21/Apr/21																										
	1SIT 1050	Place concrete walkways	20	0%	01/Apr/21	28/Apr/21																										
	1SIT 1060	Set detectable warning strips	5	0%	29/Apr/21	05/May/21																										
	Site Improvements		50		15/Mar/21	21/May/21																										
	1SIT 1210	Install site lighting	40	0%	15/Mar/21	07/May/21																										
	1SIT 1100	Install permanent fence	30	0%	01/Apr/21	12/May/21																										
	1SIT 1190	Install site walls	30	0%	12/Apr/21	21/May/21																										
	1SIT 1080	Install bike racks	10	0%	29/Apr/21	12/May/21																										
	1SIT 1090	Install benches	10	0%	29/Apr/21	12/May/21																										
	Asphalt Paving		54		15/Mar/21	27/May/21																										
	1SIT 1110	Excavate and prep for sub-base	20	0%	15/Mar/21	09/Apr/21																										
	1SIT 1120	Lay 8" gravel sub-base	15	0%	22/Mar/21	09/Apr/21																										
	1SIT 1140	Install binder course	10	0%	09/Apr/21	22/Apr/21																										
	1SIT 1130	Install curbs/berms	20	0%	23/Apr/21	20/May/21																										
	1SIT 1150	Install top course	5	0%	21/May/21	27/May/21																										
	Lawns and Planting		20		23/Apr/21	20/May/21																										
	1SIT 1160	Rough Grade, Install loam	10	0%	23/Apr/21	06/May/21																										
	1SIT 1200	Install Planters	10	0%	23/Apr/21	06/May/21																										
	1SIT 1170	Lay mulch and other finishes	10	0%	07/May/21	20/May/21																										
	1SIT 1180	Perform fine grading/planting/seeding	10	0%	07/May/21	20/May/21																										
Phase 2 Building Turnover		135		17/Nov/20	01/Jun/21																											
Substantial completion		104		17/Nov/20	15/Apr/21																											
	COMP1090	HVAC test and balance	60	0%	17/Nov/20	12/Feb/21																										
	COMP1040	Fire alarm Pre-testing	15	0%	06/Jan/21	26/Jan/21																										
	COMP1010	As-Builts, Warrantees, O&M's	30	0%	03/Feb/21	16/Mar/21																										
	COMP1020	Completion of all building contract work	0	0%	03/Feb/21	03/Feb/21																										
	COMP1030	Plumbing final inspections and sign-off	3	0%	03/Feb/21	05/Feb/21																										
	COMP1060	Fire protection flow test	5	0%	03/Feb/21	09/Feb/21																										
	COMP1070	Architect's Final Punch List and Back Punch	33	0%	03/Feb/21	19/Mar/21																										
	COMP1110	Primary systems Commissioning	35	0%	15/Feb/21	02/Apr/21																										
	COMP1080	Provide owner training	25	0%	15/Feb/21	19/Mar/21																										
	COMP1230	Building Flush Out	30	0%	15/Feb/21	26/Mar/21																										
	COMP1050	Electrical final inspections and sign-off	5	0%	24/Feb/21	02/Mar/21																										
	COMP1180	Elevator final inspections and sign-off	5	0%	24/Feb/21	02/Mar/21																										
	COMP1100	Fire Department inspection and sign-off Alarm	5	0%	03/Mar/21	09/Mar/21																										
	COMP1210	Fire Department inspection and sign-off Sprinkler	5	0%	03/Mar/21	09/Mar/21																										
	COMP1220	Fire Department inspection and sign-off Life Safety	5	0%	24/Mar/21	30/Mar/21																										
	COMP1140	Final insp, sign-off, Cert. of Occupancy	10	0%	02/Apr/21	15/Apr/21																										
	COMP1150	SUBSTANTIAL COMPLETION - Phase 2 Projected	0	0%	15/Apr/21	15/Apr/21																										
Completion and Closeout - Phase 2		53		17/Mar/21	01/Jun/21																											
	COMP1130	Warrantees,Closeout Documents	45	0%	17/Mar/21	18/May/21																										
	COMP1120	Complete remaining open punch list items	40	0%	22/Mar/21	14/May/21																										
	COMP1160	Address CX corrective actions	40	0%	05/Apr/21	28/May/21																										
	COMP1190	SUBSTANTIAL COMPLETION - Phase 2 - Required	0	0%	15/Apr/21	15/Apr/21*																										
	COMP1170	FINAL COMPLETION - Phase 2 Required	0	0%	01/Jun/21	01/Jun/21*																										
	COMP1200	FINAL COMPLETION - Phase 2 Projected	0	0%	01/Jun/21	01/Jun/21																										
Phase 2A Partial Demolition,Temp Parking		38		01/Jul/21	24/Aug/21																											
	DEMO 100	Mobilize Abatement Contractor	0	0%	01/Jul/21*	01/Jul/21																										
	DEMO 110	Conduct Abatement - North Wing (Multiple Shifts)	9	0%	01/Jul/21	14/Jul/21																										
	DEMO 120	Separate & Demolish North Wing &Foundations (Extended Shifts)	15	0%	15/Jul/21	04/Aug/21																										
	DEMO 150	Rough Grade Loop Road & Parking, Install Drainage (Extended Shifts / W	10	0%	05/Aug/21	18/Aug/21																										
	DEMO 200	Install Drainage Structures (Extended Shifts / Weekends)	10	0%	05/Aug/21	18/Aug/21																										
	DEMO 160	Install, Prepare Subbase Loop Road & Parking(Extended Shifts / Weeker	5	0%	13/Aug/21	19/Aug/21			</																							

FINAL BID PACKAGE SCHEDULE

Activity ID	Activity Name	Orig Dur (Days)	% Comp	Start	Finish	2018					2019				2020				2021				2022				2023				2024	
						Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Phase 3A - Athletics		170		21/Oct/21	22/Jun/22																											
High School Athletic Facilities		170		21/Oct/21	22/Jun/22																											
ATH 100	Site Preparation	20	0%	21/Oct/21	17/Nov/21																											
ATH 110	Rough Grade and Prepare Sub Base	28	0%	04/Nov/21	15/Dec/21																											
ATH 200	Install drainage and utilities	28	0%	02/Dec/21	12/Jan/22																											
ATH 270	Winter shut down	56	0%	13/Jan/22	31/Mar/22																											
ATH 140	Install Turf	20	0%	10/Mar/22	06/Apr/22																											
ATH 120	Install Grandstand Footings	20	0%	01/Apr/22	28/Apr/22																											
ATH 260	Install Site Retaining Walls	28	0%	01/Apr/22	10/May/22																											
ATH 160	Install Fencing	25	0%	07/Apr/22	11/May/22																											
ATH 170	Install Goal Posts, Scoreboards, Site Furnishings	10	0%	07/Apr/22	20/Apr/22																											
ATH 130	Install Grandstand Structure	20	0%	29/Apr/22	26/May/22																											
ATH 190	Install Stairs	30	0%	11/May/22	22/Jun/22																											
Athletic Restroom Building		88		16/Dec/21	20/Apr/22																											
ATH 180	Construct Out Building Foundation	14	0%	16/Dec/21	06/Jan/22																											
ATH 210	Construct Out Building Structure	19	0%	07/Jan/22	02/Feb/22																											
ATH 220	Construct Out Building Envelope	15	0%	20/Jan/22	09/Feb/22																											
ATH 230	Complete Out Building MEPs	20	0%	10/Feb/22	09/Mar/22																											
ATH 240	Construct Out Building Finishes, Punch List and Testing	30	0%	10/Mar/22	20/Apr/22																											
Asphalt Paving		114		18/Nov/21	02/May/22																											
SITE2000	Excavate and prep for sub-base	18	0%	18/Nov/21	15/Dec/21																											
SITE2010	Lay 8" gravel sub-base	15	0%	23/Nov/21	15/Dec/21																											
SITE2020	Install binder course	10	0%	16/Dec/21	30/Dec/21																											
SITE2040	Install curbs/berms	38	0%	31/Dec/21	23/Feb/22																											
SITE2060	Install top course April Vacation	5	0%	26/Apr/22	02/May/22																											
Concrete Walkways		60		24/Feb/22	18/May/22																											
SITE2050	Excavate to grade	20	0%	24/Feb/22	23/Mar/22																											
SITE2080	Install formwork	40	0%	24/Feb/22	20/Apr/22																											
SITE2100	Install steel reinforcement	40	0%	03/Mar/22	27/Apr/22																											
SITE2110	Place concrete walkways	40	0%	24/Mar/22	18/May/22																											
Site Improvements		40		01/Apr/22	26/May/22																											
SITE2190	Install site walls	40	0%	01/Apr/22	26/May/22																											
SITE2140	Install wood & chain link fence	10	0%	15/Apr/22	28/Apr/22																											
SITE2120	Install bike racks, flag poles, planters	10	0%	28/Apr/22	11/May/22																											
SITE2130	Install benches	10	0%	28/Apr/22	11/May/22																											
Phase 3A Close Out		69		21/Apr/22	29/Jul/22																											
Substantial completion		50		21/Apr/22	01/Jul/22																											
3CLO 1120	Provide owner training	15	0%	21/Apr/22	11/May/22																											
3CLO 1050	As-Builts, Warrantees, O&M's	30	0%	11/May/22	23/Jun/22																											
3CLO 1060	Completion of all site contract work	0	0%	23/Jun/22	23/Jun/22																											
3CLO 1110	Architect's Punch List	5	0%	23/Jun/22	29/Jun/22																											
3CLO 1150	Final insp, sign-off, Cert. of Occupancy	2	0%	29/Jun/22	30/Jun/22																											
3CLO 1160	Substantial Completion Phase 3 Projected	0	0%	01/Jul/22	01/Jul/22																											
Completion and Closeout - Phase 3A		25		23/Jun/22	29/Jul/22																											
3CLO 1010	Warrantees,Closeout Documents	25	0%	23/Jun/22	28/Jul/22																											
3CLO 1000	Complete all punch list items	14	0%	30/Jun/22	20/Jul/22																											
3CLO 1020	Address all CX corrective actions	19	0%	01/Jul/22	28/Jul/22																											
3CLO 1170	Substantial Completion Phase 3 Required	0	0%	01/Jul/22	01/Jul/22*																											
3CLO 1030	FINAL COMPLETION - Projected	0	0%	29/Jul/22	29/Jul/22																											
3CLO 1040	FINAL COMPLETION - Required	0	0%	29/Jul/22	29/Jul/22*																											

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF REVENUE
DETERMINATIONS BUREAU

EXEMPT PURCHASER CERTIFICATE

MASSACHUSETTS DEPARTMENT OF REVENUE
CERTIFICATE OF EXEMPTION

Certification is hereby made that the organization herein named is an exempt purchaser under General Laws, Chapter 64H, Sections 6(d) and (e). All purchases of tangible personal property by this organization are exempt from taxation under said chapter to the extent that such property is used in the conduct of the business of the purchaser. Any abuse or misuse of this certificate by any tax exempt organization or any unauthorized use of this certificate by any individual constitutes a serious violation and will lead to revocation. Willful misuse of this Certificate of Exemption is subject to criminal sanctions of up to 1 year in prison and \$10,000 (\$50,000 for corporations) in fines.

PLEASE
COMPLETE
THIS
SECTION

NAME	City of Worcester		
ADDRESS	455 Main Street		
CITY	Worcester	STATE	MA. ZIP 01608

EXEMPTION NUMBER 046-001-418

ISSUE DATE 1/02/90

CERTIFICATE EXPIRES ON None

NOT ASSIGNABLE OR TRANSFERABLE

COMMISSIONER OF REVENUE

Purchased from _____

Description of Property to be Purchased All items purchased by the City of Worcester
which are covered by City of Worcester purchase orders.

Signed Under the Pains and Penalties of Perjury

Dated JULY 5 19 92

Signature Thomas F. RohrerBy (title) TreasurerCheck Applicable Box ☐ Single Purchase Certificate ☐ Blanket Certificate ☒INSTRUCTIONS FOR USE OF EXEMPT PURCHASER CERTIFICATE

Sales to the United States, the Commonwealth or to any political subdivision thereof or to their respective agencies are exempt.

Sales to any Corporation, Foundation, Organization or Institution which is exempt from taxation under the provisions of §501 (c)(3) of the U. S. Internal Revenue Code, as amended and in effect for the applicable period, are exempt from tax provided that:

- The tangible personal property which is subject to such Sales Tax is used in the conduct of such Organization or Agency;
- The Organization or Agency shall have obtained: a Certificate of Exemption (Form ST-2) from the Commissioner of Revenue certifying that it is entitled to exemption and shall attach a photocopy of such form (ST-2) hereto;
- The Vendor must retain a copy of Form ST-5 accompanied by Form ST-2 as are other tax records. See Record Retention Regulation 830 CMR 62C.24

**DO NOT REMOVE
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DOCUMENT 00 73 43A

**MASSACHUSETTS PREVAILING WAGE RATES
AND ATTACHMENTS**

(DOCUMENT 00800)

**DO NOT REMOVE
THIS PAGE INTENTIONALLY LEFT BLANK**

Document 00 73 43
AFFIDAVIT OF PREVAILING WAGE COMPLIANCE
(Bid Form Attachment)

..... I,, President Clerk of

.....
(Name of Corporation)

whose principal office is located at

.....
do hereby certify that the above named corporation complies with the prevailing wage law as set forth in Sections 26 and 27 of Chapter 149 of the Massachusetts General Laws and do hereby further certify that the Corporation named above shall comply with the Davis-Bacon Act set forth in 29 CFR Parts 1, 3 and 5, and as said law is references, in Article X, Section 2, Paragraph L of the General Conditions of the Contract between the Owner and Construction Manager.

SIGNED UNDER PENALTIES OF PERJURY

thisday of, 2015

.....
(Signature of Responsible Corporate Officer)

..... Mass.Business Corp. Foreign Corp.Non-Profit
Corp.

End of Document

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THIS PAGE INTENTIONALLY LEFT BLANK**

SECTION 00 73 43 – PREVAILING WAGE RATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections are hereby made a part of this Section.

1.2 SUMMARY

- A. This Section specifies the List of Jobs; Classifications; Determination of Rate of Wages; Schedule: as established under Statutory reference: M.G.L. Chapter 149, Section 26 and 27. These requirements apply to every contract or subcontract performing work on this public works project.
- B. Related Sections: Sections which contain requirements that relate to this Section include, but are not limited to the following:
 - 1. Section 00900
 - 2. Section 00950
 - 3. Section 013300
 - 4. Section 017700
- C. The aforesaid rates of wages in the schedule of wage rates shall include payments by employers to health and welfare plans, pension plans and supplementary unemployment benefit plans as indicated in Supplementary Conditions section 00300, and such payments shall be considered as payments to persons under this section performing work as herein provided. Any employer engaged in the construction of such works who does not make payments to a health and welfare plan, a pension plan and supplementary unemployment benefit plan, where such payments are included in said rates of wages, shall pay the amount of said payments directly to each employee engaged in said construction.
- D. Every contractor and subcontractor at any and all tiers shall complete the “WEEKLY PAYROLL REPORT FORM” and submit a copy to the Contract Compliance Office (indicated below) for each week **consecutively**, after the start of that trades work.
- E. “WEEKLY PAYROLL REPORTS” shall be required to be submitted **consecutively**, for each week from the start of work until the completion of his work, regardless of whether work was actually being performed on or off-site.
 - 1. When work is not performed; indicate on the form the corresponding week ending dates and post “NO WORK PERFORMED” conspicuously on the front of said form.
 - 2. Weekly reports shall be required until the contractor executes and furnishes to the Department of Labor and Workforce Development/Division of Occupational Safety the final “STATEMENT OF COMPLIANCE” bound herein.

F. SUBMIT TO:

Kenrick Haywood, Contract Compliance Officer City Hall, Room
404
455 Main Street
Worcester, MA 01608
508-799-1174 Fax 508-799-1244

1.3 SAMPLE FORMS FOLLOW THIS PAGE.

- A. Final form and format shall be as approved by the Contract Compliance Office.



THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENTS OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY
PREVAILING WAGE PROGRAM
www.mass.gov/dos/pw

DEVAL L. PATRICK
Governor
TIMOTHY P. MURRAY
Lieutenant Governor

ROBERT J. PREZIOSO
Commissioner

The Massachusetts Prevailing Wage Law
M.G.L. c. 149, §§26-27

NOTICE TO AWARDING AUTHORITIES

- The enclosed wage schedule applies only to the specific project listed at the top of the schedule, and these rates will remain in effect for the duration of the project.
- You should request an updated wage schedule from the Division of Occupational Safety if you have not opened bids or selected a contractor within 90 days of the date of issuance of the enclosed wage schedule.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project for which it has been issued.
- Once a contractor has been selected by the awarding authority, the wage schedule shall be made a part of the contract for that project.

NOTICE TO CONTRACTORS

- The enclosed wage schedule must be posted in a conspicuous place at the work site during the life of the project.
- The wages listed on the enclosed wage schedule must be paid to employees on public works projects regardless of whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.
- The enclosed wage schedule applies to all phases of the project, including the final clean-up. Contractors whose only role is to perform final clean-up must pay their employees according to this wage schedule.
- All apprentices must be registered with the Massachusetts Division of Apprenticeship Training (DAT) in order to be paid at the lower apprentice rates. All apprentices must keep his/her apprentice identification card on his/her person during all work hours. If a worker is not registered with DAT, they must be paid the "total rate" listed on the wage schedule regardless of experience or skill level. For further information, please call (617) 626-5409, or write to DAT, 19 Staniford Street, Floor 1, P.O. Box 146759, Boston, MA 02114.

WEEKLY PAYROLL RECORDS REPORT
& STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c. 149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided. A Payroll Form has been printed on the reverse of this page and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract.

In addition, every contractor and subcontractor is required to submit, on a weekly basis, a copy of their weekly payroll records to the awarding authority. For every week in which an apprentice is employed, a photocopy of the apprentice's identification card must be attached to the payroll report. Once collected, the awarding authority is also required to preserve those reports for three years.

In addition, each such contractor, subcontractor, or public body shall furnish to the awarding authority directly, within fifteen days after completion of its portion of the work, a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:

STATEMENT OF COMPLIANCE	
_____, 200_____	
I, _____	_____
(Name of signatory party)	(Title)
do hereby state that I pay or supervise the payment of the persons employed by	
_____	on the _____
(Contractor, subcontractor or public body)	(Building or project)
and that all mechanics and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty nine of the General Laws.	
Signature _____	
Title _____	

DIVISION OF OCCUPATIONAL SAFETY, 399 WASHINGTON STREET, 5TH FLOOR, BOSTON, MA. 02108

Print Name & Title:

[illegible]

NOTE: Every contractor and subcontractor is required to submit a copy of their weekly payroll records to the awarding authority.

**THE MASSACHUSETTS
PREVAILING WAGE
LAW
(MGL. c149, §§26-27H)**

**AN IMPORTANT GUIDE FOR
CONTRACTORS
DOING PUBLIC WORKS
PROJECTS
IN
MASSACHUSETTS**

PREVAILING WAGE SCHEDULES

Every contractor should obtain a schedule of prevailing wage rates for every public works project from the Awarding Authority (city, town, county, district, state agency or authority). It is the awarding authority's responsibility to ensure that a copy of the wage schedule is provided to all contractors from whom estimates or bids are solicited for all projects. The Department of Labor and Industries (DLI) will not issue wage schedules directly to contractors or employees.

Once a wage schedule has been issued for a project by DLI, it will remain in effect for the entire project. Appeals of wage determinations or classifications of employment may be made to the DLI commissioner.

A copy of the wage schedule is required to be posted at the work site.

A wage schedule issued for a project may not be used on any other project. If, by chance, an Awarding Authority fails to provide you with a wage schedule to use when figuring your bid, do not use one you may have from another project.

In this case, you should contact DLI immediately and urge the awarding authority to contact DLI to correct the oversight.

The failure of an Awarding Authority to provide a wage schedule does not excuse a contractor from paying the prevailing rate.

BIDDING

The Attorney General's Division of Fair Labor & Business Practices enforces the prevailing wage law. All bids must reflect prevailing wage rates. Contractors may be required by an Awarding Authority to "demonstrate ... how (they) could complete the project and comply with Mass. Gen. Laws." The Division issued an "Advisory" discussing these and other points. For a copy, please contact the Attorney General's Office.

PAYING EMPLOYEES

Prevailing wages must be paid to all employees on public works projects regardless of whether they are employed by the general contractor, a filed sub-bidder or any sub-contractor. The prevailing wage applies equally to unionized and non-unionized workers.

All employees who perform work on a public works project must be paid hourly according to the wage schedule issued for the particular project.

The wage schedule issued for each project is in effect for the duration of that project. All wage increases listed on the schedule must be paid on the specified dates.

Employers are limited in the deductions that can be made from the hourly rate (represented as the "total rate" on the wage schedules). Only contributions to the following plans may be deducted:

1. Health Plan
2. Pension
3. Supplementary Unemployment

All contributions must be made to bona fide plans.

If an employer contributes to any, or all, of the above plans, it may deduct the hourly amount contributed from the "total rate." If the employer does not contribute to any of the benefit plans listed above, then the employee's hourly rate of pay will be the "total rate" from the wage schedule.

All other deductions, including and not limited to the following," from the wageschedule.

All other deductions, including and not limited to the following, may not be subtracted from the employee's hourly wage rate:

1. Vacation Time
2. Sick Time
3. Training Funds
4. Charitable Contributions
5. Worker's Compensation
6. Unemployment Insurance
7. Uniforms

Overtime, which must be paid to all employees who work more than 40 hours per week, shall be at least time-and-one-half the base rate ("total rate" less benefits, if any).

Any "separate check" given to an employee as the "benefit portion" of the prevailing wage may not be treated differently than the check for "base wages." All "separate checks" are considered wages and subject to state and federal taxes, unemployment insurance, and worker's compensation requirements.

PAYROLL RECORDS

Employers are required to submit weekly-certified payroll reports to the Awarding Authority and keep them on file for three (3) years. A reporting form is sent along with each wage schedule that may be used. Each report must contain at least: the employee's name, address, occupational classification, hours worked and wages paid. Do not submit weekly payroll reports to DLI.

After each contractor completes its portion of the public works project, the contractor must submit a Statement of Compliance to DLI. A Statement of Compliance form is also sent along with each wage schedule issued.

APPRENTICES

If your company employs apprentices, they must be registered with the Division of Apprentice Training. All persons not registered with DAT must be paid the “total rate” listed on the wage schedule. An apprentice sheet showing percentages based on the apprentice steps is included with all wage schedules.

PENALTIES

Failure to pay the prevailing wage subjects the contractor to potential civil and criminal liability.

Wage schedules are issued by:
MA Dept. of Labor & Industries
100 Cambridge St., 11th Fl.
Boston, MA 02202
(617) 727-3492

Enforcement is carried out by:
Office of the Attorney General,
Fair Labor & Business Practices Div.
100 Cambridge St., 11th Fl.
Boston, MA 02202
(617) 727-3477

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 00 73 43



CHARLES D. BAKER
Governor

KARYN E. POLITO
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

**As determined by the Director under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H**

ROSALIN ACOSTA
Secretary
WILLIAM D MCKINNEY
Director

Awarding Authority: City of Worcester
Contract Number: 1507 **City/Town:** WORCESTER
Description of Work: Worcester South Community High School Construction
Job Location: 170 Apricot Street, Worcester, MA 01605

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule from the Department of Labor Standards ("DLS") if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.
- All apprentices working on the project are required to be registered with the Massachusetts Department of Labor Standards, Division of Apprentice Standards (DLS/DAS). Apprentice must keep his/her apprentice identification card on his/her person during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DLS/DAS regardless of whether or not they are registered with any other federal, state, local, or private agency must be paid the journeyworker's rate for the trade.**
- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule. Awarding authorities are required to request these updates no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. Contractors are required to obtain the wage schedules from awarding authorities, and to pay no less than these rates to covered workers. The annual update requirement is not applicable to 27F "rental of equipment" contracts.
- Every contractor or subcontractor which performs construction work on the project is required to submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. A sample of a payroll reporting form may be obtained at <http://www.mass.gov/dols/pw>.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may report the violation to the Fair Labor Division of the office of the Attorney General at (617) 727-3465.
- Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2016	\$32.15	\$10.91	\$10.89	\$0.00	\$53.95
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2016	\$32.22	\$10.91	\$10.89	\$0.00	\$54.02
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2016	\$32.34	\$10.91	\$10.89	\$0.00	\$54.14
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2017	\$92.97	\$9.90	\$21.15	\$0.00	\$124.02
	08/01/2018	\$97.80	\$9.90	\$21.15	\$0.00	\$128.85
	08/01/2019	\$102.78	\$9.90	\$21.15	\$0.00	\$133.83
	For apprentice rates see "Apprentice- PILE DRIVER"					
AIR TRACK OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2017	\$33.58	\$7.70	\$13.60	\$0.00	\$54.88
	06/01/2018	\$34.42	\$7.70	\$13.60	\$0.00	\$55.72
	12/01/2018	\$35.26	\$7.70	\$13.60	\$0.00	\$56.56
	06/01/2019	\$36.13	\$7.70	\$13.60	\$0.00	\$57.43
	12/01/2019	\$36.99	\$7.70	\$13.60	\$0.00	\$58.29
	06/01/2020	\$37.88	\$7.70	\$13.60	\$0.00	\$59.18
	12/01/2020	\$38.77	\$7.70	\$13.60	\$0.00	\$60.07
	06/01/2021	\$39.69	\$7.70	\$13.60	\$0.00	\$60.99
	12/01/2021	\$40.60	\$7.70	\$13.60	\$0.00	\$61.90
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS WORKER (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (WORCESTER)</i>	12/01/2017	\$35.90	\$11.50	\$7.10	\$0.00	\$54.50
	06/01/2018	\$36.90	\$11.50	\$7.10	\$0.00	\$55.50
	12/01/2018	\$37.90	\$11.50	\$7.10	\$0.00	\$56.50
	06/01/2019	\$38.90	\$11.50	\$7.10	\$0.00	\$57.50
	12/01/2019	\$39.90	\$11.50	\$7.10	\$0.00	\$58.50
	06/01/2020	\$40.90	\$11.50	\$7.10	\$0.00	\$59.50
	12/01/2020	\$41.90	\$11.50	\$7.10	\$0.00	\$60.50
ASPHALT RAKER <i>LABORERS - ZONE 2</i>	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 2</i>	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 2</i>	12/01/2017	\$33.58	\$7.70	\$13.60	\$0.00	\$54.88
	06/01/2018	\$34.42	\$7.70	\$13.60	\$0.00	\$55.72
	12/01/2018	\$35.26	\$7.70	\$13.60	\$0.00	\$56.56
	06/01/2019	\$36.13	\$7.70	\$13.60	\$0.00	\$57.43
	12/01/2019	\$36.99	\$7.70	\$13.60	\$0.00	\$58.29
	06/01/2020	\$37.88	\$7.70	\$13.60	\$0.00	\$59.18
	12/01/2020	\$38.77	\$7.70	\$13.60	\$0.00	\$60.07
	06/01/2021	\$39.69	\$7.70	\$13.60	\$0.00	\$60.99
	12/01/2021	\$40.60	\$7.70	\$13.60	\$0.00	\$61.90
For apprentice rates see "Apprentice- LABORER"						
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2017	\$42.92	\$6.97	\$16.21	\$0.00	\$66.10

Apprentice - BOILERMAKER - Local 29

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$27.90	\$6.97	\$10.54	\$0.00	\$45.41
2	65	\$27.90	\$6.97	\$10.54	\$0.00	\$45.41
3	70	\$30.04	\$6.97	\$11.35	\$0.00	\$48.36
4	75	\$32.19	\$6.97	\$12.16	\$0.00	\$51.32
5	80	\$34.34	\$6.97	\$12.97	\$0.00	\$54.28
6	85	\$36.48	\$6.97	\$13.78	\$0.00	\$57.23
7	90	\$38.63	\$6.97	\$14.59	\$0.00	\$60.19
8	95	\$40.77	\$6.97	\$15.40	\$0.00	\$63.14

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) <i>BRICKLAYERS LOCAL 3 (WORCESTER)</i>	03/01/2018	\$49.96	\$10.75	\$19.43	\$0.00	\$80.14
	08/01/2018	\$51.31	\$10.75	\$19.56	\$0.00	\$81.62
	02/01/2019	\$51.91	\$10.75	\$19.56	\$0.00	\$82.22
	08/01/2019	\$53.26	\$10.75	\$19.70	\$0.00	\$83.71
	02/01/2020	\$53.86	\$10.75	\$19.70	\$0.00	\$84.31
	08/01/2020	\$55.21	\$10.75	\$19.85	\$0.00	\$85.81
	02/01/2021	\$55.81	\$10.75	\$19.85	\$0.00	\$86.41
	08/01/2021	\$57.21	\$10.75	\$20.01	\$0.00	\$87.97
	02/01/2022	\$57.79	\$10.75	\$20.01	\$0.00	\$88.55

Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Worcester

Effective Date - 03/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.98	\$10.75	\$19.43	\$0.00	\$55.16
2	60	\$29.98	\$10.75	\$19.43	\$0.00	\$60.16
3	70	\$34.97	\$10.75	\$19.43	\$0.00	\$65.15
4	80	\$39.97	\$10.75	\$19.43	\$0.00	\$70.15
5	90	\$44.96	\$10.75	\$19.43	\$0.00	\$75.14

Effective Date - 08/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.66	\$10.75	\$19.56	\$0.00	\$55.97
2	60	\$30.79	\$10.75	\$19.56	\$0.00	\$61.10
3	70	\$35.92	\$10.75	\$19.56	\$0.00	\$66.23
4	80	\$41.05	\$10.75	\$19.56	\$0.00	\$71.36
5	90	\$46.18	\$10.75	\$19.56	\$0.00	\$76.49

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

CAISSON & UNDERPINNING BOTTOM MAN <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2017	\$38.60	\$7.70	\$14.95	\$0.00	\$61.25
	06/01/2018	\$39.55	\$7.70	\$14.95	\$0.00	\$62.20
	12/01/2018	\$40.50	\$7.70	\$14.95	\$0.00	\$63.15
	06/01/2019	\$41.50	\$7.70	\$14.95	\$0.00	\$64.15
	12/01/2019	\$42.50	\$7.70	\$14.95	\$0.00	\$65.15
	06/01/2020	\$43.49	\$7.70	\$14.95	\$0.00	\$66.14
	12/01/2020	\$44.47	\$7.70	\$14.95	\$0.00	\$67.12
	06/01/2021	\$45.49	\$7.70	\$14.95	\$0.00	\$68.14
	12/01/2021	\$46.50	\$7.70	\$14.95	\$0.00	\$69.15

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CAISSON & UNDERPINNING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2017	\$37.45	\$7.70	\$14.95	\$0.00	\$60.10
	06/01/2018	\$38.40	\$7.70	\$14.95	\$0.00	\$61.05
	12/01/2018	\$39.35	\$7.70	\$14.95	\$0.00	\$62.00
	06/01/2019	\$40.35	\$7.70	\$14.95	\$0.00	\$63.00
	12/01/2019	\$41.35	\$7.70	\$14.95	\$0.00	\$64.00
	06/01/2020	\$42.34	\$7.70	\$14.95	\$0.00	\$64.99
	12/01/2020	\$43.32	\$7.70	\$14.95	\$0.00	\$65.97
	06/01/2021	\$44.34	\$7.70	\$14.95	\$0.00	\$66.99
	12/01/2021	\$45.35	\$7.70	\$14.95	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2017	\$37.45	\$7.70	\$14.95	\$0.00	\$60.10
	06/01/2018	\$38.40	\$7.70	\$14.95	\$0.00	\$61.05
	12/01/2018	\$39.35	\$7.70	\$14.95	\$0.00	\$62.00
	06/01/2019	\$40.35	\$7.70	\$14.95	\$0.00	\$63.00
	12/01/2019	\$41.35	\$7.70	\$14.95	\$0.00	\$64.00
	06/01/2020	\$42.34	\$7.70	\$14.95	\$0.00	\$64.99
	12/01/2020	\$43.32	\$7.70	\$14.95	\$0.00	\$65.97
	06/01/2021	\$44.34	\$7.70	\$14.95	\$0.00	\$66.99
	12/01/2021	\$45.35	\$7.70	\$14.95	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
CARPENTER <i>CARPENTERS -ZONE 2 (Eastern Massachusetts)</i>	03/01/2018	\$40.28	\$9.90	\$17.50	\$0.00	\$67.68
	09/01/2018	\$41.32	\$9.90	\$17.50	\$0.00	\$68.72
	03/01/2019	\$42.35	\$9.90	\$17.50	\$0.00	\$69.75

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - CARPENTER - Zone 2 Eastern MA
Effective Date - 03/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.14	\$9.90	\$1.73	\$0.00	\$31.77
2	60	\$24.17	\$9.90	\$1.73	\$0.00	\$35.80
3	70	\$28.20	\$9.90	\$12.31	\$0.00	\$50.41
4	75	\$30.21	\$9.90	\$12.31	\$0.00	\$52.42
5	80	\$32.22	\$9.90	\$14.04	\$0.00	\$56.16
6	80	\$32.22	\$9.90	\$14.04	\$0.00	\$56.16
7	90	\$36.25	\$9.90	\$15.77	\$0.00	\$61.92
8	90	\$36.25	\$9.90	\$15.77	\$0.00	\$61.92

Effective Date - 09/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.66	\$9.90	\$1.73	\$0.00	\$32.29
2	60	\$24.79	\$9.90	\$1.73	\$0.00	\$36.42
3	70	\$28.92	\$9.90	\$12.31	\$0.00	\$51.13
4	75	\$30.99	\$9.90	\$12.31	\$0.00	\$53.20
5	80	\$33.06	\$9.90	\$14.04	\$0.00	\$57.00
6	80	\$33.06	\$9.90	\$14.04	\$0.00	\$57.00
7	90	\$37.19	\$9.90	\$15.77	\$0.00	\$62.86
8	90	\$37.19	\$9.90	\$15.77	\$0.00	\$62.86

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 \$29.76/ 3&4 \$35.45/ 5&6 \$52.14/ 7&8 \$57.89

Apprentice to Journeyworker Ratio:1:5

CARPENTER WOOD FRAME	04/01/2018	\$26.67	\$7.07	\$7.86	\$0.00	\$41.60
CARPENTERS -ZONE 2 (Wood Frame)	10/01/2018	\$27.09	\$7.07	\$7.86	\$0.00	\$42.02
	04/01/2019	\$27.52	\$7.07	\$7.86	\$0.00	\$42.45
	10/01/2019	\$27.95	\$7.07	\$7.86	\$0.00	\$42.88

As of 9/1/09 Carpentry work on wood-frame WEATHERIZATION projects shall be paid the WOOD FRAME CARPENTER rate.

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - CARPENTER (Wood Frame) - Zone 2
Effective Date - 04/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$16.00	\$7.07	\$0.00	\$0.00	\$23.07
2	60	\$16.00	\$7.07	\$0.00	\$0.00	\$23.07
3	65	\$17.34	\$7.07	\$7.86	\$0.00	\$32.27
4	70	\$18.67	\$7.07	\$7.86	\$0.00	\$33.60
5	75	\$20.00	\$7.07	\$7.86	\$0.00	\$34.93
6	80	\$21.34	\$7.07	\$7.86	\$0.00	\$36.27
7	85	\$22.67	\$7.07	\$7.86	\$0.00	\$37.60
8	90	\$24.00	\$7.07	\$7.86	\$0.00	\$38.93

Effective Date - 10/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$16.25	\$7.07	\$0.00	\$0.00	\$23.32
2	60	\$16.25	\$7.07	\$0.00	\$0.00	\$23.32
3	65	\$17.61	\$7.07	\$7.86	\$0.00	\$32.54
4	70	\$18.96	\$7.07	\$7.86	\$0.00	\$33.89
5	75	\$20.32	\$7.07	\$7.86	\$0.00	\$35.25
6	80	\$21.67	\$7.07	\$7.86	\$0.00	\$36.60
7	85	\$23.03	\$7.07	\$7.86	\$0.00	\$37.96
8	90	\$24.38	\$7.07	\$7.86	\$0.00	\$39.31

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 \$19.07/ 3&4 \$26.49/ 5&6 \$33.60/ 7&8 \$36.27

Apprentice to Journeyworker Ratio:1:5

CARPENTER WOOD FRAME (All Other Work) CARPENTERS -ZONE 2 (Wood Frame)	06/01/2016	\$25.32	\$9.80	\$16.82	\$0.00	\$51.94
CEMENT MASONRY/PLASTERING BRICKLAYERS LOCAL 3 (WORCESTER)	01/01/2018	\$43.61	\$12.35	\$22.41	\$0.30	\$78.67
	07/01/2018	\$44.35	\$12.35	\$22.41	\$0.30	\$79.41
	01/01/2019	\$45.77	\$12.35	\$22.41	\$0.30	\$80.83
	07/01/2019	\$46.45	\$12.35	\$22.41	\$0.30	\$81.51
	01/01/2020	\$47.86	\$12.35	\$22.41	\$0.30	\$82.92

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - CEMENT MASONRY/PLASTERING - Worcester
Effective Date - 01/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.81	\$12.35	\$15.41	\$0.00	\$49.57
2	60	\$26.17	\$12.35	\$17.41	\$0.30	\$56.23
3	65	\$28.35	\$12.35	\$18.41	\$0.30	\$59.41
4	70	\$30.53	\$12.35	\$19.41	\$0.30	\$62.59
5	75	\$32.71	\$12.35	\$20.41	\$0.30	\$65.77
6	80	\$34.89	\$12.35	\$21.41	\$0.30	\$68.95
7	90	\$39.25	\$12.35	\$22.41	\$0.30	\$74.31

Effective Date - 07/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.18	\$12.35	\$15.41	\$0.00	\$49.94
2	60	\$26.61	\$12.35	\$17.41	\$0.30	\$56.67
3	65	\$28.83	\$12.35	\$18.41	\$0.30	\$59.89
4	70	\$31.05	\$12.35	\$19.41	\$0.30	\$63.11
5	75	\$33.26	\$12.35	\$20.41	\$0.30	\$66.32
6	80	\$35.48	\$12.35	\$21.41	\$0.30	\$69.54
7	90	\$39.92	\$12.35	\$22.41	\$0.30	\$74.98

Notes:

Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
LABORERS - ZONE 2	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES	12/01/2017	\$47.63	\$10.50	\$15.50	\$0.00	\$73.63
OPERATING ENGINEERS LOCAL 4						
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR	12/01/2017	\$31.80	\$10.50	\$15.50	\$0.00	\$57.80
OPERATING ENGINEERS LOCAL 4						
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE)	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36
PAINTERS LOCAL 35 - ZONE 2						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.71	\$7.85	\$0.00	\$0.00	\$33.56
2	55	\$28.28	\$7.85	\$3.66	\$0.00	\$39.79
3	60	\$30.85	\$7.85	\$3.99	\$0.00	\$42.69
4	65	\$33.42	\$7.85	\$4.32	\$0.00	\$45.59
5	70	\$35.99	\$7.85	\$14.11	\$0.00	\$57.95
6	75	\$38.56	\$7.85	\$14.44	\$0.00	\$60.85
7	80	\$41.13	\$7.85	\$14.77	\$0.00	\$63.75
8	90	\$46.27	\$7.85	\$15.44	\$0.00	\$69.56

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN LABORERS - ZONE 2	12/01/2017	\$37.65	\$7.70	\$14.75	\$0.00	\$60.10
	06/01/2018	\$38.60	\$7.70	\$14.75	\$0.00	\$61.05
	12/01/2018	\$39.55	\$7.70	\$14.75	\$0.00	\$62.00
	06/01/2019	\$40.55	\$7.70	\$14.75	\$0.00	\$63.00
	12/01/2019	\$41.55	\$7.70	\$14.75	\$0.00	\$64.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR LABORERS - ZONE 2	12/01/2017	\$38.65	\$7.70	\$14.75	\$0.00	\$61.10
	06/01/2018	\$39.60	\$7.70	\$14.75	\$0.00	\$62.05
	12/01/2018	\$40.55	\$7.70	\$14.75	\$0.00	\$63.00
	06/01/2019	\$41.55	\$7.70	\$14.75	\$0.00	\$64.00
	12/01/2019	\$42.55	\$7.70	\$14.75	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS LABORERS - ZONE 2	12/01/2017	\$38.40	\$7.70	\$14.75	\$0.00	\$60.85
	06/01/2018	\$39.35	\$7.70	\$14.75	\$0.00	\$61.80
	12/01/2018	\$40.30	\$7.70	\$14.75	\$0.00	\$62.75
	06/01/2019	\$41.30	\$7.70	\$14.75	\$0.00	\$63.75
	12/01/2019	\$42.30	\$7.70	\$14.75	\$0.00	\$64.75
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER LABORERS - ZONE 2	12/01/2017	\$38.65	\$7.70	\$14.75	\$0.00	\$61.10
	06/01/2018	\$39.60	\$7.70	\$14.75	\$0.00	\$62.05
	12/01/2018	\$40.55	\$7.70	\$14.75	\$0.00	\$63.00
	06/01/2019	\$41.55	\$7.70	\$14.75	\$0.00	\$64.00
	12/01/2019	\$42.55	\$7.70	\$14.75	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR LABORERS - ZONE 2	12/01/2017	\$38.40	\$7.70	\$14.75	\$0.00	\$60.85
	06/01/2018	\$39.35	\$7.70	\$14.75	\$0.00	\$61.80
	12/01/2018	\$40.30	\$7.70	\$14.75	\$0.00	\$62.75
	06/01/2019	\$41.30	\$7.70	\$14.75	\$0.00	\$63.75
	12/01/2019	\$42.30	\$7.70	\$14.75	\$0.00	\$64.75

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER	12/01/2017	\$37.65	\$7.70	\$14.75	\$0.00	\$60.10
LABORERS - ZONE 2	06/01/2018	\$38.60	\$7.70	\$14.75	\$0.00	\$61.05
	12/01/2018	\$39.55	\$7.70	\$14.75	\$0.00	\$62.00
	06/01/2019	\$40.55	\$7.70	\$14.75	\$0.00	\$63.00
	12/01/2019	\$41.55	\$7.70	\$14.75	\$0.00	\$64.00
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
OPERATING ENGINEERS LOCAL 4						
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER	08/01/2017	\$61.98	\$9.90	\$21.15	\$0.00	\$93.03
PILE DRIVER LOCAL 56 (ZONE 2)	08/01/2018	\$65.20	\$9.90	\$21.15	\$0.00	\$96.25
	08/01/2019	\$68.52	\$9.90	\$21.15	\$0.00	\$99.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER	08/01/2017	\$44.27	\$9.90	\$21.15	\$0.00	\$75.32
PILE DRIVER LOCAL 56 (ZONE 2)	08/01/2018	\$46.57	\$9.90	\$21.15	\$0.00	\$77.62
	08/01/2019	\$48.94	\$9.90	\$21.15	\$0.00	\$79.99
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT)	08/01/2017	\$66.41	\$9.90	\$21.15	\$0.00	\$97.46
PILE DRIVER LOCAL 56 (ZONE 2)	08/01/2018	\$69.86	\$9.90	\$21.15	\$0.00	\$100.91
	08/01/2019	\$73.41	\$9.90	\$21.15	\$0.00	\$104.46
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT)	08/01/2017	\$92.97	\$9.90	\$21.15	\$0.00	\$124.02
PILE DRIVER LOCAL 56 (ZONE 2)	08/01/2018	\$97.80	\$9.90	\$21.15	\$0.00	\$128.85
	08/01/2019	\$102.78	\$9.90	\$21.15	\$0.00	\$133.83
For apprentice rates see "Apprentice- PILE DRIVER"						
ELECTRICIAN	12/01/2017	\$42.32	\$9.57	\$14.60	\$0.00	\$66.49
ELECTRICIANS LOCAL 96	06/01/2018	\$43.27	\$9.82	\$14.98	\$0.00	\$68.07
	12/01/2018	\$43.52	\$10.07	\$15.02	\$0.00	\$68.61
	06/01/2019	\$45.52	\$10.07	\$15.30	\$0.00	\$70.89

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - ELECTRICIAN - Local 96
Effective Date - 12/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$16.93	\$9.57	\$0.51	\$0.00	\$27.01
2	43	\$18.20	\$9.57	\$0.55	\$0.00	\$28.32
3	48	\$20.31	\$9.57	\$11.51	\$0.00	\$41.39
4	55	\$23.28	\$9.57	\$11.93	\$0.00	\$44.78
5	65	\$27.51	\$9.57	\$12.53	\$0.00	\$49.61
6	80	\$33.86	\$9.57	\$13.41	\$0.00	\$56.84

Effective Date - 06/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.31	\$9.82	\$0.52	\$0.00	\$27.65
2	43	\$18.61	\$9.82	\$0.56	\$0.00	\$28.99
3	48	\$20.77	\$9.82	\$11.82	\$0.00	\$42.41
4	55	\$23.80	\$9.82	\$12.25	\$0.00	\$45.87
5	65	\$28.13	\$9.82	\$12.85	\$0.00	\$50.80
6	80	\$34.62	\$9.82	\$13.77	\$0.00	\$58.21

Notes:

Steps 1-2 are 1000 hrs; Steps 3-6 are 1500 hrs.

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR
ELEVATOR CONSTRUCTORS LOCAL 41

01/01/2017

\$49.90

\$15.28

\$15.71

\$0.00

\$80.89

Apprentice - ELEVATOR CONSTRUCTOR - Local 41
Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.95	\$15.28	\$15.71	\$0.00	\$55.94
2	55	\$27.45	\$15.28	\$15.71	\$0.00	\$58.44
3	65	\$32.44	\$15.28	\$15.71	\$0.00	\$63.43
4	70	\$34.93	\$15.28	\$15.71	\$0.00	\$65.92
5	80	\$39.92	\$15.28	\$15.71	\$0.00	\$70.91

Notes:

Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER
ELEVATOR CONSTRUCTORS LOCAL 41

01/01/2017

\$34.93

\$15.28

\$15.71

\$0.00

\$65.92

For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FENCE & GUARD RAIL ERECTOR <i>LABORERS - ZONE 2</i>	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2017	\$42.88	\$10.00	\$15.25	\$0.00	\$68.13
	05/01/2018	\$43.59	\$10.00	\$15.25	\$0.00	\$68.84
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2017	\$44.34	\$10.00	\$15.25	\$0.00	\$69.59
	05/01/2018	\$45.06	\$10.00	\$15.25	\$0.00	\$70.31
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2017	\$22.83	\$10.00	\$15.25	\$0.00	\$48.08
	05/01/2018	\$23.26	\$10.00	\$15.25	\$0.00	\$48.51
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 96</i>	12/01/2017	\$42.32	\$9.57	\$14.60	\$0.00	\$66.49
	06/01/2018	\$43.27	\$9.82	\$14.98	\$0.00	\$68.07
	12/01/2018	\$43.52	\$10.07	\$15.02	\$0.00	\$68.61
	06/01/2019	\$45.52	\$10.07	\$15.30	\$0.00	\$70.89
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINT/COMMISSIONING <i>ELECTRICIANS LOCAL 96</i>	12/01/2017	\$42.32	\$9.57	\$14.60	\$0.00	\$66.49
	06/01/2018	\$43.27	\$9.82	\$14.98	\$0.00	\$68.07
	12/01/2018	\$43.52	\$10.07	\$15.02	\$0.00	\$68.61
	06/01/2019	\$45.52	\$10.07	\$15.30	\$0.00	\$70.89
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$38.57	\$10.50	\$15.50	\$0.00	\$64.57
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER <i>LABORERS - ZONE 2</i>	12/01/2017	\$21.50	\$7.70	\$13.60	\$0.00	\$42.80
	06/01/2018	\$21.50	\$7.70	\$13.60	\$0.00	\$42.80
	12/01/2018	\$22.50	\$7.70	\$13.60	\$0.00	\$43.80
	06/01/2019	\$22.50	\$7.70	\$13.60	\$0.00	\$43.80
	12/01/2019	\$23.50	\$7.70	\$13.60	\$0.00	\$44.80
	06/01/2020	\$23.50	\$7.70	\$13.60	\$0.00	\$44.80
	12/01/2020	\$24.50	\$7.70	\$13.60	\$0.00	\$45.80
	06/01/2021	\$24.50	\$7.70	\$13.60	\$0.00	\$45.80
	12/01/2021	\$24.50	\$7.70	\$13.60	\$0.00	\$45.80
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE II</i>	03/01/2016	\$39.82	\$9.80	\$17.62	\$0.00	\$67.24

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - FLOORCOVERER - Local 2168 Zone II

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.91	\$9.80	\$1.79	\$0.00	\$31.50
2	55	\$21.90	\$9.80	\$1.79	\$0.00	\$33.49
3	60	\$23.89	\$9.80	\$12.25	\$0.00	\$45.94
4	65	\$25.88	\$9.80	\$12.25	\$0.00	\$47.93
5	70	\$27.87	\$9.80	\$14.04	\$0.00	\$51.71
6	75	\$29.87	\$9.80	\$14.04	\$0.00	\$53.71
7	80	\$31.86	\$9.80	\$15.83	\$0.00	\$57.49
8	85	\$33.85	\$9.80	\$15.83	\$0.00	\$59.48

Notes: Steps are 750 hrs.
 % After 09/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)
 Step 1&2 \$29.51/ 3&4 \$35.22/ 5&6 \$51.71/ 7&8 \$57.49

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GENERATOR/LIGHTING PLANT/HEATERS OPERATING ENGINEERS LOCAL 4	12/01/2017	\$31.80	\$10.50	\$15.50	\$0.00	\$57.80
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) GLAZIERS LOCAL 35 (ZONE 2)	01/01/2017	\$40.91	\$7.85	\$16.10	\$0.00	\$64.86
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Apprentice - GLAZIER - Local 35 Zone 2

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.46	\$7.85	\$0.00	\$0.00	\$28.31
2	55	\$22.50	\$7.85	\$3.66	\$0.00	\$34.01
3	60	\$24.55	\$7.85	\$3.99	\$0.00	\$36.39
4	65	\$26.59	\$7.85	\$4.32	\$0.00	\$38.76
5	70	\$28.64	\$7.85	\$14.11	\$0.00	\$50.60
6	75	\$30.68	\$7.85	\$14.44	\$0.00	\$52.97
7	80	\$32.73	\$7.85	\$14.77	\$0.00	\$55.35
8	90	\$36.82	\$7.85	\$15.44	\$0.00	\$60.11

Notes:
 Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

HOISTING ENGINEER/CRANES/GRADALLS OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
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Apprentice - OPERATING ENGINEERS - Local 4

Effective Date - 12/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$25.65	\$10.50	\$0.00	\$0.00	\$36.15
2	60	\$27.98	\$10.50	\$15.50	\$0.00	\$53.98
3	65	\$30.31	\$10.50	\$15.50	\$0.00	\$56.31
4	70	\$32.64	\$10.50	\$15.50	\$0.00	\$58.64
5	75	\$34.97	\$10.50	\$15.50	\$0.00	\$60.97
6	80	\$37.30	\$10.50	\$15.50	\$0.00	\$63.30
7	85	\$39.64	\$10.50	\$15.50	\$0.00	\$65.64
8	90	\$41.97	\$10.50	\$15.50	\$0.00	\$67.97

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 63	01/01/2018	\$32.99	\$10.64	\$16.22	\$1.77	\$61.62
	07/01/2018	\$33.74	\$10.64	\$16.22	\$1.77	\$62.37
	01/01/2019	\$34.74	\$10.64	\$16.22	\$1.77	\$63.37
	07/01/2019	\$35.74	\$10.64	\$16.22	\$1.77	\$64.37
	01/01/2020	\$36.99	\$10.64	\$16.22	\$1.77	\$65.62
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CONTROLS) ELECTRICIANS LOCAL 96	12/01/2017	\$42.32	\$9.57	\$14.60	\$0.00	\$66.49
	06/01/2018	\$43.27	\$9.82	\$14.98	\$0.00	\$68.07
	12/01/2018	\$43.52	\$10.07	\$15.02	\$0.00	\$68.61
	06/01/2019	\$45.52	\$10.07	\$15.30	\$0.00	\$70.89
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) SHEETMETAL WORKERS LOCAL 63	01/01/2018	\$32.99	\$10.64	\$16.22	\$1.77	\$61.62
	07/01/2018	\$33.74	\$10.64	\$16.22	\$1.77	\$62.37
	01/01/2019	\$34.74	\$10.64	\$16.22	\$1.77	\$63.37
	07/01/2019	\$35.74	\$10.64	\$16.22	\$1.77	\$64.37
	01/01/2020	\$36.99	\$10.64	\$16.22	\$1.77	\$65.62
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) PLUMBERS LOCAL 4	03/01/2018	\$43.96	\$9.35	\$14.91	\$0.00	\$68.22
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC PLUMBERS LOCAL 4	03/01/2018	\$43.96	\$9.35	\$14.91	\$0.00	\$68.22
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HYDRAULIC DRILLS <i>LABORERS - ZONE 2</i>	12/01/2017	\$33.58	\$7.70	\$13.60	\$0.00	\$54.88
	06/01/2018	\$34.42	\$7.70	\$13.60	\$0.00	\$55.72
	12/01/2018	\$35.26	\$7.70	\$13.60	\$0.00	\$56.56
	06/01/2019	\$36.13	\$7.70	\$13.60	\$0.00	\$57.43
	12/01/2019	\$36.99	\$7.70	\$13.60	\$0.00	\$58.29
	06/01/2020	\$37.88	\$7.70	\$13.60	\$0.00	\$59.18
	12/01/2020	\$38.77	\$7.70	\$13.60	\$0.00	\$60.07
	06/01/2021	\$39.69	\$7.70	\$13.60	\$0.00	\$60.99
	12/01/2021	\$40.60	\$7.70	\$13.60	\$0.00	\$61.90

For apprentice rates see "Apprentice- LABORER"

INSULATOR (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (WORCESTER)</i>	09/01/2017	\$42.38	\$11.75	\$14.20	\$0.00	\$68.33
	09/01/2018	\$44.40	\$11.75	\$14.20	\$0.00	\$70.35
	09/01/2019	\$46.65	\$11.75	\$14.20	\$0.00	\$72.60

Apprentice - ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Worcester

Effective Date - 09/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.19	\$11.75	\$10.45	\$0.00	\$43.39
2	60	\$25.43	\$11.75	\$11.20	\$0.00	\$48.38
3	70	\$29.67	\$11.75	\$11.95	\$0.00	\$53.37
4	80	\$33.90	\$11.75	\$12.70	\$0.00	\$58.35

Effective Date - 09/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.20	\$11.75	\$10.45	\$0.00	\$44.40
2	60	\$26.64	\$11.75	\$11.20	\$0.00	\$49.59
3	70	\$31.08	\$11.75	\$11.95	\$0.00	\$54.78
4	80	\$35.52	\$11.75	\$12.70	\$0.00	\$59.97

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER <i>IRONWORKERS LOCAL 7 (WORCESTER AREA)</i>	03/16/2017	\$44.35	\$7.80	\$20.85	\$0.00	\$73.00
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Classification

**Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate**

Apprentice - IRONWORKER - Local 7 Worcester

Effective Date - 03/16/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$26.61	\$7.80	\$20.85	\$0.00	\$55.26
2	70	\$31.05	\$7.80	\$20.85	\$0.00	\$59.70
3	75	\$33.26	\$7.80	\$20.85	\$0.00	\$61.91
4	80	\$35.48	\$7.80	\$20.85	\$0.00	\$64.13
5	85	\$37.70	\$7.80	\$20.85	\$0.00	\$66.35
6	90	\$39.92	\$7.80	\$20.85	\$0.00	\$68.57

Notes:

Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:

JACKHAMMER & PAVING BREAKER OPERATOR	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
LABORERS - ZONE 2	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40

For apprentice rates see "Apprentice- LABORER"

LABORER	12/01/2017	\$32.83	\$7.70	\$13.60	\$0.00	\$54.13
LABORERS - ZONE 2	06/01/2018	\$33.67	\$7.70	\$13.60	\$0.00	\$54.97
	12/01/2018	\$34.51	\$7.70	\$13.60	\$0.00	\$55.81
	06/01/2019	\$35.38	\$7.70	\$13.60	\$0.00	\$56.68
	12/01/2019	\$36.24	\$7.70	\$13.60	\$0.00	\$57.54
	06/01/2020	\$37.13	\$7.70	\$13.60	\$0.00	\$58.43
	12/01/2020	\$38.02	\$7.70	\$13.60	\$0.00	\$59.32
	06/01/2021	\$38.94	\$7.70	\$13.60	\$0.00	\$60.24
	12/01/2021	\$39.85	\$7.70	\$13.60	\$0.00	\$61.15

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - LABORER - Zone 2

Effective Date - 12/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$19.70	\$7.70	\$13.60	\$0.00	\$41.00
2	70	\$22.98	\$7.70	\$13.60	\$0.00	\$44.28
3	80	\$26.26	\$7.70	\$13.60	\$0.00	\$47.56
4	90	\$29.55	\$7.70	\$13.60	\$0.00	\$50.85

Effective Date - 06/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.20	\$7.70	\$13.60	\$0.00	\$41.50
2	70	\$23.57	\$7.70	\$13.60	\$0.00	\$44.87
3	80	\$26.94	\$7.70	\$13.60	\$0.00	\$48.24
4	90	\$30.30	\$7.70	\$13.60	\$0.00	\$51.60

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER: CARPENTER TENDER	12/01/2017	\$32.83	\$7.70	\$13.60	\$0.00	\$54.13
LABORERS - ZONE 2	06/01/2018	\$33.67	\$7.70	\$13.60	\$0.00	\$54.97
	12/01/2018	\$34.51	\$7.70	\$13.60	\$0.00	\$55.81
	06/01/2019	\$35.38	\$7.70	\$13.60	\$0.00	\$56.68
	12/01/2019	\$36.24	\$7.70	\$13.60	\$0.00	\$57.54
	06/01/2020	\$37.13	\$7.70	\$13.60	\$0.00	\$58.43
	12/01/2020	\$38.02	\$7.70	\$13.60	\$0.00	\$59.32
	06/01/2021	\$38.94	\$7.70	\$13.60	\$0.00	\$60.24
	12/01/2021	\$39.85	\$7.70	\$13.60	\$0.00	\$61.15

For apprentice rates see "Apprentice- LABORER"

LABORER: CEMENT FINISHER TENDER	12/01/2017	\$32.83	\$7.70	\$13.60	\$0.00	\$54.13
LABORERS - ZONE 2	06/01/2018	\$33.67	\$7.70	\$13.60	\$0.00	\$54.97
	12/01/2018	\$34.51	\$7.70	\$13.60	\$0.00	\$55.81
	06/01/2019	\$35.38	\$7.70	\$13.60	\$0.00	\$56.68
	12/01/2019	\$36.24	\$7.70	\$13.60	\$0.00	\$57.54
	06/01/2020	\$37.13	\$7.70	\$13.60	\$0.00	\$58.43
	12/01/2020	\$38.02	\$7.70	\$13.60	\$0.00	\$59.32
	06/01/2021	\$38.94	\$7.70	\$13.60	\$0.00	\$60.24
	12/01/2021	\$39.85	\$7.70	\$13.60	\$0.00	\$61.15

For apprentice rates see "Apprentice- LABORER"

LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER	12/01/2017	\$33.03	\$7.70	\$13.55	\$0.00	\$54.28
LABORERS - ZONE 2	06/01/2018	\$33.87	\$7.70	\$13.55	\$0.00	\$55.12
	12/01/2018	\$34.71	\$7.70	\$13.55	\$0.00	\$55.96
	06/01/2019	\$35.58	\$7.70	\$13.55	\$0.00	\$56.83
	12/01/2019	\$36.44	\$7.70	\$13.55	\$0.00	\$57.69

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MASON TENDER <i>LABORERS - ZONE 2</i>	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 2</i>	12/01/2017	\$32.83	\$7.70	\$13.60	\$0.00	\$54.13
	06/01/2018	\$33.67	\$7.70	\$13.60	\$0.00	\$54.97
	12/01/2018	\$34.51	\$7.70	\$13.60	\$0.00	\$55.81
	06/01/2019	\$35.38	\$7.70	\$13.60	\$0.00	\$56.68
	12/01/2019	\$36.24	\$7.70	\$13.60	\$0.00	\$57.54
	06/01/2020	\$37.13	\$7.70	\$13.60	\$0.00	\$58.43
	12/01/2020	\$38.02	\$7.70	\$13.60	\$0.00	\$59.32
	06/01/2021	\$38.94	\$7.70	\$13.60	\$0.00	\$60.24
	12/01/2021	\$39.85	\$7.70	\$13.60	\$0.00	\$61.15
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 2</i>	12/01/2017	\$32.83	\$7.70	\$13.60	\$0.00	\$54.13
	06/01/2018	\$33.67	\$7.70	\$13.60	\$0.00	\$54.97
	12/01/2018	\$34.51	\$7.70	\$13.60	\$0.00	\$55.81
	06/01/2019	\$35.38	\$7.70	\$13.60	\$0.00	\$56.68
	12/01/2019	\$36.24	\$7.70	\$13.60	\$0.00	\$57.54
	06/01/2020	\$37.13	\$7.70	\$13.60	\$0.00	\$58.43
	12/01/2020	\$38.02	\$7.70	\$13.60	\$0.00	\$59.32
	06/01/2021	\$38.94	\$7.70	\$13.60	\$0.00	\$60.24
	12/01/2021	\$39.85	\$7.70	\$13.60	\$0.00	\$61.15
This classification applies to all tree work associated with the removal of standing trees, and trimming and removal of branches and limbs when the work is not done for a utility company for the purpose of operation, maintenance or repair of utility company equipment. For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2018	\$39.82	\$10.75	\$18.34	\$0.00	\$68.91
	08/01/2018	\$40.90	\$10.75	\$18.47	\$0.00	\$70.12
	02/01/2019	\$41.41	\$10.75	\$18.47	\$0.00	\$70.63
	08/01/2019	\$42.49	\$10.75	\$18.61	\$0.00	\$71.85
	02/01/2020	\$43.00	\$10.75	\$18.61	\$0.00	\$72.36
	08/01/2020	\$44.08	\$10.75	\$18.76	\$0.00	\$73.59
	02/01/2021	\$44.59	\$10.75	\$18.76	\$0.00	\$74.10
	08/01/2021	\$45.71	\$10.75	\$18.92	\$0.00	\$75.38
	02/01/2022	\$46.18	\$10.75	\$18.92	\$0.00	\$75.85

Apprentice - MARBLE & TILE FINISHER - Local 3 Marble & Tile

Effective Date - 02/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.91	\$10.75	\$18.34	\$0.00	\$49.00
2	60	\$23.89	\$10.75	\$18.34	\$0.00	\$52.98
3	70	\$27.87	\$10.75	\$18.34	\$0.00	\$56.96
4	80	\$31.86	\$10.75	\$18.34	\$0.00	\$60.95
5	90	\$35.84	\$10.75	\$18.34	\$0.00	\$64.93

Effective Date - 08/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.45	\$10.75	\$18.47	\$0.00	\$49.67
2	60	\$24.54	\$10.75	\$18.47	\$0.00	\$53.76
3	70	\$28.63	\$10.75	\$18.47	\$0.00	\$57.85
4	80	\$32.72	\$10.75	\$18.47	\$0.00	\$61.94
5	90	\$36.81	\$10.75	\$18.47	\$0.00	\$66.03

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS, TILELAYERS & TERRAZZO MECH <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2018	\$52.10	\$10.75	\$20.03	\$0.00	\$82.88
	08/01/2018	\$53.45	\$10.75	\$20.16	\$0.00	\$84.36
	02/01/2019	\$54.07	\$10.75	\$20.16	\$0.00	\$84.98
	08/01/2019	\$55.42	\$10.75	\$20.30	\$0.00	\$86.47
	02/01/2020	\$56.05	\$10.75	\$20.30	\$0.00	\$87.10
	08/01/2020	\$57.40	\$10.75	\$20.45	\$0.00	\$88.60
	02/01/2021	\$58.04	\$10.75	\$20.45	\$0.00	\$89.24
	08/01/2021	\$59.44	\$10.75	\$20.61	\$0.00	\$90.80
	02/01/2022	\$60.01	\$10.75	\$20.61	\$0.00	\$91.37

Apprentice - MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile**Effective Date -** 02/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.05	\$10.75	\$20.03	\$0.00	\$56.83
2	60	\$31.26	\$10.75	\$20.03	\$0.00	\$62.04
3	70	\$36.47	\$10.75	\$20.03	\$0.00	\$67.25
4	80	\$41.68	\$10.75	\$20.03	\$0.00	\$72.46
5	90	\$46.89	\$10.75	\$20.03	\$0.00	\$77.67

Effective Date - 08/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.73	\$10.75	\$20.16	\$0.00	\$57.64
2	60	\$32.07	\$10.75	\$20.16	\$0.00	\$62.98
3	70	\$37.42	\$10.75	\$20.16	\$0.00	\$68.33
4	80	\$42.76	\$10.75	\$20.16	\$0.00	\$73.67
5	90	\$48.11	\$10.75	\$20.16	\$0.00	\$79.02

Notes:**Apprentice to Journeyworker Ratio:1:5**

MECH. SWEEPER OPERATOR (ON CONST. SITES) OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANICS MAINTENANCE OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 3) MILLWRIGHTS LOCAL 1121 - Zone 3	04/01/2018	\$35.46	\$9.90	\$18.50	\$0.00	\$63.86
	10/01/2018	\$36.29	\$9.90	\$18.50	\$0.00	\$64.69
	04/01/2019	\$37.11	\$9.90	\$18.50	\$0.00	\$65.51

Apprentice - MILLWRIGHT - Local 1121 Zone 3**Effective Date -** 04/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$19.50	\$9.90	\$5.31	\$0.00	\$34.71
2	65	\$23.05	\$9.90	\$15.13	\$0.00	\$48.08
3	75	\$26.60	\$9.90	\$16.10	\$0.00	\$52.60
4	85	\$30.14	\$9.90	\$17.06	\$0.00	\$57.10

Notes:

Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
MORTAR MIXER <i>LABORERS - ZONE 2</i>	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES, GRADALLS) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$23.24	\$10.50	\$15.50	\$0.00	\$49.24
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$27.40	\$10.50	\$15.50	\$0.00	\$53.40
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.71	\$7.85	\$0.00	\$0.00	\$33.56
2	55	\$28.28	\$7.85	\$3.66	\$0.00	\$39.79
3	60	\$30.85	\$7.85	\$3.99	\$0.00	\$42.69
4	65	\$33.42	\$7.85	\$4.32	\$0.00	\$45.59
5	70	\$35.99	\$7.85	\$14.11	\$0.00	\$57.95
6	75	\$38.56	\$7.85	\$14.44	\$0.00	\$60.85
7	80	\$41.13	\$7.85	\$14.77	\$0.00	\$63.75
8	90	\$46.27	\$7.85	\$15.44	\$0.00	\$69.56

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *	01/01/2017	\$42.31	\$7.85	\$16.10	\$0.00	\$66.26
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* If 30% or more of surfaces to be painted are new construction,
NEW paint rate shall be used. *PAINTERS LOCAL 35 - ZONE 2*

Classification

Effective Date

Base Wage

Health

Pension

Supplemental
Unemployment

Total Rate

Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - New**Effective Date -** 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.16	\$7.85	\$0.00	\$0.00	\$29.01
2	55	\$23.27	\$7.85	\$3.66	\$0.00	\$34.78
3	60	\$25.39	\$7.85	\$3.99	\$0.00	\$37.23
4	65	\$27.50	\$7.85	\$4.32	\$0.00	\$39.67
5	70	\$29.62	\$7.85	\$14.11	\$0.00	\$51.58
6	75	\$31.73	\$7.85	\$14.44	\$0.00	\$54.02
7	80	\$33.85	\$7.85	\$14.77	\$0.00	\$56.47
8	90	\$38.08	\$7.85	\$15.44	\$0.00	\$61.37

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)

01/01/2017

\$40.37

\$7.85

\$16.10

\$0.00

\$64.32

PAINTERS LOCAL 35 - ZONE 2

Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint**Effective Date -** 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.19	\$7.85	\$0.00	\$0.00	\$28.04
2	55	\$22.20	\$7.85	\$3.66	\$0.00	\$33.71
3	60	\$24.22	\$7.85	\$3.99	\$0.00	\$36.06
4	65	\$26.24	\$7.85	\$4.32	\$0.00	\$38.41
5	70	\$28.26	\$7.85	\$14.11	\$0.00	\$50.22
6	75	\$30.28	\$7.85	\$14.44	\$0.00	\$52.57
7	80	\$32.30	\$7.85	\$14.77	\$0.00	\$54.92
8	90	\$36.33	\$7.85	\$15.44	\$0.00	\$59.62

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS)

12/01/2017

\$32.83

\$7.70

\$13.60

\$0.00

\$54.13

LABORERS - ZONE 2

06/01/2018

\$33.67

\$7.70

\$13.60

\$0.00

\$54.97

12/01/2018

\$34.51

\$7.70

\$13.60

\$0.00

\$55.81

06/01/2019

\$35.38

\$7.70

\$13.60

\$0.00

\$56.68

12/01/2019

\$36.24

\$7.70

\$13.60

\$0.00

\$57.54

06/01/2020

\$37.13

\$7.70

\$13.60

\$0.00

\$58.43

12/01/2020

\$38.02

\$7.70

\$13.60

\$0.00

\$59.32

06/01/2021

\$38.94

\$7.70

\$13.60

\$0.00

\$60.24

12/01/2021

\$39.85

\$7.70

\$13.60

\$0.00

\$61.15

For Apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PAINTER / TAPER (BRUSH, NEW) *	01/01/2017	\$40.91	\$7.85	\$16.10	\$0.00	\$64.86
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. <i>PAINTERS LOCAL 35 - ZONE 2</i>						

Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.46	\$7.85	\$0.00	\$0.00	\$28.31
2	55	\$22.50	\$7.85	\$3.66	\$0.00	\$34.01
3	60	\$24.55	\$7.85	\$3.99	\$0.00	\$36.39
4	65	\$26.59	\$7.85	\$4.32	\$0.00	\$38.76
5	70	\$28.64	\$7.85	\$14.11	\$0.00	\$50.60
6	75	\$30.68	\$7.85	\$14.44	\$0.00	\$52.97
7	80	\$32.73	\$7.85	\$14.77	\$0.00	\$55.35
8	90	\$36.82	\$7.85	\$15.44	\$0.00	\$60.11

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT)	01/01/2017	\$38.97	\$7.85	\$16.10	\$0.00	\$62.92
<i>PAINTERS LOCAL 35 - ZONE 2</i>						

Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.49	\$7.85	\$0.00	\$0.00	\$27.34
2	55	\$21.43	\$7.85	\$3.66	\$0.00	\$32.94
3	60	\$23.38	\$7.85	\$3.99	\$0.00	\$35.22
4	65	\$25.33	\$7.85	\$4.32	\$0.00	\$37.50
5	70	\$27.28	\$7.85	\$14.11	\$0.00	\$49.24
6	75	\$29.23	\$7.85	\$14.44	\$0.00	\$51.52
7	80	\$31.18	\$7.85	\$14.77	\$0.00	\$53.80
8	90	\$35.07	\$7.85	\$15.44	\$0.00	\$58.36

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PANEL & PICKUP TRUCKS DRIVER	12/01/2012	\$30.28	\$9.07	\$8.00	\$0.00	\$47.35
<i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>						
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)	08/01/2017	\$41.52	\$9.90	\$21.15	\$0.00	\$72.57
<i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2018	\$42.93	\$9.90	\$21.15	\$0.00	\$73.98
	08/01/2019	\$44.61	\$9.90	\$21.15	\$0.00	\$75.66

For apprentice rates see "Apprentice- PILE DRIVER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PILE DRIVER	08/01/2017	\$41.52	\$9.90	\$21.15	\$0.00	\$72.57
PILE DRIVER LOCAL 56 (ZONE 2)	08/01/2018	\$42.93	\$9.90	\$21.15	\$0.00	\$73.98
	08/01/2019	\$44.61	\$9.90	\$21.15	\$0.00	\$75.66

Apprentice - PILE DRIVER - Local 56 Zone 2

Effective Date - 08/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Notes: Apprentice wages shall be no less than the following Steps;
(Same as set in Zone 1)
1\$53.19/2\$57.61/3\$62.04/4\$64.25/5\$66.47/6\$66.47/7\$70.89/8\$70.89

Apprentice to Journeyworker Ratio:1:5

PIPELAYER	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
LABORERS - ZONE 2	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40

For apprentice rates see "Apprentice- LABORER"

PLUMBER & PIPEFITTER	03/01/2018	\$43.96	\$9.35	\$14.91	\$0.00	\$68.22
PLUMBERS LOCAL 4						

Apprentice - PLUMBER/PIPEFITTER - Local 4

Effective Date - 03/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.58	\$9.35	\$0.00	\$0.00	\$26.93
2	50	\$21.98	\$9.35	\$0.00	\$0.00	\$31.33
3	60	\$26.38	\$9.35	\$0.00	\$0.00	\$35.73
4	70	\$30.77	\$9.35	\$5.20	\$0.00	\$45.32
5	80	\$35.17	\$9.35	\$5.20	\$0.00	\$49.72

Notes:
Steps - 2000 hrs; Step 4 w/lic 75%, Step 5 w/lic 85%
Step 4 w/lic \$47.52, Step 5 w/lic \$51.92

Apprentice to Journeyworker Ratio:1:3

PNEUMATIC CONTROLS (TEMP.)	03/01/2018	\$43.96	\$9.35	\$14.91	\$0.00	\$68.22
PLUMBERS LOCAL 4						

For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PNEUMATIC DRILL/TOOL OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER <i>LABORERS - ZONE 2</i>	12/01/2017	\$33.83	\$7.70	\$13.60	\$0.00	\$55.13
	06/01/2018	\$34.67	\$7.70	\$13.60	\$0.00	\$55.97
	12/01/2018	\$35.51	\$7.70	\$13.60	\$0.00	\$56.81
	06/01/2019	\$36.38	\$7.70	\$13.60	\$0.00	\$57.68
	12/01/2019	\$37.24	\$7.70	\$13.60	\$0.00	\$58.54
	06/01/2020	\$38.13	\$7.70	\$13.60	\$0.00	\$59.43
	12/01/2020	\$39.02	\$7.70	\$13.60	\$0.00	\$60.32
	06/01/2021	\$39.94	\$7.70	\$13.60	\$0.00	\$61.24
	12/01/2021	\$40.85	\$7.70	\$13.60	\$0.00	\$62.15
For apprentice rates see "Apprentice- LABORER"						
POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$31.80	\$10.50	\$15.50	\$0.00	\$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER <i>TEAMSTERS LOCAL 170</i>	03/01/2018	\$25.04	\$10.24	\$8.46	\$0.00	\$43.74
	05/01/2018	\$25.09	\$10.24	\$8.56	\$0.00	\$43.89
	12/01/2018	\$25.12	\$10.24	\$8.56	\$0.00	\$43.92
	01/01/2019	\$25.12	\$10.41	\$8.56	\$0.00	\$44.09
	12/01/2019	\$25.15	\$10.41	\$8.56	\$0.00	\$44.12
	01/01/2020	\$25.15	\$10.46	\$8.56	\$0.00	\$44.17
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofing Waterproofing &Roofing Damproofg) <i>ROOFERS LOCAL 33</i>	02/01/2018	\$42.36	\$11.35	\$14.80	\$0.00	\$68.51
	08/01/2018	\$43.46	\$11.35	\$14.80	\$0.00	\$69.61
	02/01/2019	\$44.61	\$11.35	\$14.80	\$0.00	\$70.76

Apprentice - ROOFER - Local 33

Effective Date - 02/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.18	\$11.35	\$3.44	\$0.00	\$35.97
2	60	\$25.42	\$11.35	\$14.80	\$0.00	\$51.57
3	65	\$27.53	\$11.35	\$14.80	\$0.00	\$53.68
4	75	\$31.77	\$11.35	\$14.80	\$0.00	\$57.92
5	85	\$36.01	\$11.35	\$14.80	\$0.00	\$62.16

Effective Date - 08/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.73	\$11.35	\$3.44	\$0.00	\$36.52
2	60	\$26.08	\$11.35	\$14.80	\$0.00	\$52.23
3	65	\$28.25	\$11.35	\$14.80	\$0.00	\$54.40
4	75	\$32.60	\$11.35	\$14.80	\$0.00	\$58.75
5	85	\$36.94	\$11.35	\$14.80	\$0.00	\$63.09

Notes: ** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1
Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.
(Hot Pitch Mechanics' receive \$1.00 hr. above ROOFER)

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE <i>ROOFERS LOCAL 33</i>	02/01/2018	\$42.61	\$11.35	\$14.80	\$0.00	\$68.76
	08/01/2018	\$43.71	\$11.35	\$14.80	\$0.00	\$69.86
	02/01/2019	\$44.86	\$11.35	\$14.80	\$0.00	\$71.01

For apprentice rates see "Apprentice- ROOFER"

SHEETMETAL WORKER <i>SHEETMETAL WORKERS LOCAL 63</i>	01/01/2018	\$32.99	\$10.64	\$16.22	\$1.77	\$61.62
	07/01/2018	\$33.74	\$10.64	\$16.22	\$1.77	\$62.37
	01/01/2019	\$34.74	\$10.64	\$16.22	\$1.77	\$63.37
	07/01/2019	\$35.74	\$10.64	\$16.22	\$1.77	\$64.37
	01/01/2020	\$36.99	\$10.64	\$16.22	\$1.77	\$65.62

Apprentice - SHEET METAL WORKER - Local 63**Effective Date - 01/01/2018**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$14.85	\$6.21	\$4.67	\$0.00	\$25.73
2	50	\$16.50	\$6.55	\$5.19	\$0.00	\$28.24
3	55	\$18.14	\$6.88	\$9.33	\$1.03	\$35.38
4	60	\$19.79	\$7.22	\$9.33	\$1.09	\$37.43
5	65	\$21.44	\$7.55	\$9.33	\$1.15	\$39.47
6	70	\$23.09	\$7.88	\$9.33	\$1.21	\$41.51
7	75	\$24.74	\$8.22	\$9.33	\$1.27	\$43.56
8	80	\$26.39	\$9.30	\$15.18	\$1.53	\$52.40
9	85	\$28.04	\$9.64	\$15.18	\$1.59	\$54.45
10	90	\$29.69	\$9.98	\$15.18	\$1.65	\$56.50

Effective Date - 07/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$15.18	\$6.21	\$4.67	\$0.00	\$26.06
2	50	\$16.87	\$6.55	\$5.19	\$0.00	\$28.61
3	55	\$18.56	\$6.88	\$9.33	\$1.04	\$35.81
4	60	\$20.24	\$7.22	\$9.33	\$1.10	\$37.89
5	65	\$21.93	\$7.55	\$9.33	\$1.16	\$39.97
6	70	\$23.62	\$7.88	\$9.33	\$1.22	\$42.05
7	75	\$25.31	\$8.22	\$9.33	\$1.29	\$44.15
8	80	\$26.99	\$9.30	\$15.18	\$1.54	\$53.01
9	85	\$28.68	\$9.64	\$15.18	\$1.61	\$55.11
10	90	\$30.37	\$9.98	\$15.18	\$1.67	\$57.20

Notes:**Apprentice to Journeyworker Ratio:1:3**

SIGN ERECTOR

PAINTERS LOCAL 35 - ZONE 2

06/01/2013

\$25.81

\$7.07

\$7.05

\$0.00

\$39.93

Classification

**Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate**

Apprentice - *SIGN ERECTOR - Local 35 Zone 2*

Effective Date - 06/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$12.91	\$7.07	\$0.00	\$0.00	\$19.98
2	55	\$14.20	\$7.07	\$2.45	\$0.00	\$23.72
3	60	\$15.49	\$7.07	\$2.45	\$0.00	\$25.01
4	65	\$16.78	\$7.07	\$2.45	\$0.00	\$26.30
5	70	\$18.07	\$7.07	\$7.05	\$0.00	\$32.19
6	75	\$19.36	\$7.07	\$7.05	\$0.00	\$33.48
7	80	\$20.65	\$7.07	\$7.05	\$0.00	\$34.77
8	85	\$21.94	\$7.07	\$7.05	\$0.00	\$36.06
9	90	\$23.23	\$7.07	\$7.05	\$0.00	\$37.35

Notes:

Steps are 4 mos.

Apprentice to Journeyworker Ratio:1:1

SPECIALIZED EARTH MOVING EQUIP < 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2016	\$32.44	\$10.91	\$10.89	\$0.00	\$54.24
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2016	\$32.73	\$10.91	\$10.89	\$0.00	\$54.53
SPRINKLER FITTER <i>SPRINKLER FITTERS LOCAL 669</i>	04/01/2018	\$41.51	\$9.67	\$12.88	\$0.00	\$64.06
	01/01/2019	\$41.51	\$10.02	\$13.08	\$0.00	\$64.61

Apprentice - SPRINKLER FITTER - Local 669**Effective Date -** 04/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$18.68	\$7.75	\$0.00	\$0.00	\$26.43
2	50	\$20.76	\$7.75	\$0.00	\$0.00	\$28.51
3	55	\$22.83	\$9.67	\$7.05	\$0.00	\$39.55
4	60	\$24.91	\$9.67	\$7.05	\$0.00	\$41.63
5	65	\$26.98	\$9.67	\$7.30	\$0.00	\$43.95
6	70	\$29.06	\$9.67	\$7.30	\$0.00	\$46.03
7	75	\$31.13	\$9.67	\$7.30	\$0.00	\$48.10
8	80	\$33.21	\$9.67	\$7.30	\$0.00	\$50.18
9	85	\$35.28	\$9.67	\$7.30	\$0.00	\$52.25
10	90	\$37.36	\$9.67	\$7.30	\$0.00	\$54.33

Effective Date - 01/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$18.68	\$7.75	\$0.00	\$0.00	\$26.43
2	50	\$20.76	\$7.75	\$0.00	\$0.00	\$28.51
3	55	\$22.83	\$10.02	\$7.25	\$0.00	\$40.10
4	60	\$24.91	\$10.02	\$7.25	\$0.00	\$42.18
5	65	\$26.98	\$10.02	\$7.50	\$0.00	\$44.50
6	70	\$29.06	\$10.02	\$7.50	\$0.00	\$46.58
7	75	\$31.13	\$10.02	\$7.50	\$0.00	\$48.65
8	80	\$33.21	\$10.02	\$7.50	\$0.00	\$50.73
9	85	\$35.28	\$10.02	\$7.50	\$0.00	\$52.80
10	90	\$37.36	\$10.02	\$7.50	\$0.00	\$54.88

Notes:**Apprentice to Journeyworker Ratio:1:1**

STEAM BOILER OPERATOR OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TERRAZZO FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2018	\$51.00	\$10.75	\$20.03	\$0.00	\$81.78
	08/01/2018	\$52.35	\$10.75	\$20.16	\$0.00	\$83.26
	02/01/2019	\$52.99	\$10.75	\$20.16	\$0.00	\$83.90
	08/01/2019	\$54.34	\$10.75	\$20.30	\$0.00	\$85.39
	02/01/2020	\$54.98	\$10.75	\$20.30	\$0.00	\$86.03
	08/01/2020	\$56.33	\$10.75	\$20.45	\$0.00	\$87.53
	02/01/2021	\$56.97	\$10.75	\$20.45	\$0.00	\$88.17
	08/01/2021	\$58.37	\$10.75	\$20.61	\$0.00	\$89.73
	02/01/2022	\$58.96	\$10.75	\$20.61	\$0.00	\$90.32

Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile

Effective Date - 02/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.50	\$10.75	\$20.03	\$0.00	\$56.28
2	60	\$30.60	\$10.75	\$20.03	\$0.00	\$61.38
3	70	\$35.70	\$10.75	\$20.03	\$0.00	\$66.48
4	80	\$40.80	\$10.75	\$20.03	\$0.00	\$71.58
5	90	\$45.90	\$10.75	\$20.03	\$0.00	\$76.68

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2017	\$38.85	\$7.70	\$14.95	\$0.00	\$61.50
	06/01/2018	\$39.80	\$7.70	\$14.95	\$0.00	\$62.45
	12/01/2018	\$40.75	\$7.70	\$14.95	\$0.00	\$63.40
	06/01/2019	\$41.75	\$7.70	\$14.95	\$0.00	\$64.40
	12/01/2019	\$42.75	\$7.70	\$14.95	\$0.00	\$65.40
	06/01/2020	\$43.74	\$7.70	\$14.95	\$0.00	\$66.39
	12/01/2020	\$44.72	\$7.70	\$14.95	\$0.00	\$67.37
	06/01/2021	\$45.74	\$7.70	\$14.95	\$0.00	\$68.39
	12/01/2021	\$46.75	\$7.70	\$14.95	\$0.00	\$69.40

For apprentice rates see "Apprentice- LABORER"

TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2017	\$37.57	\$7.70	\$14.95	\$0.00	\$60.22
	06/01/2018	\$38.52	\$7.70	\$14.95	\$0.00	\$61.17
	12/01/2018	\$39.47	\$7.70	\$14.95	\$0.00	\$62.12
	06/01/2019	\$40.47	\$7.70	\$14.95	\$0.00	\$63.12
	12/01/2019	\$41.47	\$7.70	\$14.95	\$0.00	\$64.12
	06/01/2020	\$42.46	\$7.70	\$14.95	\$0.00	\$65.11
	12/01/2020	\$43.44	\$7.70	\$14.95	\$0.00	\$66.09
	06/01/2021	\$44.46	\$7.70	\$14.95	\$0.00	\$67.11
	12/01/2021	\$45.47	\$7.70	\$14.95	\$0.00	\$68.12

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2017	\$37.45	\$7.70	\$14.95	\$0.00	\$60.10
	06/01/2018	\$38.40	\$7.70	\$14.95	\$0.00	\$61.05
	12/01/2018	\$39.35	\$7.70	\$14.95	\$0.00	\$62.00
	06/01/2019	\$40.35	\$7.70	\$14.95	\$0.00	\$63.00
	12/01/2019	\$41.35	\$7.70	\$14.95	\$0.00	\$64.00
	06/01/2020	\$42.34	\$7.70	\$14.95	\$0.00	\$64.99
	12/01/2020	\$43.32	\$7.70	\$14.95	\$0.00	\$65.97
	06/01/2021	\$44.34	\$7.70	\$14.95	\$0.00	\$66.99
	12/01/2021	\$45.35	\$7.70	\$14.95	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$46.17	\$10.50	\$15.50	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2016	\$33.02	\$10.91	\$10.89	\$0.00	\$54.82
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	12/01/2017	\$49.73	\$7.70	\$15.35	\$0.00	\$72.78
	06/01/2018	\$50.68	\$7.70	\$15.35	\$0.00	\$73.73
	12/01/2018	\$51.63	\$7.70	\$15.35	\$0.00	\$74.68
	06/01/2019	\$52.63	\$7.70	\$15.35	\$0.00	\$75.68
	12/01/2019	\$53.63	\$7.70	\$15.35	\$0.00	\$76.68
	06/01/2020	\$54.62	\$7.70	\$15.35	\$0.00	\$77.67
	12/01/2020	\$55.60	\$7.70	\$15.35	\$0.00	\$78.65
	06/01/2021	\$56.62	\$7.70	\$15.35	\$0.00	\$79.67
	12/01/2021	\$57.63	\$7.70	\$15.35	\$0.00	\$80.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	12/01/2017	\$51.73	\$7.70	\$15.35	\$0.00	\$74.78
	06/01/2018	\$52.68	\$7.70	\$15.35	\$0.00	\$75.73
	12/01/2018	\$53.63	\$7.70	\$15.35	\$0.00	\$76.68
	06/01/2019	\$54.63	\$7.70	\$15.35	\$0.00	\$77.68
	12/01/2019	\$55.63	\$7.70	\$15.35	\$0.00	\$78.68
	06/01/2020	\$56.62	\$7.70	\$15.35	\$0.00	\$79.67
	12/01/2020	\$57.60	\$7.70	\$15.35	\$0.00	\$80.65
	06/01/2021	\$58.62	\$7.70	\$15.35	\$0.00	\$81.67
	12/01/2021	\$59.63	\$7.70	\$15.35	\$0.00	\$82.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2017	\$41.80	\$7.70	\$15.35	\$0.00	\$64.85
	06/01/2018	\$42.75	\$7.70	\$15.35	\$0.00	\$65.80
	12/01/2018	\$43.70	\$7.70	\$15.35	\$0.00	\$66.75
	06/01/2019	\$44.70	\$7.70	\$15.35	\$0.00	\$67.75
	12/01/2019	\$45.70	\$7.70	\$15.35	\$0.00	\$68.75
	06/01/2020	\$46.69	\$7.70	\$15.35	\$0.00	\$69.74
	12/01/2020	\$47.67	\$7.70	\$15.35	\$0.00	\$70.72
	06/01/2021	\$48.69	\$7.70	\$15.35	\$0.00	\$71.74
	12/01/2021	\$49.70	\$7.70	\$15.35	\$0.00	\$72.75
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2017	\$43.80	\$7.70	\$15.35	\$0.00	\$66.85
	06/01/2018	\$44.75	\$7.70	\$15.35	\$0.00	\$67.80
	12/01/2018	\$45.70	\$7.70	\$15.35	\$0.00	\$68.75
	06/01/2019	\$46.70	\$7.70	\$15.35	\$0.00	\$69.75
	12/01/2019	\$47.70	\$7.70	\$15.35	\$0.00	\$70.75
	06/01/2020	\$48.69	\$7.70	\$15.35	\$0.00	\$71.74
	12/01/2020	\$49.67	\$7.70	\$15.35	\$0.00	\$72.72
	06/01/2021	\$50.69	\$7.70	\$15.35	\$0.00	\$73.74
	12/01/2021	\$51.70	\$7.70	\$15.35	\$0.00	\$74.75
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2016	\$32.44	\$10.91	\$10.89	\$0.00	\$54.24
VOICE-DATA-VIDEO TECHNICIAN <i>ELECTRICIANS LOCAL 96</i>	12/01/2017	\$29.04	\$9.57	\$12.92	\$0.00	\$51.53
	06/01/2018	\$29.72	\$9.82	\$13.19	\$0.00	\$52.73
	12/01/2018	\$29.87	\$10.07	\$13.20	\$0.00	\$53.14
	06/01/2019	\$31.55	\$10.07	\$13.25	\$0.00	\$54.87

Apprentice - VOICE-DATA-VIDEO TECHNICIAN - Local 96

Effective Date - 12/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$14.52	\$9.57	\$3.82	\$0.00	\$27.91
2	55	\$15.97	\$9.57	\$3.86	\$0.00	\$29.40
3	60	\$17.42	\$9.57	\$12.57	\$0.00	\$39.56
4	65	\$18.88	\$9.57	\$12.62	\$0.00	\$41.07
5	70	\$20.33	\$9.57	\$12.66	\$0.00	\$42.56
6	75	\$21.78	\$9.57	\$12.70	\$0.00	\$44.05
7	80	\$23.23	\$9.57	\$12.75	\$0.00	\$45.55
8	85	\$24.68	\$9.57	\$12.79	\$0.00	\$47.04

Effective Date - 06/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$14.86	\$9.82	\$3.83	\$0.00	\$28.51
2	55	\$16.35	\$9.82	\$3.87	\$0.00	\$30.04
3	60	\$17.83	\$9.82	\$12.83	\$0.00	\$40.48
4	65	\$19.32	\$9.82	\$12.88	\$0.00	\$42.02
5	70	\$20.80	\$9.82	\$12.92	\$0.00	\$43.54
6	75	\$22.29	\$9.82	\$12.97	\$0.00	\$45.08
7	80	\$23.78	\$9.82	\$13.01	\$0.00	\$46.61
8	85	\$25.26	\$9.82	\$13.06	\$0.00	\$48.14

Notes:

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
WAGON DRILL OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2017	\$33.08	\$7.70	\$13.60	\$0.00	\$54.38
	06/01/2018	\$33.92	\$7.70	\$13.60	\$0.00	\$55.22
	12/01/2018	\$34.76	\$7.70	\$13.60	\$0.00	\$56.06
	06/01/2019	\$35.63	\$7.70	\$13.60	\$0.00	\$56.93
	12/01/2019	\$36.49	\$7.70	\$13.60	\$0.00	\$57.79
	06/01/2020	\$37.38	\$7.70	\$13.60	\$0.00	\$58.68
	12/01/2020	\$38.27	\$7.70	\$13.60	\$0.00	\$59.57
	06/01/2021	\$39.19	\$7.70	\$13.60	\$0.00	\$60.49
	12/01/2021	\$40.10	\$7.70	\$13.60	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER"						
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2017	\$46.63	\$10.50	\$15.50	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS LOCAL 4</i>	03/01/2018	\$43.96	\$9.35	\$14.91	\$0.00	\$68.22
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
Outside Electrical - East						
CABLE TECHNICIAN (Power Zone) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/03/2017	\$27.14	\$7.75	\$1.81	\$0.00	\$36.70
For apprentice rates see "Apprentice- LINEMAN"						
CABLEMAN (Underground Ducts & Cables) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/03/2017	\$38.45	\$7.75	\$9.53	\$0.00	\$55.73
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN CDL <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/03/2017	\$31.66	\$7.75	\$9.44	\$0.00	\$48.85
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/03/2017	\$24.88	\$7.75	\$1.75	\$0.00	\$34.38
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class A CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/03/2017	\$38.45	\$7.75	\$13.61	\$0.00	\$59.81
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class B CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/03/2017	\$33.92	\$7.75	\$10.21	\$0.00	\$51.88
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/03/2017	\$24.88	\$7.75	\$1.75	\$0.00	\$34.38
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN -Inexperienced (<2000 Hrs.) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/03/2017	\$20.35	\$7.75	\$1.61	\$0.00	\$29.71
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/03/2017	\$45.23	\$7.75	\$16.61	\$0.00	\$69.59

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - LINEMAN (Outside Electrical) - East Local 104

Effective Date - 09/03/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$27.14	\$7.75	\$3.31	\$0.00	\$38.20
2	65	\$29.40	\$7.75	\$3.38	\$0.00	\$40.53
3	70	\$31.66	\$7.75	\$3.45	\$0.00	\$42.86
4	75	\$33.92	\$7.75	\$5.02	\$0.00	\$46.69
5	80	\$36.18	\$7.75	\$5.09	\$0.00	\$49.02
6	85	\$38.45	\$7.75	\$5.15	\$0.00	\$51.35
7	90	\$40.71	\$7.75	\$7.22	\$0.00	\$55.68

Notes:

Apprentice to Journeyworker Ratio:1:2

TELEDATA CABLE SPLICER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/01/2016	\$28.98	\$4.25	\$3.12	\$0.00	\$36.35
TELEDATA LINEMAN/EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/01/2016	\$27.31	\$4.25	\$3.07	\$0.00	\$34.63
TELEDATA WIREMAN/INSTALLER/TECHNICIAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/01/2016	\$27.31	\$4.25	\$3.07	\$0.00	\$34.63
TREE TRIMMER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/31/2016	\$18.51	\$3.55	\$0.00	\$0.00	\$22.06
<p>This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is not on the ground.</p> <p>This classification does not apply to wholesale tree removal.</p>						
TREE TRIMMER GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/31/2016	\$16.32	\$3.55	\$0.00	\$0.00	\$19.87
<p>This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is on the ground. This classification does not apply to wholesale tree removal.</p>						

Additional Apprentice Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.)

Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** Multiple ratios are listed in the comment field.

*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.

**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

SOUTH HIGH COMMUNITY SCHOOL
170 APRICOT STREET, WORCESTER, MA 01603

Final Bid Package
DOCUMENT 00 85 00
CITY OF WORCESTER
FORM OF TAX PAYMENT CERTIFICATE

**DOCUMENT 00 85 00
TAX PAYMENT CERTIFICATE
(CITY OF WORCESTER DOCUMENT 00850)**

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No General Bidder or Filed Sub-bidder will be eligible for a contract award unless the following certification has been completed and submitted to the Awarding Authority with its bid.

CITY OF WORCESTER FORM
OF
TAX PAYMENT CERTIFICATE

STATE LAW NOW MANDATES THAT TO DO BUSINESS WITH THE CITY OF WORCESTER the Massachusetts Revenue Enforcement and Protection Program of 1983 requires that the following be supplied with your Bid:

Date: _____

Pursuant to M.G.L. Chapter 62C, Section 49A, I certify under the Penalties of Perjury That I, To My Best Knowledge and Belief, Have Filed ALL Massachusetts State Tax Returns and Paid ALL Massachusetts State and City Taxes Required under Law.

Company Name: _____

Street and Number: _____

City or Town: _____

State: _____ Zip Code: _____

Telephone Number: _____

Social Security Number or Federal Identification Number: _____

Is Company Certified by State Office of Minority and Women Business Assistance (SOMWBA)?

Yes _____ Date of Certification: _____

No _____

Failure to complete this form may result in rejection of Bid and/or removal from City Bid Lists.

BIDDER'S Authorized Signature

END OF SECTION 00850

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IMPORTANT NOTICE TO BIDDERS

**** RESPONSIBLE EMPLOYER ORDINANCE**

and

MINORITY/WOMEN BUSINESS ENTERPRISE AND WORKER UTILIZATION

**BIDDERS MUST COMPLETE FORMS EOO-101, REO-101, WAGE THEFT PREVENTION
CERTIFICATION AND CORI COMPLIANCE. WHICH
ARE PART OF THE BID SUBMISSION**

GENERAL BIDDERS, PROPOSERS, TRADE CONTRACTORS, FILED SUBCONTRACTORS, AND NON-FILED SUBCONTRACTORS, AT EVERY TIER, MUST PROVIDE EVIDENCE OF COMPLIANCE WITH THE CITY OF WORCESTER'S RESPONSIBLE EMPLOYER ORDINANCE ("REO") (See, Supplementary General Conditions, Section 4.7).

PLEASE SEE THE FOLLOWING PAGES FOR FURTHER REO REQUIREMENTS.

ALSO INCLUDED IN THIS SECTION IS A COPY OF THE AGREEMENT BETWEEN THE CITY AND THE MASSACHUSETTS COMMISSION AGAINST DISCRIMINATION THAT GOVERN THE ACTIVITIES ADDRESSED BY THE M/WBE BUSINESS ENTERPRISE AND WORKER UTILIZATION PROGRAM AND ITS ASSOCIATED FORMS CONTAINED HEREIN.

Direct any questions about these forms and procedures to:

Kerrilyn M. Marvill
Contract Compliance Officer
City Hall
455 Main Street
Worcester, MA 01608
(508) 799-1220

** This requirement applies to general bids over \$100,000 and all subcontractors at every tier exclusive of any pricing threshold.

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CITY OF WORCESTER
INITIAL STATEMENT AND CERTIFICATION OF COMPLIANCE
WITH THE RESPONSIBLE EMPLOYER ORDINANCE

FORM REO 101 - PAGE 1 OF 2

PROJECT:**CONTRACTOR:**

ALL GENERAL BIDDERS, PROPOSERS, TRADE CONTRACTORS, SUBCONTRACTORS, INCLUDING SUBCONTRACTORS THAT ARE NOT SUBJECT TO G.L. c. 149, § 44F, UNDER THE GENERAL BIDDER FOR PROJECTS SUBJECT TO G.L. c. 149, § 44A(2) OR UNDER PROPOSERS FOR PROJECTS SUBJECT TO G.L. c. 149A, SHALL AS A CONDITION TO SUBMITTING A BID OR A PROPOSAL, OR OTHERWISE AS A CONDITION TO SUBCONTRACTING, VERIFY COMPLIANCE WITH THE FOLLOWING OBLIGATIONS AND SHALL CERTIFY SUCH COMPLIANCE ON A WEEKLY BASIS FOR THE DURATION OF THE PROJECT:

- 1) That the appropriate lawful Prevailing Wage Rates shall be paid to all employees and the Weekly Payroll Report Form and Statement of Compliance shall be submitted to the Contract Compliance Office on a weekly basis for the entire duration of the project; **{COMPLIANCE WITH THE APPRENTICE TRAINING PROVISION OF THE RESPONSIBLE EMPLOYER ORDINANCE IS CURRENTLY SUSPENDED}**
- 2) That appropriate industrial accident insurance coverage shall be furnished and maintained, for the duration of the project, for all its employees employed on the project in accordance with M.G.L. c. 152;
- 3) That the contractor/company will properly classify employees on the project as employees rather than independent contractors and treat them accordingly for purposes of workers' compensation insurance coverage, unemployment taxes, social security taxes and income tax withholding. (G.L. c.149, §148B on employee classification);
- 4) That at the time employees begin work at the worksite, each employee will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration;
- 5) That the contractor/company is in compliance with the health and hospitalization requirements of the Massachusetts Health Care Reform law established by Chapter 58 of the Acts of 2006, as amended, and regulations promulgated pursuant to that statute by the Commonwealth Health Insurance Connector Authority;
- 6) That the contractor/company, for the duration of the contractor's/company's work on the project, shall make arrangements to ensure that each of its employees entering or leaving the project

CITY OF WORCESTER
INITIAL STATEMENT AND CERTIFICATION OF COMPLIANCE
WITH THE RESPONSIBLE EMPLOYER ORDINANCE

FORM REO 101 - PAGE 2

PROJECT:

CONTRACTOR:

individually completes the appropriate entries in a daily sign-in/sign-out log to be maintained by the contractor/company;

- 7) That the contractor/company is not debarred or otherwise prevented from bidding for or performing work on a public project in the Commonwealth of Massachusetts or in the city of Worcester

THE UNDERSIGNED ACKNOWLEDGES HE/SHE HAS READ THE ABOVE OBLIGATIONS AND CERTIFIES THE CONTRACTOR'S COMPLIANCE WITH THEM.

Signed as a True Statement under Oath:

(Bidder/Company)

By: _____
(Name/Signature)

Date: _____

By: _____
(Print Name and Corporate Title)

(Seal)

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**CITY OF WORCESTER
RESPONSIBLE EMPLOYER ORDINANCE REQUIREMENTS (CONT'D)****FORM REO 103
PAGE 1 OF 1**

PROJECT:**CONTRACTOR:**

POST CONTRACT AWARD SUBMISSIONS

THE SUCCESSFUL GENERAL CONTRACTOR, CONSTRUCTION MANAGER AT RISK, TRADE CONTRACTORS AND SUBCONTRACTORS, INCLUDING SUBCONTRACTORS THAT ARE NOT SUBJECT TO G.L. c. 149, §44F, UNDER THE GENERAL CONTRACTOR FOR PROJECTS SUBJECT TO G.L. c. 149, §44A(2) OR UNDER THE CONSTRUCTION MANAGER AT RISK FOR PROJECTS SUBJECT TO G.L. c. 149A, SHALL SUBMIT THE FOLLOWING INFORMATION AS OUTLINED BELOW FOR THE DURATION OF THE PROJECT:

- 1, PRIOR TO EACH EMPLOYEE BEGINNING WORK AT THE WORKSITE, SUBMIT DOCUMENTATION EVIDENCING THE EMPLOYEE'S SUCCESSFUL COMPLETION OF A COURSE IN CONSTRUCTION SAFETY AND HEALTH THAT IS APPROVED BY THE UNITED STATES OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION. A QUALIFYING PROGRAM MUST BE A MINIMUM OF TEN HOURS IN DURATION.
2. ON A DAILY BASIS, SUBMIT DAILY SIGN-IN/SIGN-OUT LOGS THAT HAVE BEEN FILLED OUT BY EACH INDIVIDUAL EMPLOYEE ENTERING OR LEAVING THE WORKSITE. THE LOG SHALL INCLUDE THE FOLLOWING: THE LOCATION OF THE PROJECT; CURRENT DATE; PRINTED EMPLOYEE NAME; SIGNED EMPLOYEE NAME; AND THE TIME OF EACH ENTRY OR EXIT. THE LOG SHALL ALSO INCLUDE A PROMINENT NOTICE THAT EMPLOYEES ARE ENTITLED UNDER STATE LAW TO RECEIVE THE PREVAILING WAGE RATE FOR THEIR WORK ON THE PROJECT.

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MINORITY/WOMEN BUSINESS ENTERPRISE AND WORKER UTILIZATION

FORM EOO-D/102

BIDDERS INFORMATION ON PROCEDURES AND FORMS

To make all contractors aware of their obligation to follow certain procedures and file appropriate reports pertaining to those procedures, the following is an outline of the Minority/Women Business Enterprise and Worker Utilization Program. Also included here is the Affidavit of Acknowledgement and Certification of Compliance, Form E00-101. This form is to be completed and filed as part of your bid.

The following documents are included in this bid:

1. **AFFIDAVIT OF ACKNOWLEDGEMENT AND CERTIFICATION OF COMPLIANCE, E00-101**

General Contractors, Trade Contractors, Filed Subcontractors and Non-Filed Subcontractors complete and submit this form as part of their bid on all City of Worcester construction projects.

Each additional subcontractor shall complete this form and submit it to the general contractor who shall forward it to the Contract Compliance Office, **PRIOR** to the subcontractor's beginning work on the project.

2. **SUPPLEMENTAL EQUAL EMPLOYMENT OPPORTUNITY ANTI-DISCRIMINATION AND AFFIRMATIVE ACTION PROGRAM E00-D/3**

The agreement between the City of Worcester and the Massachusetts Commission Against Discrimination establishing the goals and procedures for the utilization of minority and women owned businesses and minority and women workers on City Construction projects.

3. **SUCCESSFUL BIDDER'S OBLIGATION TO PROCEDURES AND FORMS, EOO-D/103**

This is a listing of the procedures and forms that will be provided to the successful bidder for use prior to beginning work and at various times throughout the life of the project.

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CITY OF WORCESTER
MINORITY/WOMEN BUSINESS ENTERPRISE AND WORKER UTILIZATION PROGRAM

AFFIDAVIT OF ACKNOWLEDGEMENT and CERTIFICATE OF COMPLIANCE

FORM EOO-101

TO ALL CONTRACTORS:

The Bidder or Proposer and all Trade Contractors and Subcontractors under the Bidder or Proposer must complete and submit this form as part of their bid.

I. THE MINORITY AND WOMEN BUSINESS AND UTILIZATION PROGRAMS

Pursuant to an agreement between the City of Worcester and the Commonwealth of Massachusetts, during the performance of any contract with the City of Worcester, all General Contractors, Trade Contractors, Filed Subcontractors, and Subcontractors are bound by the obligations of the Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program. All contractors and subcontractors if subcontracting any portion of the work are obligated to make a good faith effort to engage 10% minority and 5% women owned businesses. Further, each contractor shall make a good faith effort to maintain a workforce that is 10% minority and 5% women.

The undersigned hereby certifies that he/she is familiar with the provisions of The Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Programs and agrees to adhere to the provisions therein.

II. This contractor IS ☐ or IS NOT ☐ certified by the State Office of Minority and Women Business Assistance to be a minority or women owned and operated business; and

III. WILL ☐ or WILL NOT ☐ subcontract any portion of this contract.

Project Name: _____ Bid Number _____

Authorized Signature: _____ Business Name _____

Printed Name: _____ Title: _____

Address: _____ Date: _____

WAGE THEFT PREVENTION CERTIFICATION

By the Revised Ordinances, Chapter 2, Section 39, the city of Worcester has established requirements for certain contracts in an effort to prevent wage theft. Prospective contractors must provide the following certification and disclosures with their bids/proposals. The City will not award a contract without receipt of this completed certification.

INSTRUCTIONS: A prospective contractor shall **(a)** check Box 1 *OR* Box 2, as applicable, **(b)** check Boxes 3-5, **(c)** sign this form certifying compliance with the Wage Theft Prevention Ordinance, and **(d)** submit the completed form with its bid/proposal. For multi-year contracts, the successful bidder/proposer shall submit the completed form annually to the Purchasing Director.

Pursuant to the Wage Theft Prevention Ordinance, successful bidders/proposals shall post in conspicuous places the Mass. Wage and Hour Laws notice informing employees of the protections of G.L. c. 149, Sec. 151, and the Fair Labor Standards Act (FLSA). The notice may be found at <http://www.mass.gov/ago/docs/workplace/wage/wagehourposter.pdf>

1. ☐ Neither this vendor/contractor nor any prospective subcontractor has been subject to a federal or state criminal or civil judgment, administrative citation, final administrative determination, order or debarment resulting from a violation of G.L. c. 149, G.L. c. 151, or FLSA, within three (3) years prior to the date of this bid/proposal submission.

OR

2. ☐ This vendor/contractor, or a prospective subcontractor, has been subject to a federal or state criminal or civil judgment, administrative citation, final administrative determination, or debarment resulting from a violation of G.L. c. 149, G.L. c. 151, or FLSA, within three (3) years prior to the date of this bid/proposal submission. The firm shall provide a copy of the same with the bid/proposal.

3. ☐ Within five (5) days of receiving notice, the vendor/contractor shall report and provide a copy of any federal or state criminal or civil judgment, administrative citation, final administrative determination, order or debarment resulting from a violation of G.L. c. 149, G.L. c. 151, or FLSA imposed on this firm or on any prospective subcontractor while any bid/proposal to the City is pending and, if awarded a contract, during the term of the contract provide the same to the Purchasing Director.

4. ☐ A vendor/contractor awarded a contract that has disclosed under paragraph 3 above shall, upon request, furnish monthly certified payrolls for the City contract as the Purchasing Director instructs and shall, at the discretion of the Purchasing Director, obtain a wage/payment bond or other suitable insurance as required by the Wage Theft Prevention Ordinance. Vendors/contractors subject to a state or federal debarment for violation of the above laws or prohibited from contracting with the Commonwealth are prohibited from contracting with the City, and upon a finding or order of debarment or prohibition, the City may terminate the contract.

5. ☐ The contractor shall post notices provided by the City in conspicuous places informing employees of the protections of the Wage Theft Prevention Ordinance, and applicable local, state and federal law.

The undersigned certifies under the pains and penalties of perjury that the contractor is in compliance and agrees to remain in compliance with the provisions of the Wage Theft Prevention Ordinance for the term of its contract with the City.

Signed: _____
Print Name & Title Company Name Date

CORI COMPLIANCE / GENDER IDENTITY & EXPRESSION

Vendors entering into contracts with the City of Worcester must affirm that their policies regarding CORI information are consistent with the CORI hiring standards set by the City of Worcester. The City's CORI hiring policy may be downloaded from City of Worcester website www.worcesterma.gov. Questions pertaining to the City's CORI hiring policy are to be directed to the Equal Employment Opportunity Officer, Executive Office of Human Resources at 508-799-1030.

CERTIFICATION

All Vendors must check one of the three lines below.

1. ☐ CORI checks are not performed on any Applicants.
2. ☐ CORI checks are performed on some or all Applicants. The Vendor, by affixing a signature below, affirms under penalties of perjury that its CORI policy is consistent with the standards set forth with the CORI hiring standards set by the City of Worcester.
3. ☐ CORI checks are performed on some or all Applicants. The Vendor's CORI policy is not consistent with the standards set forth with the CORI hiring standards set by the City of Worcester. (a copy of the Vendor's written CORI policy must accompany this form).

(Typed or printed name of person
signing quotation, bid or proposal)

Signature

Name of Business

A Vendor with a CORI policy that does NOT conform to the City standards must check Line 3. Vendors who check Line 3 will not be permitted to enter into contracts with the City, absent a waiver granted by the City. For any waiver to be granted, a written request should accompany bid submission explaining in detail why the vendor fails or refuses to comply with the City's CORI hiring standards.

Gender Identity Standards Applicable to Vendors

The city will do business only with vendors that have adopted and employ Gender Identity policies, practices and standards that are consistent with city standards.

The city may review all vendors' Gender Identity policies and practices for consistency with city standards.

By signing this bid, vendor confirms that their Gender Identity policies, practices and standards are consistent with those of the City of Worcester. For further information please refer to the Ordinance Relative to Gender Identity and Expression found at www.worcesterma.gov or call the LGBTQ Liaison/Director of Human Rights & Disabilities at 508-799-8486.

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THE CITY OF WORCESTER**SUPPLEMENTAL EQUAL EMPLOYMENT OPPORTUNITY ANTI-DISCRIMINATION AND AFFIRMATIVE ACTION PROGRAM****I. AGREEMENT**

During the performance of this contract, the Contractor or Filed Subcontractor and all subcontractors (herein collectively referred to as the Contractor), for himself/herself, his/her assignees, and successors in interest, agree as follows:

1. In conjunction with the performance of work under this contract, the contractor shall not discriminate against any employee or applicant for employment because of race, color, religious creed, national origin, age, sex, or handicap. The aforesaid provision shall include, but not be limited to, the following: employment upgrading, demotion, or transfer; recruitment advertising; layoff; termination, rates of pay or other forms of compensation; conditions or privileges of employment; and selection for apprenticeship. The contractor shall post hereafter in a conspicuous place, available to employees and applicants for employment, notices to be provided by the Commission setting forth the provisions of the Fair Employment Practices Law of the Commonwealth (M.G.L. Chapter 151 B).
2. In connection with the performance of work under this contract, the Contractor shall undertake in good faith affirmative action measures designed to eliminate any discriminatory barriers in the terms and conditions of employment on the grounds of race, color, religious creed, national origin, age, sex, or handicap, and to eliminate and remedy any effects of such discrimination in the past. Such affirmative action shall entail positive and aggressive measures to ensure equal opportunity in the areas of apprenticeship training programs. This affirmative action shall include all action required to guarantee equal employment opportunity for all persons, regardless of race, color, religious creed, national origin, age, sex, or handicap. The purpose of this provision is to ensure to the fullest extent possible an adequate supply of skilled tradesmen for this and future City public construction projects.

II. OBLIGATION

1. As part of the obligation of remedial action under the foregoing section, the Contractor shall maintain goals on this project no less than 10 percent (10%) minority employee and 5 percent (5%) women employee hours of the total work hours in each job category including but not limited to, bricklayers, carpenters, cement masons, electricians, iron workers, operating engineers, and those "classes of work" enumerated in section 44C of chapter 149 of the Massachusetts General Laws.
2. In the hiring of minority and women journeymen, apprentices, trainees and advanced trainees, the Contractor shall rely on referrals from a multi-employer affirmative action program approved by the City, traditional referral methods utilized by the construction industry, and referrals from agencies, not more than three in number at any one time, designated by the City.

III. REPORTS

1. Contractor shall prepare projected manning tables on a quarterly basis, **Quarterly Projected Workforce Table, E00-105**. These shall be broken down into projections by week, for workers required in each trade. Copies shall be furnished to the City one week in advance of the commencement of the period covered, and at such time as there is a need to be updated during the period.
2. Records of employment referral orders, prepared by the Contractor, shall be made available to the City on request.
3. The Contractor shall prepare the **Certified Payroll Report on a weekly basis**, which lists the hours worked in each trade by each employee identified as minority, non-minority, male and female. Copies of these shall be provided to the City at the end of each week.

IV. SUBCONTRACTING WORK

If the Contractor shall use any Subcontractor on any work performed under this contract, affirmative action shall be taken to negotiate with qualified minority and women contractors. This affirmative action shall cover both pre-bid and post-bid periods.

V. EMPLOYMENT

In the employment of journeymen, apprentices, trainees, and advanced trainees, the Contractor shall give preference, first to citizens of the Commonwealth who have served in the armed forces of the United States in time of war and have been honorably discharged there from or released from active duty therein, and who are qualified to perform the work to which the employment relates, and, secondly, to citizens of the Commonwealth generally, and, if such cannot be obtained in sufficient numbers, then to citizens of the United States.

VI. RIGHT OF ACCESS

A designee of the City shall have the right of access to the construction site.

VII. COMPLIANCE WITH REQUIREMENTS

The contractor shall comply with the provisions of Executive Order No. 227 amending and revising Executive Order No. 74, as amended by executive Order No. 16 dated May 1, 1975 and of Chapter 151B as amended, of the Massachusetts General Laws, both of which are herein incorporated by reference and made part of this contract.

VIII. NON-DISCRIMINATION

The Contractor, in the performance of all work after the award, and prior to completion of the contract work, will not discriminate on the grounds of race, color, religious creed, national origin, age, sex, or handicap in employment practices, in the selection or retention of other contractors or in the procurement of materials and rentals of equipment.

**IX. SOLICITATIONS FOR SUBCONTRACTORS, AND FOR THE
PROCUREMENT OF MATERIALS AND EQUIPMENT**

In all solicitations either by competitive bidding or negotiation made by the Contractor either for work to be performed under a subcontract or for the procurement of materials or supplies, each entity solicited shall be notified in writing by the contractor of the Contractor's obligation under this contract relative to non-discrimination and affirmative action.

X. CONTRACTOR'S CERTIFICATION

Contractors bidding as General Contractors or Filed Sub-contractors shall certify that they will comply with the minority and women manpower and business enterprise goals and specific affirmative action steps contained in this Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program by signing and submitting with the bid the **Affidavit of Acknowledgement and Certification of Compliance, Form E00-101**.

If any Contractor subcontracts any portion of the work, the Contractor is required to obtain from each Subcontractor, regardless of tier, an Affidavit of Acknowledgement and Certification of Compliance, Form E00-101 stating that it will comply with the minority and women subcontracting and manpower ratios and specific affirmative action steps contained in this Supplemental Equal

Employment Opportunity Anti-Discrimination and Affirmative Action Program by signing this form and submitting it to the Contractor for submission to the awarding authority not later than five working days following the opening of the bids.

XI. COMPLIANCE – INFORMATION, REPORTS, AND SANCTIONS

1. The Contractor will provide all information and reports required by the City on instructions issued and will permit access to its facilities and any books, records, accounts and other sources of information which may be determined by the City to affect the employment of personnel. This provision shall apply only to information pertinent to the City's supplementary affirmative action contract requirements. Where information required is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to the City and shall set forth what efforts have been made to obtain the information.
2. Whenever the City believes the Contractor may not be operating in compliance with the terms of this Section, the City directly, or through its designated agent, shall conduct an appropriate investigation, and confer with the parties, to determine if such Contractor is operating in compliance with the terms of this Section. If the City or its agent finds the Contractor not in compliance, it shall make a preliminary report of non-compliance and notify such Contractor in writing of such steps as will in the judgment of the City or its agent bring such Contractor into compliance. In the event that such Contractor fails or refuses to fully perform such steps, the City shall make a final report of non-compliance, and recommend the imposition of one or more of the sanctions listed below. If, however, the City believes the Contractor has taken or is taking every possible measure to achieve compliance, it shall not make final a report on non-compliance. Within fourteen (14) days of the receipt of recommendations of the City, the

administering agency shall move to impose one or more of the following sanctions, as it may deem appropriate to attain full and effective enforcement.

- a. The recovery by the administering agency from the Contractor of 1/10 of 1% of the contract award price or \$1000.00, whichever sum is greater, in the nature of liquidated damages or, if a Subcontractor is in non-compliance, the recovery by the administering agency from the Contractor as a back charge against the Subcontractor of 1/10 of 1% of the subcontract price, or \$400.00, whichever sum is greater, in the nature of liquidated damages, for each week that such party fails or refuses to comply;
 - b. The suspension of any payment or part thereof due under the contract until such time as the Contractor or any Subcontractor is able to demonstrate compliance with the terms of the contract;
 - c. The termination, or cancellation, of the contract, in whole or in part, unless the Contractor is able to demonstrate within a specified time his compliance with the terms of the contract;
 - d. The denial to the Contractor of the right to participate in any further contracts awarded by the administering agency for a period of up to three years.
3. If at any time after the imposition of one or more of the above sanctions a Contractor is able to demonstrate that he/she is in compliance with this section, he/she may request the administering agency in consultation with the City, to suspend the sanctions conditionally, pending a final determination by the City as to whether the contractor is in compliance. Upon final determination, based on the recommendations of the adjudicatory body, the City shall either lift the sanctions or reimpose them.
4. Sanctions enumerated under Section XII-2 shall not be imposed except after an adjudicatory proceeding, as that term is used in M.G.L. Chapter 30, has been conducted. No investigation by the City or its agent shall be initiated without prior notice to the Contractor.

XII. SEVERABILITY

The provisions of this Section are severable, and if any of these provisions shall be held unconstitutional by any court of competent jurisdiction, the decisions of such court shall not affect or impair any of the remaining provisions.

XIII. WAIVER

The City of Worcester reserves the right to waive any stipulation in the M/WBE Program when deemed necessary or appropriate for the general good of the City and its programs.

DEFINITIONS

Contractor - Except where otherwise specifically stated the term "Contractor" shall mean any General Contractor

City - is the City of Worcester, Massachusetts

M/WBE – is A Minority and Women Business Enterprise as certified by the State Office of Minority and Women Business Assistance to be 51% or more minority or women owned and operated.

RESPONSIBLE EMPLOYER ORDINANCE
and
MINORITY/WOMEN BUSINESS ENTERPRISE AND WORKER UTILIZATION

FORM E00-D/103

SUCCESSFUL BIDDER'S OBLIGATION TO PROCEDURES AND FORMS

All successful bidders on City of Worcester construction projects will receive a package of procedures and forms that are to be used at specific times throughout the life of the project.

The following is a list of the documents that will be sent to successful bidders when this office is notified that a contract has been, or is about to be, executed.

I. BUILDING TRADES – CONTACT LIST, E00-D/6

When a contractor cannot fulfill the worker utilization percentages, the appropriate building trades locals may be contacted to request assistance in locating and engaging qualified workers.

II. AFFIDAVIT OF ACKNOWLEDGEMENT and CERTIFICATION OF COMPLIANCE, (FOR SUBCONTRACTORS), E00-101

If any portion of a project is to be subcontracted at any tier, each additional subcontractor shall complete this form and send it to the Contract Compliance Office within two business days of contract execution and PRIOR to beginning work on the project.

III. TABLE OF PROJECTED SUBCONTRACTORS, E00-103

The use of subcontractors at any tier shall be reported to the Contract Compliance Office on this form prior to the subcontractor beginning work on the project.

IV. SUBCONTRACTOR'S CERTIFICATE OF INTENT TO PARTICIPATE, E00-104

Each Non-Filed subcontractor engaged to work a project shall complete and forward this form to the Contract Compliance Office prior to beginning work on the project.

V. QUARTERLY PROJECTED WORKFORCE TABLE, E00-105

Each General Contractor, Filed Subcontractor and Non-Filed Subcontractor, regardless of tier, shall complete and forward this form to the Contract Compliance Office prior to beginning work and again for each additional three month period throughout the life of the project.

VI. REQUEST FOR MODIFICATION

E00-106B, MINORITY AND WOMEN BUSINESS UTILIZATION

E00-106C, MINORITY AND WOMEN UTILIZATION IN THE WORK FORCE

Any General Contractor, Filed Subcontractor or Non-Filed Subcontractor, regardless of tier, not meeting the minority and women goals, may file a request for modification after having exhausted all possible sources.

Requests for modification are considered ONLY after attempts to fulfill these mandates have been documented and submitted to the Contract Compliance Office with the appropriate sections of this form.

A modification or waiver will not be granted because a contractor wishes to use an existing workforce that does not achieve the goals of 10% of total work hours to be worked by minorities and 5% of total work hours to be worked by women; and,

If subcontracting, does not meet the goals of 10% of the contract value for Minority Business Enterprises and 5% of the contract value to Women Business Enterprises.

VII. INITIAL STATEMENT and CERTIFICATION OF COMPLIANCE WITH THE RESPONSIBLE EMPLOYER ORDINANCE, REO-101 (Pages 1 & 2)

General Contractors, Trade Contractors, Filed Subcontractors and Subcontractors complete and submit this form as part of their bid on all City of Worcester construction projects subject to the provisions of G.L. Chapter 149 and Chapter 149A.

The REO requirements are applicable under Chapter 149 to contracts of \$100,000 or more. Under Chapter 149A the requirements are applicable only to contracts \$5M and above.

Note: Under the September 2012 revision of the REO, there is no minimum threshold for subcontractors. Hence all subcontractors, i.e., Trade Contractors, Filed Subcontractors and Non-Filed Subcontractors at every tier must comply with the requirements of the REO

The General Contractor shall forward all Trade Contractor's, Filed Subcontractor's and Subcontractor's REO-101 Forms and REO evidence to the Contract Compliance Office for approval, PRIOR to said subcontractors beginning work.

VIII. WEEKLY STATEMENT AND CERTIFICATION OF COMPLIANCE WITH THE RESPONSIBLE EMPLOYER ORDINANCE, REO-102

At the end of each week of work, ALL Contractors, Trade Contractors, Filed Subcontractors, and Non-Filed Subcontractors regardless of tier, subject to the provisions of G.L. Chapter 149 and Chapter 149A, shall complete and submit this form along with their certified payroll reports to the Contract Compliance Office.

IX. INITIAL STATEMENT AND ADDITIONAL CERTIFICATION OF COMPLIANCE WITH THE RESPONSIBLE EMPLOYER ORDINANCE, REO-103

General Contractors, Trade Contractors, Filed Subcontractors and Subcontractors complete and submit this form as part of their bid on all City of Worcester construction projects subject to the provisions of G.L. Chapter 149 and Chapter 149A.

If any portion of a project is to be subcontracted at any tier, each additional subcontractor shall complete this form and send it to the General Contractor who, in turn will transmit this form to the Contract Compliance Office within two business days of contract execution and PRIOR to the subcontractor beginning work on the project.

**SOUTH HIGH COMMUNITY SCHOOL
DOCUMENT 009500 REO & MBE/WBE & WORKER UTILIZATION**

**X. WEEKLY CERTIFIED PAYROLL REPORT and WEEKLY
WORKFORCE UTILIZATION REPORT.**

At the end of each week of work, all Contractors, Filed Subcontractors, and Non-Filed Subcontractors, regardless of tier, shall complete and submit these forms to the Contract Compliance Office.

The Contract Compliance Office will also accept computer generated payroll reports. However, if the computer payroll does not reflect the prevailing wage, the Contractor must provide a breakdown of the benefits paid to each employee which when added to the base wage equals the prevailing wage.

END OF SECTION 009500

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Section 01 10 00
SUMMARY

PART 1 - GENERAL

1.1 Summary

- a. Project description.
- b. Project's environmental goals.
- c. Hazardous materials.
- d. Definitions – Owner, Owner's Project Manager, Construction Manager and Architect.
- e. Work by Owner.
- f. Owner early occupancy.
- g. Project Manual formats and conventions.

1.2 Project description

- a. Work covered by Contract Documents: Early Site Enabling Bid Package #1. The scope of work for this package includes the following items as indicated on the Drawings:
 1. Install and maintain erosion controls throughout the site.
 2. Construct paved construction access road (including related segmental retaining wall, drainage, plantings and permanent fencing) from Apricot Street around SW side of existing building.
 3. Construct stabilized construction entrances at Apricot Street and at end of lower Sullivan MS parking lot.
 4. Construct temporary parking, drainage and accessible route/entry in existing bus loop area.
 5. Salvage and store or relocate existing memorial plaques, stone markers, benches, playground equipment, plantings, flag pole and utility poles.
 6. Construct paved temporary parking at west edge of existing lower Sullivan MS lot.
 7. Construct temporary parking, bus turn-around, drainage and accessible route/entry at NW side of existing building.
 8. Cut/cap existing water service and provide new fire hydrant near NW corner of building.
 9. Demolish miscellaneous existing site improvements including site drainage, fencing and gates, planters, paving, trees and shrubs, concrete barriers and stone retaining wall.
 10. Provide construction fencing, gates, temporary barriers, temporary stair, project sign, directional signage, etc. for return of students and staff/faculty in August 2018.
 11. Provide temporary lighting in areas to be utilized by the School District including parking lots, driveways, sidewalks and pathways.
 12. Mobilize onsite and provide temporary facilities.
 13. Provide as-built documents of completed Site Enabling Bid Package construction.
 14. Other:
 - a) Work included beyond the Contract Limits: Protection and replacement of abutting sidewalks and roadways in public way, and on adjacent properties.

- b) Completeness: The Work shall be as shown on the Drawings and be complete in every respect and in conformance with all applicable requirements of the governing laws and codes.

b. Schedule:

1. Contract time: The Construction Manager may begin on-site work on, or after receipt of a written Notice to Proceed, or suitable Letter of Intent. After commencement of work, the Construction Manager shall pursue the Work continuously and with diligence, and bring the Project to Substantial Completion prior to date stipulated in Owner-Construction Manager Agreement.
2. Refer to the Construction Manager's instructions to bidders for bid due date.
3. The site will be available to the Contractor on June 22, 2018, or the day after the last day of school, whichever is later.
4. The work shall be substantially complete by August __, 2018, or the first day of school, whichever is earlier.
 - a) Substantial completion is the stage in the progress of the Work when the work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use. This includes any and all permits required by governmental agencies necessary for occupancy and use.
5. Permitting with the Worcester Conservation Commission is ongoing and it is anticipated that an Order of Conditions will be issued prior to June 22, 2018.
6. Construction documents for Sitework Bid Package #2, the scope of which includes all remaining Sitework besides this package, are expected to be issued for bidding on August 30, 2018.
7. Construction documents for Structural Bid Package #3, the scope of which includes all concrete foundations and structural steel, are expected to be issued for bidding on November 22, 2018.
8. Construction documents for Trade Contractor Bid Package #4, the scope of which includes all remaining work, are expected to be issued for bidding on January 17, 2019.

c. Project Address:

South High Community School
170 Apricot Street
Worcester, MA 01603

- d. Building Permits: Construction Manager is responsible to ensure all required permits are obtained, and that the work pertaining to permits is properly inspected and certified. Trade Contractors are required to obtain permits relating to their work.
- 1). Building permit fees have been waived by the City of Worcester. Individual permit fees associated with the work of Trade Contractors and subcontractors are the responsibility of the Trade Contractor performing the work of in the case of subcontractors the Construction Manager.

- 2). All costs associated with utility charges related to the construction of the building are the responsibility of the Construction Manager including but not limited to electrical, water and sewer, natural gas, etc.

1.3 Project Environmental Goals

- a. Overview of the environmental requirements for the Project: The Owner has established the environmental goal to construct a "green" building integrating the Owner's environmental operational mission into the Project.
 - 1). The Owner's environmental goals for the Project includes participation in the LEED™ (Leadership in Energy and Environmental Design) Program for "SILVER" Certification under the United States Green Building Council's LEED Rating System, LEED v.4 S (Schools).
 - a). Refer to Section 01 81 13 - SUSTAINABLE DESIGN REQUIREMENTS regarding special administrative and procedural requirements related the Owner's LEED goals.
 - b). Individual Specification Sections have additional detailed requirements.

1.4 DEFINITIONS – OWNER, Owner's Project Manager, Architect, and construction manager

- a. Wherever the term "Owner" is used in this specification, it refers to:

City of Worcester
455 Main Street, Room 309
Worcester, Massachusetts 01608
- 1). The terms "Owner" and "Awarding Authority" as used in the Project Manual have the same meaning and are interchangeable in Contract Documents. Both terms refer to the same entity.
- 2). Important Tax Note: OWNER is a non-profit organization and exempt from certain taxes. It is therefore required that the Construction Manager and all Subcontractors purchasing taxable goods or services make known to suppliers that tax-exempt status of the Owner, in order that such taxes will not be applied to the goods under Contract. In the event that such taxes are paid on any items, the Construction Manager shall obtain rebates for the taxes and reimburse the Owner in the full amount by change order. The Owner will provide the necessary evidence and certificates of its tax-exempt status upon request of those concerned. The most prevalent taxes concerned are:
 - a). Federal Excise Taxes as applied to articles which are taxable under Chapter 32 of the Internal Revenue Code of 1954, as amended. The Owner's Excise Tax Exemption Certificate Number is applicable.
 - b). Sales and Use Tax imposed by the Commonwealth of Massachusetts: The Owner has been assigned Exemption Certificate Number E-046-001-076 with respect to leases, rental, or purchase of "tangible personal property", including building materials and supplies, subject to the Massachusetts Sales and Use Tax. This exemption does not apply to any equipment leased or rented by the Construction Manager for his own use on the construction of the Project.
 - c). Sales and Use Tax imposed by the states where the Owner does not have exemption status: The Owner may choose to apply for tax exemption status in other states where major building materials and supplies are being purchased. In the event that the Owner obtains exemption status after bids are received, the Construction Manager shall adjust the Stipulated Sum by change order, for the

amount equal to the scheduled taxes that were included in the Construction Managers Bid.

- d). Fines and Penalties: Construction Manager and subcontractors are fully responsible for payment of all penalties and fines assessed by authorities having jurisdiction for improper and illegal use of Owner's tax exemption certificate number.
- 3). All papers required to be delivered to the Owner shall, unless otherwise specified in writing to the contrary, be delivered to the office of the Architect:
- b. Wherever the term "Owner's Project Manager" is used in the Contract Documents, it refers to:
 - CBRE/Heery
 - 80 Blanchard Road, Suite 108
 - Burlington, Massachusetts 01803
- c. Wherever the term "Architect", "Designer", or "Architect/Engineer", is used in the Contract Documents, it refers to:
 - Lamoureux Pagano & Associates
 - 108 Grove Street, Suite 300
 - Worcester, Massachusetts 01605
- d. Wherever the term "Construction Manager", "Contractor, or "General Contractor", is used in the Contract Documents, it refers to:
 - Fontaine Brothers Inc.
 - 510 Cottage Street
 - Springfield, Massachusetts 01104
- 1). The terms "Construction Manager", "General Contractor" and "Contractor" as used in the Project Manual have the same meaning and are interchangeable in Contract Documents. Both terms refer to the same entity.

1.5 Work by Owner

- a. Related work under separate agreements: The Owner will award a separate contract which will commence prior to or during the work of this Contract; which in general includes:
 - 1). Testing Laboratory Services.
- b. Owner Furnished - Construction Manager Installed (OFCI) Products: The Construction Manager shall install the following Owner furnished items.
 - 1). NA
- c. Owner Furnished and Installed (OFI) Products: The Construction Manager has coordinating responsibility for the following work, provided by others under separate agreement(s) with the Owner:
 - 1). NA

1.6 Products requiring long lead time

- a. Several products specified in individual specification sections are "long lead time" products and thus require advance ordering. For the following categories of work, affirm early purchase orders under the requirements of Section 01 32 00 – Construction Progress Documentation.

- 1). Segmental retaining wall

1.7 PROJECT MANUAL FORMATS AND CONVENTIONS

- a. Project Manual Format: The Project Manual is organized into Divisions and subdivided into Sections and Documents using Construction Specification Institute (CSI) publication "MasterFormat, 2004 Edition" numbering system.
 - 1). Section Identification: Six/Eight digit Section numbers are utilized and cross-referenced throughout the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because only those Section numbers which are applicable to this Project are used.
 - 2). Division One of the Project Manual governs procedural and administrative requirements of the Work. Division One requirements are applicable to all Sections and Documents in the Project Manual.
- b. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1). Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular as applicable to the context of the Contract Documents.
 - 2). Imperative mood and streamlined language is generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Construction Manager. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Construction Manager or by others when so noted.
 - a). The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

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Edward M. Augustus, Jr.
City Manager



CITY OF WORCESTER

November 27, 2018

Mr. John R. Kelly
Commissioner of Inspectional Services
25 Meade Street
Worcester MA 01610

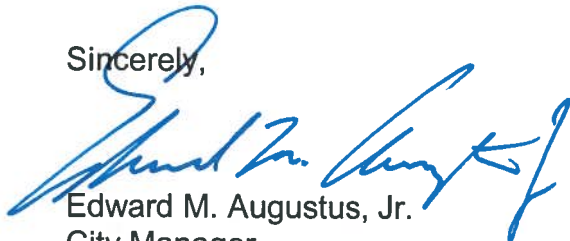
Re: South High Community School - Permits

Dear Commissioner Kelly,

As it relates to permit fees for South High Community School project, please be advised that current agreement for Owner Construction Manager, between the City and Fontaine/WT Rich LLC ("the Construction Manager"), for the construction of the South High Community School replacement exempts the payment of permit fees by the Construction Manager. Please consider this letter authorization to proceed with the issuance of permits without the payment of the associated permit fee.

Although these permit fees shall not be assessed directly to the Construction Manager, I respectfully request that your division calculate the dollar value of each permit issued by your department and forward the calculated value of each permit to Thomas F. Zidelis, Chief Financial Officer, and to K. Russell Adams, Assistant Commissioner - DPW&P, for year-end closeout.

Sincerely,



Edward M. Augustus, Jr.
City Manager

c: Paul Moosey
Thomas F. Zidelis

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Section 01 12 00
PROJECT PHASING REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 1 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Requirements for phasing of Work include logistics, phasing, and completion of designated phases prior to commencement of subsequent phases.

1.3 RELATED SECTIONS

- A. Section 01 10 00: SUMMARY OF WORK
- B. Section 01 31 00: PROJECT MANAGEMENT AND COORDINATION
- C. Section 01 33 00: SUBMITTAL PROCEDURES
- D. Section 01 32 00: CONSTRUCTION PROGRESS DOCUMENTATION
- E. Section 01 50 00: TEMPORARY FACILITIES AND CONTROLS
- F. Section 01 77 00: CONTRACT CLOSEOUT

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 SUBMITTALS

- A. Contractor shall submit a Project site and building logistics plan in accordance with the requirements of this Section. Schedule issued herein is a guide as to the minimal requirements, the CM shall further investigate and coordinate all the required items, and include associated costs of their and subcontractors work, outline and coordinate the responsibilities and work of the School, Utility Companies, and other parties involved in the complete construction and occupancy as part of the schedule.

3.2 LOGISTICS

- A. Prior to commencement of Work, Contractor shall prepare and submit to Architect/OPM/DPW/WPS a detailed Project site/building logistic plan, in same size and scale of Drawings, setting forth Contractor plan of Work relative to following, but not limited to, items:
 - 1. Hauling route shall be in accordance with local ordinances and the DEP Administrative Consent Order, a truck access route to and from Project site.
 - 2. The identification of any overhead wire restrictions for power, street lighting, signal or cable.
 - 3. Protection of sidewalk pedestrians and vehicular traffic.

4. Project site fencing and access gate locations.
 5. Construction parking.
 6. Material staging or delivery areas.
 7. Material storage areas.
 8. Temporary trailer and storage locations.
 9. Temporary service location and proposed routing of all temporary utilities.
 10. Location of temporary or accessible fire protection.
 11. Trash removal and location of dumpsters.
 12. Concrete pumping locations.
 13. Crane locations.
 14. Location of portable sanitary facilities.
 15. Mixer truck wash out locations.
 16. Traffic control signage.
 17. Storm Water Pollution Prevention Plan – SWPPP.
 18. Stockpile, or lay down areas.
 19. Security lighting.
 20. Egress plans, egress and emergency lighting plans for construction areas.
 21. Temporary utility connection and lighting, security, plans for all trades.
 22. Weather Protection.
- B. Revised Project site and building logistic plan will be required to be updated for each identified phases of Work as set forth in this Section.
- C. Contractor is responsible for securing and/or obtaining all approvals and permits from authorities having jurisdiction relative to any activities set forth in Section 3.2.A. Construction work
- D. All work shall be done in accordance with NFPA 241, including all reviews with the AHJ, and section 1.3.4 "A safety program shall be included in all construction, alteration, or demolition contracts."
- E. Refer to General Conditions for work sequencing of all trades, work adjacent to occupied areas must be scheduled as not to interfere with the school's operations, all disruptive work of all trades shall be scheduled second shift. The school's schedule is critical to meet, all trades shall include in their bid, working weekends, second shifts as required to maintain the published schedule.

3.3 PHASING OF THE WORK

- A. Project will be constructed in separate Phases coordinated with the school calendar as described in this Section and indicated on the Drawings. Phasing will also delineate Work to be completed in each designated phase. Unless otherwise approved or directed by Owner, each phase shall be completed according to approved Baseline Schedule prior to commencement of next subsequent phase. Contractor shall incorporate and coordinate Work of Separate Work Contracts relative to this Project into the Phasing and Construction Schedule, follows is issued as a guideline for the CM.

PHASE #1 -June 2018-August 2018

1. Enabling Site Work
2. Installation of Erosion Control
3. Construction of parking areas, retaining wall, access around the school, separation of the school site from the construction areas. Refer to enabling bid documents for specifics
4. Maintenance of areas within the construction fence
5. Installation and reconfiguration of temporary site fence prior to start of school year

PHASE #1A - August 2018-November 2018

1. Enabling Site Work
2. Completion of retaining wall, completion of temporary paving within project site fence
3. Contractor to maintain all separations and access to the school site and the primary site access road
4. Complete blackout hours shall be respected for school drop off and pickup hours on all days when school is in session

PHASE 2- November 2018 – June 2021

1. Building Construction
2. Substantial completion of building no later than April 15, 2021.
3. All site utilities completed for new building tied in and operational
4. Building commissioning Completed
5. Building ready for FF&E deliveries

SUMMER 2019

1. Installation of utility ductbanks, gas service, sanitary and grease trap, water and fire protection services
2. Installation of detention Basins
3. Install retaining wall and fence at existing building bus loop and make safe prior to start of school

SUMMER 2020

1. Installation of underground recharge system #1
2. Begin work at lower fields
3. Install all utilities from the Sullivan School to the lower fields
4. Re-establish temporary parking over recharge system on existing school site and protect system on construction side
5. Install drainage at construction access road and school access road/parking
6. Install site lighting and up to binder course of new school loop roads

Phase 2A – July 2021 – August 2021

1. Disconnection of utilities at existing school and make safe
2. Abate and demolish school north of "Main Street"
3. Begin export of material at south side of existing building
4. Move the construction trailers and reconnect utilities
5. Install parking areas, roadways and walks at primary and secondary entrances
6. Complete loop road around fields and access to main entrance

- To include all guardrails, lighting, sidewalks, and fencing
- 7. Install caissons and framing for solar/PV system at main parking lot
- 8. Landscaping
- 9. Relocate fill from onsite stockpiles and begin grading front of site
- 10. Establish and turn over bus loop at front of school
- 11. Maintain access to new school for owner occupancy and FF&E deliveries
- 12. Complete parking at main parking lot
- 13. Reverse construction and school entrances
- 14. Relocate construction fencing

PHASE 2B – August 2021 – November 2021

1. Complete abatement and demolition
2. Complete relocation of onsite stockpiles/export
3. Complete installation and connection of drainage systems
4. Complete plaza
5. Complete parent drop off loop
6. Begin site retaining walls at athletic fields
7. Complete solar/PV array at parking lot
8. Begin construction of toilet/storage building to be weather tight by November

PHASE 3A – November 2021 – June 2022

1. Final grading at athletic fields
2. Install athletic fields
3. Complete site retaining walls and sidewalks
4. Complete toilet/storage building
5. Install sports field lighting
6. Complete grandstand and pressbox
7. Final paving at remaining areas
8. Complete all landscaping and touch up work
9. Complete all site improvements and site lighting
10. Complete all remaining contract work

3.4 PHASING OF THE WORK – GENERAL

- A. The owner will be impacted by not having all Work of each Phase completed within the indicated schedule and overall Project completed within the Contract Time. It is mandatory Work be complete within Phases and Contract Time.
- B. Site Contractor is responsible for snowplowing, maintaining access to all areas under their control. Landscaping Contractor is responsible for watering, maintenance, and mowing of all areas until accepted by the Owner. Owner is responsible for snowplowing, mowing and maintaining walkways, paths and fields under areas of their use and control.
- C. SUBCONTRACTORS RESPONSIBILITIES;
Subcontractors to coordinate their work in accordance with the phasing plan and master schedule of the CM, including the minimal items outlined in this and sub sections of the specifications and drawings. PHASING OF THE WORK
- D. General Requirements All Phases

1. Egress and exit capacities must be established and maintained from all occupied areas, kept clearly labeled, including exit lights and emergency lights (installed, maintained and removed upon completion by the electrical contractor) during all occupied phases. Contractor to establish regular communications with representatives of the school, code department, Worcester Fire Department and Owner's representatives.
2. Reference drawings and specification sections for areas and additional information and requirements.

3.5 PHASING PLANS

Refer to the Phasing Plans located in the architectural drawings for more information.

End of Section

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Section 01 14 00
WORK RESTRICTIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Use of Site.
- B. Access to Site.
- C. Work Sequencing.
- D. Workforce requirements.
- E. Hours for on-site operations and restrictions.
- F. Coordination with occupants.
- G. Worker Identification Badges
- H. Worker sex offender record information (SORI) Reporting and criminal offender record (CORI) reporting.
- I. Worker conduct, appearance and Work Rules.

1.2 RELATED REQUIREMENTS

- A. Document 00 73 00 – SUPPLEMENTARY INSTRUCTIONS TO BIDDERS: Additional project requirements and work restrictions.

1.3 USE OF SITE

- A. Use of, and access to, site will be subject to special requirements of the Owner, as directed.
 - 1. Prior to beginning the Work of this Contract, the Construction Manager shall meet with the Owner and the Architect to determine procedures regarding access and use of the site, locations and access to staging and storage areas, tree protection, temporary barriers and fencing, and any special site conditions or restrictions regarding the use of the site areas surrounding the construction.
 - 2. Use of Owner's receiving/shipping areas: Construction Manager is responsible to deliver and receive all materials and equipment. Construction Manager is not permitted to have supplies or equipment shipped directly to them in care of the Owner or Building Manager.
 - 3. Security: Owner access must be permitted at all times in all construction areas, for purposes of security.
- B. Confine operations to areas within Contract limits indicated on the Drawings. Portions of the site and building beyond areas in which construction operations are indicated are not to be disturbed.

1. Use of on-site areas outside of the contract limits for workers parking or storage of materials must be pre-arranged with Owner. Schedule deliveries to minimize requirements for storage of materials.
 2. There shall be no work or construction activity within the wetlands or the buffer areas refer to Document 00 31 26 - INFORMATION AVAILABLE TO BIDDERS WORCESTER CONSERVATION COMMISSION ORDER OF CONDITIONS and attachments.
- C. Keep all public roads and walks, and access drive to facility clear of debris caused by this Work during building operations.

1.4 ACCESS TO SITE

- A. The Owner intends to occupy parking areas and access roads during construction. Notify the Owner of work which will affect the use of these areas; coordinate work schedule with Owner. The Construction Manager shall consult with the Owner on the best ways to provide access and on changes to access areas as the work progresses.
- B. Keep all public roads and walks, and access drive to facility clear of debris caused by this Work during building operations.

1.5 COORDINATION WITH OCCUPANTS

- A. General: Perform all work in such a manner as to prevent interference with the Owner's operation of the facility, nor endanger the health, safety and well being of the facility's staff and students.
1. Take all measures to insure the safety of students, staff and the general public. The Construction Manager must take every reasonable precaution and employ all necessary measures including extra cleaning, special supervisory personnel, and additional temporary barriers and signage to facilitate the clean, quiet, safe, and continual operation of the facility.
 2. The work will be done in an occupied building active site accessible to the public. It is imperative that the Construction Manager, its subcontractors and all their personnel treat the staff and students with consideration and respect. No unnecessary noise or disruption of the academic or social activities of the school will be permitted.
- B. Interruption of services: Any major work entailing disruption to heating, lighting, life safety system utility connections or other similar major disruption to building functioning must be coordinated with the Owner, and temporary services, safety precautions, or connections provided. Do not shut down any service without approval of the Owner.
1. Provide both Owner and Architect with 72 hour (3 work days minimum) notification for any disruption of service; provide notification for connecting, disconnecting, turning on or turning off any service which may affect Owner's operations.
 2. Provide 48 hour (2 work days minimum) notice to local fire department of disruptions in electrical services, fire alarm services and emergency power services.
 3. Any action either planned or unplanned, by the Construction Manager which impairs the operation of anyone or the activation of the fire alarm detection

and or suppression system shall cause notification of the appropriate party. In case of unplanned, accidental, impairment, the Construction Manager will immediately notify the Owner. The Construction Manager should be prepared to provide assistance as required to correct the problem.

1.6 WORK FORCE REQUIREMENTS

- A. The Construction Manager acknowledges the stringent requirements of the Owner with respect to the dates of Substantial Completion for various Portions of the Work, and recognizes that the construction schedule may require that work proceed on an accelerated basis. The Construction Manager further acknowledges that requirements related to items such as safety, service to Owner occupied areas, or Construction Manager access to Owner occupied areas may mandate that some operations be performed only after "normal school hours" or other occupancy hours. The Construction Manager therefore agrees that the Work of his own forces and of his subcontractors, including all Trade Contractors, shall be performed on an overtime and/or double-shift basis if and to the extent necessary in order that the construction schedule be met.
- B. Neither overtime nor double-shift work shall be grounds for any claims for compensation to the Construction Manager or to any Trade Contractor or subcontractor. If the nature of overtime or double-shift work requires that the Owner provide personnel to operate the facility at times when they would not normally be present, such personnel costs shall be borne or reimbursed by the Construction Manager.
- C. Restricted access hours (Closed Gate Period): Access to the school and site is prohibited during school bus drop off and pick-up hours. No construction deliveries, vehicular traffic, or hauling away may occur at the site during School bus drop-off and pick-up times which are 7:00 AM to 7:30 AM, and 1:30 PM to 2:30 PM. The Construction Manager shall coordinate with the Owner Project Manager and Awarding Authority to determine exact times and durations for restricted access hours.
 - 1. All gates to Construction site shall be closed during the above specified time periods.
 - 2. No vehicles (except fire, police and rescue) may enter or exit the construction site during the above time periods.
 - 3. Any vehicle which arrives at the school during the "Closed Gate" time must move to a location acceptable to the Owner. No vehicles will be allowed to idle on the project site, or any other nearby street. The Construction Manager shall be responsible for enforcing this requirement.
- D. School vacation dates: School vacation schedule is listed under Information Available for Bidders. The Construction Manager is required to coordinate with the Owner's Project Manager prior to scheduling Work during vacation dates.
- E. Winter Conditions: The Owner and Construction Manager recognize that time is of the essence for completion of this Contract and agree to continue work throughout the winter months without delay.
- F. Municipal Authority: The Construction Manager shall comply with all local ordinances, including those with respect to work start, finish, and weekend work.

- G. None of the requirements herein shall be construed as relieving the Construction Manager of his responsibility to conduct his operations in conformance with local ordinances or requirements established by authorities having jurisdiction.

1.7 HOURS FOR ON-SITE OPERATIONS AND RESTRICTIONS

- A. Hours of operation and restrictions:
 - 1. Hours of construction, 7:00 AM to 5:00 PM local time, Monday to Friday. Provisions for working hours other than those specified, must be pre-arranged with the Owner.

1.8 WORKER CRIMINAL OFFENDER RECORD (CORI) REPORTING

- A. Sex Offender Record Information (SORI) Reporting and Criminal Offender Record Information (CORI) Reporting. In accordance with MGL c6 §178 and c71 §38R respectively, the School Superintendent or School Principal will require sex offender record information ("SORI") and criminal offender record information ("CORI") from the criminal history systems board, relating to any worker who is scheduled to work on any portions of the school property. The Construction Manager, Trade Contractors and subcontractors shall make every effort to provide the Owner's Project Manager with a list of the proper paperwork at least two weeks before any workmen who they anticipate will be on site. All approved workers on the project shall wear visible I.D. badges at all times. The Construction Manager shall be responsible for issuing these badges and enforcing this requirement. Workers failing to display their I.D. badges will be removed from the site. The Owner reserves the right to stop work if there has been a failure to comply with this paragraph, in which event the Construction Manager, Trade Contractors and subcontractors shall have no claim for damages, delay or time extensions against the Owner.
 - 1. Refer to the Worcester Public Schools CORI Request Form included at the end of this Section. Coordinate reporting requirements with Document 00 73 00 - Supplementary Instructions to Bidders

1.9 WORKER IDENTIFICATION BADGES

- A. Provide an identification badge (ID card) to each worker, materials supplier and vendor authorized to enter premises.
 - 1. All personnel on site shall visibly wear an identification badge issued by the Construction Manager.
 - a. All construction personnel on-site shall be issued and wear a identification badge.
 - b. Delivery and Vendor Personnel who are on site only for deliveries shall be issued a temporary visitor's ID card which shall be returned to the Construction Manager when leaving the site.
 - c. Authorized Visitors who are on site for meetings, inspections and similar activities, shall be issued a temporary visitor's ID card which shall be returned to the Construction Manager when leaving the site.
 - 2. Identification badges and visitor badges shall be in format, color and size approved by Owner.
 - 3. Personnel identification badges to include: Personal photograph, name and assigned number, expiration date, and employer.

4. Return of identification badges:
 - a. Require return of personnel identification badges at expiration of employee contribution to the Work.
 - b. Temporary ID cards shall be issued and returned on a daily basis.
 5. All construction personnel are required to wear their issued identification badge at all times when on school grounds.
- B. Maintain a list of accredited persons having identification cards, submit copy directly to Owner upon request.
1. Include in list, employee name, assigned number, date of issue, expiration date, and employer.

1.10 WORKER CONDUCT, APPEARANCE AND WORK RULES

- A. General Conduct and Demeanor: All construction workers shall treat all other workers, Owner staff, student and the public with respect and courtesy.
1. The conduct and appearance of each worker at the job site is of paramount importance. The Owner reserves the right to require any worker to be banished from the Site.
- B. Privacy: Conduct all work of the Contract with the maximum effort to maintain the privacy of the Owner's operations, staff, and students. Do not permit the workers to peer into other areas of the building visible from the work area. Invasion of privacy is a major infraction of the work rules.
- C. Physical Appearance: Require each worker to dress appropriately in a clean, neat, and professional manner.
1. Sleeved shirts and long pants are required minimum clothing. Short sleeved shirts may not be rolled up. Shirts may not be rolled up at the waist. Pants may not be rolled up past the top of the boots or shoes worn. Anyone not in compliance is subject to immediate dismissal.
- D. Entertainment Devices (including, but not limited to radios, CD players, MP3 players and televisions): The use of all entertainment devices, including portable listening devices (ipod™ type) with headphones or earphones, is strictly prohibited at all times.
1. Construction Manager shall control the volume of all communication radios and loudspeakers to avoid creating a nuisance.
- E. Medications and Drugs: Do not allow any drugs or mood-altering substances, except for qualified, legal prescriptions; when requested, allow inspection of prescription drugs.
- F. Smoking: Smoking is strictly prohibited on school property.
- G. Language: Foul and rude language is strictly prohibited.
- H. Physical Actions: Running, horseplay, fighting, and other unprofessional conduct is prohibited. Fighting is a major infraction of the work rules.

- I. Stealing: Stealing of any materials, objects, furnishings, equipment, fixtures, supplies, clothing, or other items will not be tolerated and is a major infraction of the work rules.
- J. Sexual Harassment: All forms of physical and verbal sexual harassment will not be tolerated and is a major infraction of the work rules. Sexual harassment includes, without limitation: touching, whistling, sexually explicit stories, jokes, drawings, photos and similar representations, exhibitionism and all other sexually oriented offensive behavior.
- K. Warnings and Dismissal:
 - 1. For minor infractions of the rules, the Owner may issue a warning. Only one warning will be allowed per worker. A second infraction will result in immediate dismissal of the worker from the Site.
 - 2. For major infractions of the rules, the worker shall be dismissed immediately without warning and is subject to possible criminal prosecution.
- L. Notification of Workers: Clearly notify and educate each worker about these Work Rules and the requirements for worker conduct and appearance.
 - 1. Recommendation: The Owner recommends that the Construction Manager notify each worker of the work rules in writing and obtain a signed acknowledgment of the worker's understanding of the work rules as a condition of employment on this project.

1.11 PROJECT PHASING

- A. Refer to Document 01 12 00 – PROJECT PHASING REQUIREMENTS and Document 07 30 00 - SUPPLEMENTARY INSTRUCTIONS TO BIDDERS.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

WORCESTER PUBLIC SCHOOLS

WORPS
CH 385 G

20 Wing Street, Worcester, MA 01609-
2493 Telephone: (.508) 799-3021

In order to volunteer and/or work in the Worcester Public Schools, an individual must have a criminal background check. Convictions will be reviewed to determine an individual's eligibility to volunteer/work in the Worcester Public Schools. If you have a concern or were not approved, please contact Mark T. Brophy at 508-799-3027 to determine if you may still be eligible.

This request is submitted by: Department/ School/ Collaborative_

WORCESTER PUBLIC SCHOOLS CORI REQUEST FORM

Worcester Public Schools has been certified by the Criminal History Systems Board for access to all criminal case data including conviction, non-conviction and pending. As an applicant/employee for the position of _____, I understand that a criminal record check will be conducted for convictions, non-convictions and pending criminal case information only and that it will not necessarily disqualify me. The information below is correct to the best of my knowledge.

APPLICANT/EMPLOYEE INFORMATION (Please print)

Applicant/Employee Signature

Last Name

First Name

Middle Name

Maiden Name or Alias (If Applicable)

Place of Birth

Date of Birth

Social Security Number

Mother's Maiden Name

Current **and** Former Addresses: _____

Sex: _____

Height: _____
Color: _____

ft. in.

Weight: _____ Eye

State Driver's License Number: _____

IN ORDER FOR THIS CORI TO BE PROCESSED, A COPY OF A MASSACHUSETTS ID MUST BE ATTACHED.

OFFICE USE ONLY

The above information was verified by reviewing the attached form of government issued photographic
Identification. _____

(NAME)

(LOCATION)

WHY A CRIMINAL OFFENDER RECORDS INFORMATION (CORI) CHECK?

In order to protect the welfare of our students, *and* in accordance with the M.G.L. c.71 §.38R, all candidates for, and current occupants of, positions which have the potential for direct and unmonitored contact with WPS students, including, but not limited to teachers, teachers aides, school nurses, counselors, coaches or other extracurricular staff or supervisors, food service employees, custodians and transportation providers. This also includes volunteers, interns, student teachers or other persons regularly offering support to any school program or facility, whether paid or unpaid. This CORI check will be done every three (3) years.

HOW DO I GAIN ENTRY TO A SCHOOL?

In order to be in the schools, individuals (students, faculty, and administrators) from outside institutions must complete a registration process, as follows:

1. Fill out the CORI form on the reverse side of this page so that a CORI check can be done by the Criminal History Systems Board in Boston. Return the form to:

**Human Resource Manager
Worcester Public Schools
20 Irving Street
Worcester, MA 01609**

The Worcester Public Schools will maintain a current data base of all applicants who have been approved or whose approval is pending which can be accessed by each public school. An individual will be contacted **only** if there appears to be a problem with CORI approval. All information is held in strictest confidence by the Human Resource Manager.

2. On the first visit to the school, verify CORI clearance. You will then complete a brief Registration form which will be kept at the school. Orientation will be provided on-site at the individual school(s). A college ID must be worn at all times when in any Worcester public school.

IS INFORMATION KEPT CONFIDENTIAL?

The CORI process is covered under Massachusetts Law and the statute contains strict language regarding confidentiality: "...any willful, unauthorized dissemination of the CORI may subject the offending agency or individual to a fine of \$5,000 and/or up to one year in a House of Correction, in addition to Civil penalties." Within the Worcester Public Schools, CORI information is kept in a confidential file. The Worcester Public Schools is very diligent in not releasing CORI information to anyone other than the specific individual on whom the CORI was conducted.

The Worcester Public Schools is an Equal Opportunity/Affirmative Action Employer/Educational Institution and does not discriminate regardless of race, color, gender, age, religion, national origin, marital status, sexual orientation, disability, or homelessness. The Worcester Public Schools provides equal access to employment and the full range of general, occupational and vocational education programs. For more information relating to Equal Opportunity/Affirmative Action contact Stacey DeBoise Luster, Human Resource Manager, 20 Irving Street, Worcester, MA 01609. 508-799-3020. Please call the main office at the school if you would like this document translated into a language other than English.

Por favor, contate a secretaria central da escola caso deseje que este documento seja traduzido para o português.

Por favor, llame a la oficina central de la escuela si usted desea que este documento sea traducido al español.

Ju lutem telefononi zyren qendrore te shkolles ne se deshironi to kini kete dokument te perkthyer ne nje gjuhe tjeter pervec Anglishtes

Xin goi dWi thoai cho van phong nha tn.r6ng n6'u qucr vi muon tai lieu nay difcc dich ra mot nglin ngit khac hOrt ting Anh

CORI COMPLIANCE / GENDER IDENTITY & EXPRESSION

Vendors entering into contracts with the City of Worcester must affirm that their policies regarding CORI information are consistent with the CORI hiring standards set by the City of Worcester. The City's CORI hiring policy may be downloaded from City of Worcester website www.worcesterma.gov. Questions pertaining to the City's CORI hiring policy are to be directed to the Equal Employment Opportunity Officer, Executive Office of Human Resources at 508-799-1030.

CERTIFICATION

All Vendors must check one of the three lines below.

1. _____ CORI checks are not performed on any Applicants.
2. _____ CORI checks are performed on some or all Applicants. The Vendor, by affixing a signature below, affirms under penalties of perjury that its CORI policy is consistent with the standards set forth with the CORI hiring standards set by the City of Worcester.
3. _____ CORI checks are performed on some or all Applicants. The Vendor's CORI policy is not consistent with the standards set forth with the CORI hiring standards set by the City of Worcester. (a copy of the Vendor's written CORI policy must accompany this form).

(Typed or printed name of person
signing quotation, bid or proposal)

Signature

Name of Business

A Vendor with a CORI policy that does NOT conform to the City standards must check Line 3. Vendors who check Line 3 will not be permitted to enter into contracts with the City, absent a waiver granted by the City. For any waiver to be granted, a written request should accompany bid submission explaining in detail why the vendor fails or refuses to comply with the City's CORI hiring standards.

Gender Identity Standards Applicable to Vendors

The city will do business only with vendors that have adopted and employ Gender Identity policies, practices and standards that are consistent with city standards.

The city may review all vendors' Gender Identity policies and practices for consistency with city standards.

By signing this bid, vendor confirms that their Gender Identity policies, practices and standards are consistent with those of the City of Worcester. For further information please refer to the Ordinance Relative to Gender Identity and Expression found at www.worcesterma.gov or call the LGBTQ Liaison/Director of Human Rights & Disabilities at 508-799-8486.

**DO NOT REMOVE
THIS PAGE INTENTIONALLY LEFT BLANK**

WAGE THEFT PREVENTION CERTIFICATION

By the Revised Ordinances, Chapter 2, Section 39, the city of Worcester has established requirements for certain contracts in an effort to prevent wage theft. Prospective contractors must provide the following certification and disclosures with their bids/proposals. The City will not award a contract without receipt of this completed certification.

INSTRUCTIONS: A prospective contractor shall **(a)** check Box 1 *OR* Box 2, as applicable, **(b)** check Boxes 3-5, **(c)** sign this form certifying compliance with the Wage Theft Prevention Ordinance, and **(d)** submit the completed form with its bid/proposal. For multi-year contracts, the successful bidder/proposer shall submit the completed form annually to the Purchasing Director.

Pursuant to the Wage Theft Prevention Ordinance, successful bidders/proposals shall post in conspicuous places the Mass. Wage and Hour Laws notice informing employees of the protections of G.L. c. 149, Sec. 151, and the Fair Labor Standards Act (FLSA). The notice may be found at <http://www.mass.gov/ago/docs/workplace/wage/wagehourposter.pdf>

ALL BIDDERS/PROPOSERS MUST CERTIFY THAT [check either Box 1 or Box 2, as applicable]

1. ☐ Neither this vendor/contractor nor any prospective subcontractor has been subject to a federal or state criminal or civil judgment, administrative citation, final administrative determination, order or debarment resulting from a violation of G.L. c. 149, G.L. c. 151, or FLSA, within three (3) years prior to the date of this bid/proposal submission.

OR

2. ☐ This vendor/contractor, or a prospective subcontractor, has been subject to a federal or state criminal or civil judgment, administrative citation, final administrative determination, or debarment resulting from a violation of G.L. c. 149, G.L. c. 151, or FLSA, within three (3) years prior to the date of this bid/proposal submission. The firm shall provide a copy of the same with the bid/proposal.

ALL BIDDERS/PROPOSERS MUST CERTIFY EACH OF THE FOLLOWING

3. ☐ Within five (5) days of receiving notice, the vendor/contractor shall report and provide a copy of any federal or state criminal or civil judgment, administrative citation, final administrative determination, order or debarment resulting from a violation of G.L. c. 149, G.L. c. 151, or FLSA imposed on this firm or on any prospective subcontractor while any bid/proposal to the City is pending and, if awarded a contract, during the term of the contract provide the same to the Purchasing Director.

4. ☐ A vendor/contractor awarded a contract that has disclosed under paragraph 3 above shall, upon request, furnish monthly certified payrolls for the City contract as the Purchasing Director instructs and shall, at the discretion of the Purchasing Director, obtain a wage/payment bond or other suitable insurance as required by the Wage Theft Prevention Ordinance. Vendors/contractors subject to a state or federal debarment for violation of the above laws or prohibited from contracting with the Commonwealth are prohibited from contracting with the City, and upon a finding or order of debarment or prohibition, the City may terminate the contract.

5. ☐ The contractor shall post notices provided by the City in conspicuous places informing employees of the protections of the Wage Theft Prevention Ordinance, and applicable local, state and federal law.

The undersigned certifies under the pains and penalties of perjury that the contractor is in compliance and agrees to remain in compliance with the provisions of the Wage Theft Prevention Ordinance for the term of its contract with the City.

Signed: _____

Print Name & Title

Company Name

Date

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THIS PAGE INTENTIONALLY LEFT BLANK**

Section 01 22 00
UNIT PRICES FOR TRADE CONTRACTORS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section covers items for which indefinite quantities can be expected and, therefore, pre-agreed prices per unit of work are established as means to determine adjustments to the Contract Price after actual quantities are determined .
- B. Measurement and payment criteria applicable to portions of the Work performed under a unit price payment method.
 - 1. Refer to this Section and individual Specification Sections for methods of measurement and payment for unit prices. As soon as the work involved in each unit cost item has been completed, submit documentation to establish the actual quantities provided. Submit to the Architect for review and issuance of Change Order.
 - 2. Change Order amount for each unit cost item will be based on actual quantities multiplied by the unit cost. This unit cost is a total cost and includes all mark-ups applicable taxes, overhead, and profit as described below.
- C. Non-payment for rejected unit price Work.

1.2 AUTHORITY

- A. Performance of work which is not required under the Contract Documents or which is not authorized by Change Order, whether or not such work item is set forth hereunder as a Unit Price Item, shall not be considered cause for any extra payment. The Contractor will be held fully responsible for such unauthorized work, including the performance of all corrective measures required by the Architect or Owner.
- B. The Owner may choose not to approve any or all unit prices prior to award of the Contract if it deems the unit price unreasonable. In this case, the Owner at their discretion may choose to:
 - 1. Negotiate the unit costs prior to signing the contract;
 - 2. Disapprove any or all of the unit prices and adjust the work on the change order process; or
 - 3. Disqualify the bidder if the Owner deems the unit prices to be unreasonable.
- C. Assist by providing necessary equipment, workers, and survey personnel as required.

1.3 UNIT QUANTITIES SPECIFIED

- A. Quantities and measurements indicated are for bidding and contract purposes only and are in addition to the Work required by the Contract Documents. Quantities and measurements supplied or placed in the Work and verified by the Owner shall determine payment.

- B. If the actual Work requires more or fewer quantities than those quantities indicated, provide the required quantities at the unit sum/prices contracted.

1.4 MEASUREMENT OF QUANTITIES

- A. Materials, methods of installation and definitions of terms set forth under the various unit price items are indicated in the Schedule of Unit Prices and indicated in the Contract Documents.
- B. Measurement methods delineated in the individual specification sections are intended to complement the criteria of this Section. In the event of conflict, the requirements of the individual specification section shall govern.
- C. Take all measurements and compute quantities. The Architect will verify measurements and quantities.
- D. Measurement devices:
 - 1. Weigh scales: Inspected, tested and certified by applicable weights and measures department within the past year.
 - 2. Platform scales: Of sufficient size and capacity to accommodate the conveying vehicle.
 - 3. Metering devices: Inspected, tested and certified by applicable department within the past year.
- E. Measurement by weight: Concrete reinforcing steel, rolled or formed steel or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.
- F. Measurement by volume: Measured by cubic dimension using mean length, width and height or thickness.
- G. Measurement by area: Measured by square dimension using mean length and width or radius.
- H. Linear measurement: Measured by linear dimension, at the item centerline or mean chord.
- I. Stipulated sum/price measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as a completed item or unit of the Work.

1.5 PAYMENT

- A. Payment includes: Full compensation for all required labor, Products, tools, equipment, plant, transportation services and incidentals; erection, application or installation of an item of the Work; overhead and profit.
- B. Final payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the Architect multiplied by the unit sum/price for Work which is incorporated in or made necessary by the Work.

1.6 NON-PAYMENT FOR REJECTED PRODUCTS

- A. Payment will not be made for any of the following:

1. Products wasted or disposed of in a manner that is not acceptable.
2. Products determined as unacceptable before or after placement.
3. Products not completely unloaded from the transporting vehicle.
4. Products placed beyond the lines and levels of the required work.
5. Products remaining on hand after completion of the Work.
6. Loading, hauling and disposing of rejected Products.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

- A. Schedule of Unit Prices: Should certain additional work be required, or should the quantities of certain classes of work be increased or decreased from those required by the Contract Documents, by authorization of the Owner, the below unit prices shall, at the option of the Owner, be the basis of payment to the Contractor or credit to the Owner, for such increase or decrease in the work. The Unit Prices shall represent the exact total cost per unit to be paid the Contractor (in the case of additions or increases) or to be refunded the Owner (in the case of decreases). Unit cost includes a complete installation as detailed, including disposal and preparation. No additional adjustment will be allowed for overhead, profit, insurance, or other direct or indirect expenses of the Contractor or Subcontractors. No additional adjustments will be allowed for additional work without the prior written approval of the Owner.
- B. The estimated quantities of Work shown here with each of the Unit Prices are to be extended out and the total value of each applicable Unit Price is to be included in any Subcontractor's and/or Contractor's bid in addition to all work described and shown elsewhere in the Contract Documents.
- C. Schedule of Unit Prices

Item	Spec. Section	Unit of Measure	Unit Cost	Bid Quantity	Bid Price
1.	00 00 00	Square foot	\$0.00	N/A	

End of Section

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Section 01 23 00
ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section consists of:
 - 1. Submission procedures for scheduled Alternates.
 - 2. Documentation of changes to Contract Sum and Contract Time.
- B. The description of Alternates herein below and through the Specifications are intended to set the intent and to describe the major work only. Such descriptions are not to be taken as limiting the work required under any of the alternates, and all work required to carry out the intent of each of the accepted Alternates shall be done without cost additional to that agreed upon as the alternate price.

1.2 REQUIREMENTS

- A. Submit Alternates with full description of the proposed alternate and the affect on adjacent or related components.
- B. Alternates quoted on Proposals will be reviewed and accepted or rejected at the Owner's option. Accepted alternates will be identified in the Owner-Construction Manager Agreement.
- C. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.

1.3 SELECTION AND AWARD OF ALTERNATES

- A. Indicate variation of Guaranteed Maximum Price for Alternates described below and list where provided for in the Proposal, which requests a difference in Contract Price by adding to or deducting from the price.

1.4 SCHEDULE OF ALTERNATES

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

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Section 01 25 13
PRODUCT SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Product options.
 - 1. Product selections.
 - 2. Additional selection requirements for LEED Credit products.
 - 3. Visual matching.
 - 4. Owner's proprietary products.
- B. Product substitution procedures.

1.2 RELATED REQUIREMENTS

- A. Section 01 60 00 - PRODUCT REQUIREMENTS: Listing of VOC requirements for adhesives, cleaning/maintenance materials, paints, coatings, and sealants.
- B. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.
- C. Section 01 81 13 - SUSTAINABLE DESIGN REPORTING: Special administrative and procedure requirements related to the Owner's *LEED v4*, *LEED for Building Design and Construction*, *LEED BD+C: Schools* rating system certificate goals of energy conservation and efficiency, indoor air quality, and natural resource efficiency.
 - 1. LEED v4 Product Substitution Form.

1.3 PRODUCT OPTIONS

- A. Product selections: Comply with the following for selection of products:
 - 1. Products specified by reference standards or by description only: Provide any acceptable product meeting those standards or description.
 - 2. Products specified by performance requirements only: Provide any acceptable product which has been tested to show compliance with specified requirements, including indicated performances.
 - 3. Products specified by naming one or more manufacturers: Provide products of manufacturers named, or submit a request for substitution for any manufacturer or product not named in accordance with Massachusetts General Laws, Chapter 30, Section 39M(b).
- B. Visual matching: Where Specifications require matching a sample, the Architect's decision on whether a proposed product matches is final. Where no product matches and complies with other requirements, comply with provisions for "substitutions" for selection of a matching product in another category.

1.4 PRODUCT SUBSTITUTION

- A. Products specified by reference standards or by description only: Any product meeting those standards or description.

- B. Pursuant to Massachusetts General Laws, Chapter 30, Section 39M(b), where products or materials are prescribed by manufacturer name, trade name or catalog reference, or indicated as proprietary, the word “or approved equal” shall be implied. The Architect will evaluate the proposed “equal” item on the following criteria:
 - 1. The submitted “equal” item is at least equal in quality, durability, appearance, strength and design.
 - 2. The submitted “equal” item is at least equal in function for the purpose intended by the design of the Work.
 - 3. The submitted “equal” item conforms substantially to the detailed requirements for the items as indicated by the specifications.
 - 4. The submitted “equal” item fully conforms to the LEED Credit requirements for Project LEED Certification.
- C. The Architect's evaluation and decision on whether a proposed product is equal to that specified, based on the above evaluation requirements, is final. The Construction Manager retains the right to appeal the Architect's determination of equality through regulated statutory provisions.
 - 1. The Architect and Owner reserve the right to reject proposed substitutions where data for VOCs is not provided or where emissions of individual VOCs are higher than for specified materials.
- D. Owner's proprietary products: Under provisions of Massachusetts General Laws, Chapter 30, Section 39M(b) the Owner has determined that specific products shall be proprietary for ‘sound reasons in the public interest’. This determination has been made under vote of the Owner, and has been recorded in writing for public record.
 - 1. Contractor's substitutions for designated proprietary products will require complete and full information for Architect's and Owner's evaluation. Contractor should carefully schedule substitutions for proprietary products to permit the review and evaluation process. Failure to submit complete data will cause delays in approvals of substitutions. No change in Contract Schedule, or increase in Contract Sum will be made to compensate for rejected substitutions and re-submittals.
 - 2. Owner's proprietary products are listed under Section 01 60 00 and in respective individual Specification Sections.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
 - 1. Division 01 Section "Allowances" for procedural requirements for handling and processing allowances.
 - 2. Division 01 Section "Unit Prices" for administrative requirements for using unit prices.
 - 3. Division 01 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue Supplemental Instructions (SI) authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time. See form of Supplemental Instructions at the end of this section.

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Request for Proposal (RFP): Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications. See form of Request for Proposal at the end of this section
 - 1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 - 2. Within 20 days after receipt of Proposal Request, submit a Proposed Change Order (PCO) showing the proposed cost adjustments to the Contract Sum and the Contract Time necessary to execute the change. See form Proposed Change Order at the end of this section.

- a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a Proposed Change Order (PCO) to Architect.
 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 4. Include costs of labor and supervision directly attributable to the change.
 5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 6. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposed Change Order (PCO), Architect will issue a Change Order (CO) for signatures of Owner and Contractor. See form of Change Order (CO) at the end of this section

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive (CCD): Architect may issue a Construction Change Directive (CCD) on owner's form of Construction Change Directive (CCD). Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

EXECUTION – Examples of forms follow this page: ACTUAL FORMS WILL REFLECT SOUTH HIGH COMMUNITY SCHOOL

1. Supplemental Instruction (SI)
2. Request for proposal (RFP)
3. Proposed Change Order (PCO)
4. Change Order (CO)
5. Construction Change Directive (CCD)



SUPPLEMENTAL INSTRUCTIONS

CITY OF WORCESTER, MASSACHUSETTS

S.I. Number: 000

DATE: --/--/--

FOR THE PROJECT:

**South High Community School
170 Apricot Street
Worcester, MA 01603**

TO THE CONTRACTOR:

**Contractors Name
Contractors Address**

**THE WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE FOLLOWING
SUPPLEMENTAL INSTRUCTIONS FOR A MINOR CHANGE TO THE WORK WITHOUT
CHANGE TO THE CONTRACT SUM OR CONTRACT TIME.**

DESCRIPTION:

Enter Description of Work Here

ATTACHMENTS:

ISSUED BY:

(Signature)

(Printed name and title)

cc:



REQUEST FOR PROPOSAL

CITY OF WORCESTER, MASSACHUSETTS

R.F.P. NUMBER:

000

R.F.P. DATE:

Date

FOR THE PROJECT:

DCU Center
Refurbishment and Expansion
50 Foster Street
Worcester, MA 01608

TO THE CONTRACTOR:

Contractor Name
Contractor Address

Please submit an itemized proposal to change the Contract Sum to complete the changes to the Work described below. Your proposal shall itemize all extra labor, materials, tools and equipment required to complete additional work within the contract time. Your proposal shall include costs associated with as-built record drawings preparation in accordance with specification section 017839 Project Record Documents. Include a change in the contract time only if requested below. Do not proceed with the changes described in this request until directed to do so in a Construction Change Directive. This Request, your Proposal and a Construction Change Directive to proceed with the changes will be included in a subsequent Change Order.

DESCRIPTION:

Enter Description Here

ATTACHMENTS:

List Attachments Here

CC:

By:
Enter Name, Job Title, & Company Here

Date:

REQUEST FOR PROPOSAL NUMBER 000

Page 1

CONTRACTOR'S NAME
CONTRACTOR'S ADDRESS
CONTRACTOR'S CITY, STATE, & ZIP CODE

P.C.O. NUMBER: 001

PROPOSED CHANGE ORDER

P.C.O. DATE: DATE

FOR THE PROJECT:

DCU CENTER
REFURBISHMENT AND EXPANSION
50 FOSTER STREET
WORCESTER, MA 01608

TO THE CONTRACTING OFFICER:

CITY OF WORCESTER
DEPARTMENT OF PUBLIC WORKS AND PARKS
50 SKYLINE DRIVE
WORCESTER, MA 01605

This form is provided to make the submission of your Proposed Change Order meet the requirements of Article 12.4 in the General Conditions.

DESCRIPTION OF PROPOSED CHANGE:

☐ Fixed Price

☐ Time & Material

Enter Description Here.

TOTAL PROPOSED CHANGE TO CONTRACT SUM

Amount	\$0.00
--------	--------

TIME EXTENSION (Attach a Schedule if Additional Days are Required)

Number of Calendar Days	0
The Date of Substantial Completion Would Then Be	August 27, 2004

Signed By: _____ Date: _____
Project Manager's Name & Title

CONTRACTOR'S NAME
CONTRACTOR'S ADDRESS
CONTRACTOR'S CITY, STATE, & ZIP CODE

P.C.O. NUMBER: 001

PROPOSED CHANGE ORDER

P.C.O. DATE: DATE

CONTRACTOR'S NAME
CONTRACTOR'S ADDRESS
CONTRACTOR'S CITY, STATE, & ZIP CODE

P.C.O. NUMBER: 001

PROPOSED CHANGE ORDER

P.C.O. DATE: DATE

GENERAL CONTRACTOR'S DIRECT LABOR BY OWN FORCES

Trade	Quantity	Hours	Rate	Unit	Effective Date of Rate	Expiration Date of Rate	Subtotal	
				HR			\$0.00	
				HR			\$0.00	
				HR			\$0.00	
				HR			\$0.00	
				HR			\$0.00	
				HR			\$0.00	
				HR			\$0.00	
				HR			\$0.00	
				HR			\$0.00	
				HR			\$0.00	
				HR			\$0.00	
				HR			\$0.00	
				HR			\$0.00	
				HR			\$0.00	
GC'S LABOR SUBTOTAL							\$0.00	

GENERAL CONTRACTOR'S DIRECT LABOR BURDEN

Insurance & Payroll Burdens - By Trade	Subtotal - By Trade	%	Subtotal	
Workers' Compensation Insurance			\$0.00	
Federal Social Security			\$0.00	
Massachusetts Employment			\$0.00	
			\$0.00	
			\$0.00	
			\$0.00	
GC'S LABOR BURDEN SUBTOTAL			\$0.00	

GENERAL CONTRACTOR'S MATERIALS

Material Item/Description	Subtotal	
GC'S MATERIALS SUBTOTAL		\$0.00

GENERAL CONTRACTOR'S EQUIPMENT

Equipment Item/Description	Subtotal	
GC'S EQUIPMENT SUBTOTAL		\$0.00

PROPOSED CHANGE ORDER P.C.O. DATE: DATE

Name of Subcontractor	Subcontractor's Subtotal	10% Mark-up	Subtotal	
		\$0.00	\$0.00	
		\$0.00	\$0.00	
		\$0.00	\$0.00	
		\$0.00	\$0.00	
		\$0.00	\$0.00	
		\$0.00	\$0.00	
		\$0.00	\$0.00	
		\$0.00	\$0.00	
		\$0.00	\$0.00	
SUBTOTAL BEFORE OH&P	\$0.00	FILED SUBS TOTAL	\$0.00	

Name of Subcontractor	Subcontractor's Subtotal	10% Mark-up	Subtotal	
		\$0.00	\$0.00	
		\$0.00	\$0.00	
		\$0.00	\$0.00	
		\$0.00	\$0.00	
		\$0.00	\$0.00	
		\$0.00	\$0.00	
		\$0.00	\$0.00	
		\$0.00	\$0.00	
SUBTOTAL BEFORE OH&P	\$0.00	NON-FILED SUBS TOTAL	\$0.00	

Category for Mark-Up	Subtotal Amount	%	Mark-Up Amount	
General Contractor's Labor	\$0.00	10.00%	\$0.00	
General Contractor's Labor Burden	\$0.00	10.00%	\$0.00	
General Contractor's Material	\$0.00	10.00%	\$0.00	
General Contractor's Equipment	\$0.00	10.00%	\$0.00	
Filed Subcontractors Proposals	\$0.00	5.00%	\$0.00	
Non-Filed Subcontractors Proposals	\$0.00	10.00%	\$0.00	
		GC'S MARK-UP SUBTOTAL		\$0.00

	AMOUNT	
General Contractor's Labor	\$0.00	
General Contractor's Labor Burden	\$0.00	
General Contractor's Material	\$0.00	
General Contractor's Equipment	\$0.00	
Filed Subcontractors Proposals	\$0.00	
Non-Filed Subcontractors Proposals	\$0.00	
General Contractor's Mark-Up	\$0.00	
	SUBTOTAL	\$0.00

Description	Subtotal Amount	%	Amount	
Liability Insurance	\$0.00	0.00%	\$0.00	
Bonds	\$0.00	0.00%	\$0.00	
	INSURANCE & BONDS SUBTOTAL			\$0.00

TOTAL PROPOSED CHANGE ORDER AMOUNT	\$0.00
---	---------------



CHANGE ORDER

CITY OF WORCESTER, MASSACHUSETTS

C.O. NUMBER:

000

C.O. DATE:

Date

FOR THE PROJECT:

DCU Center
Refurbishment and Expansion
50 Foster Street
Worcester, MA 01608

TO THE CONTRACTOR:

Contractor Name
Contractor Address

The Contract is changed as follows:

SUMMARY OF THE CONTRACT PRICE

Original Contract Sum	\$ 00.00
Net Change by Previously Authorized Change Order(s)	\$ 00.00
Contract Sum Prior to this Change Order	\$ 00.00
Contract Sum shall be Increased Decreased by this Change Order in the Amount of	\$ 00.00
New Contract Sum including this Change Order	\$ 00.00

SUMMARY OF TIME FOR PERFORMANCE

Date of Substantial Completion Prior to this Change Order	Date
Contract Time shall be Changed by this Change Order	0 DAYS
Date of Substantial Completion as of the Date of the Change Order is	Date

Pursuant to Article 12 of the General Conditions To The Contract For Construction, the Owner (**City of Worcester**) and the Architect; **City of Worcester** issue this order to change the Work as described below, including the change, if any, to the Contract Sum or Contract Time. The Contractor's execution of this Change Order indicates its acceptance of the terms hereof, including any adjustment to the Contract Sum or Contract Time. If the Contractor shall not agree to the terms hereof, and chooses to contest the terms in accordance with the applicable provisions of the General Conditions, this Change Order shall nevertheless forthwith be returned to the Owner accompanied by the Contractor's written claim. In any case, the Contractor shall proceed in accordance with the instructions of this Change Order without further delay.

CHANGE ORDER NUMBER 000	Date
-------------------------	------

CHANGE ORDER ITEMS:

1. Enter CCD # & Description Here

DEDUCT/ADD	\$ 0.00
DEDUCT/ADD	0 DAYS

TOTAL OF ALL ITEMS	DEDUCT/ADD	\$ 0.00
	DEDUCT/ADD	0 DAYS

CHANGE ORDER NUMBER 000

PAGE 2

CHANGE ORDER NUMBER 000

Date

IN WITNESS WHEREOF, the parties hereto, by
execution of this Change Order have caused the
contract to be amended

this _____ day of _____, 2008

OWNERS PROJECT MANAGER
MAGUIRE GROUP:

CONTRACTOR:

By: _____ Date: _____
Paul Moosey, Assistant Commissioner,
Department of public Works and Parks

By: _____ Date: _____
Enter Name & Job Title Here

ARCHITECT,
CITY OF WORCESTER

CONTRACTING OFFICER,
CITY OF WORCESTER:

By: _____ Date: _____
Don Vitters, Project Manager
Sasaki

By: _____ Date: _____
Robert L. Moylan, Commissioner,
Department of Public Works and Parks

Approved as to legal form:

CITY MANAGER,
CITY OF WORCESTER:

By: _____ Date: _____
Michael Traynor, Deputy City Solicitor
City of Worcester

By: _____ Date: _____
Michael v O'Brien, City Manager

I certify that funds are available for this contract, as
amended, in Account Number _____

By: _____ Date: _____
James A. Delsignore, City Auditor

CHANGE ORDER NUMBER 000

PAGE 3



**CONSTRUCTION
CHANGE DIRECTIVE**

CITY OF WORCESTER, MASSACHUSETTS

C.C.D. NUMBER:

000

C.C.D. DATE:

Date

FOR THE PROJECT:

**DCU Center
Refurbishment and expansion
50 Foster Street
Worcester, MA 01608**

TO THE CONTRACTOR:

**Contractor Name
Contractor Address**

**YOU ARE HEREBY DIRECTED TO MAKE THE FOLLOWING CHANGES IN THE CONTRACT
AND COMPLETE THE WORK DESCRIBED BELOW:**

Add and/or Deduct from the contract the following:

Enter Description Here

This CCD will be included in Change Order # 000.

THE PROPOSED BASIS OF ADJUSTMENT TO THE CONTRACT SUM IS:

- ☐ LUMP SUM INCREASE OF _____
- ☐ LUMP SUM DECREASE OF _____
- ☐ UNIT PRICE OF \$ _____ PER _____
- ☐ _____

THE PROPOSED ADJUSTMENT TO THE CONTRACT TIME IS:

- ☐ INCREASE OF _____ DAYS
- ☐ DECREASE OF _____ DAYS
- ☐ NO CHANGE
- ☐ TO BE DETERMINED

SOUTH HIGH COMMUNITY SCHOOL

SECTION 012600 NEW

CONSTRUCTION

CONTRACT MODIFICATION

PROCEEDURES

CONSTRUCTION CHANGE DIRECTIVE NUMBER 000

Date

WHEN SIGNED BY THE ARCHITECT AND CONTRACTING OFFICER AND RECEIVED BY THE CONTRACTOR, THIS DOCUMENT BECOMES EFFECTIVE IMMEDIATELY AS A CONSTRUCTION CHANGE DIRECTIVE (C.C.D.) AND THE CONTRACTOR SHALL PROCEED WITH THE CHANGES DESCRIBED ABOVE.

SIGNATURE BY THE CONTRACTOR INDICATES THE CONTRACTOR'S AGREEMENT WITH THE PROPOSED ADJUSTMENTS IN THE CONTRACT SUM AND TIME SET FORTH IN THIS CONSTRUCTION CHANGE DIRECTIVE.

ARCHITECT
City of Worcester

CONTRACTOR:
ENTER COMPANY NAME HERE

Bv: _____ Date: _____
Don Vitters, Project Manager

Bv: _____ Date: _____
Enter Name & Job Title Here

CONTRACTING OFFICER
CITY OF WORCESTER

Bv: _____ Date: _____
Paul Moosey, Assistant Commissioner,
Department of Public Works and Parks

CONSTRUCTION CHANGE DIRECTIVE NUMBER 000

Page 2

END OF SECTION 012600

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Section 01 26 13
REQUESTS FOR INTERPRETATION

PART 1 – GENERAL

1.1 SUMMARY

- A. Administrative requirements for Requests For Information (RFI's).

1.2 DEFINITIONS

- A. Requests For Information (RFI):
1. A document submitted by the Construction Manager to the Architect requesting clarification of a portion of the Contract Documents, hereinafter referred to as RFI.
 2. A properly prepared RFI shall include a detailed written statement that indicates the specific Drawings or Specification in need of clarification and the nature of the clarification requested.
 - a. Drawings shall be identified by drawing number and location on the drawing sheet.
 - b. Specifications shall be identified by Section number, page and paragraph.
 - c. The Construction Manager shall provide suggestions or alternate solutions to the RFI if such suggestions are known or should be known.
- B. Improper RFI's:
1. RFI's that are not properly prepared, as required above.

Improper RFI's will be processed by the Architect at the Architect's standard hourly rate and Architect will charge the Construction Manager, and such costs will be deducted from monies due the Construction Manager. The Construction Manager will be notified by the Architect through the Construction Manager of the "back charge" amounts.
- C. Frivolous RFI's:
1. RFI's that request information that is clearly shown on the Contract Documents.
 2. Frivolous RFI's will be returned unanswered.

1.3 CONSTRUCTION MANAGER'S REQUESTS FOR INFORMATION

- A. When the Construction Manager is unable to determine from the Contract Documents, the material, process or system to be installed, the Construction Manager shall submit an RFI to the Architect requesting a clarification of the indeterminate item.
1. When possible, such clarification shall be requested at the next appropriate project meeting, with the response entered into the meeting minutes. When clarification at the meeting is not possible, either because of the urgency of the need, or the complexity of the item the Construction Manager shall prepare and submit an RFI to the Architect.

- B. Individual Contractors and Each Trade Contractor shall endeavor to keep the number of RFI's to a minimum. In the event that the process becomes unwieldy, in the opinion of the Architect, because of the number and frequency of RFI's submitted, the Architect may require the Construction Manager to abandon the process and submit future requests as submittals, substitutions, or requests for change.
- C. RFI's shall be submitted on a form acceptable to the Architect. Forms shall be completely filled in, and if prepared by hand, shall be fully legible after photocopying or electronic transmission in PDF format. Each page of attachments to RFI's shall bear the RFI number in the lower right corner.
- D. RFI's shall be originated by the Construction Manager, individual contractors, or Trade Contractors as appropriate. Construction Manager shall endeavor to address and resolve Trade Contractor's RFI's to the extent possible for issues which are obviously covered by the Contract Documents, before forwarding to the Architect for processing.
 - 1. RFI's from subcontractors, Trade Contractors or material suppliers shall be submitted through, reviewed by, and signed by the Construction Manager prior to submittal to the Architect.
 - 2. RFI's shall be processed and sent to the Architect from the Construction Manager only. RFI's received by the Architect or the Architect's consultants from other parties shall not be accepted and will be returned unanswered.
- E. Each Trade Contractor shall carefully study the Contract Documents to assure that the requested information is not available therein. RFI's which request information available in the Contract Documents will be deemed either "improper" or "frivolous" as noted above.
- F. In cases where RFI's are issued to request clarification of coordination issues, for example pipe and duct routing, clearances, specific locations of work shown diagrammatically, and similar items, the Construction Manager shall fully lay out a suggested solution using drawings or sketches drawn to scale, and submit same with the RFI. RFI's, which fail to include a suggested solution, will be returned unanswered with a requirement that the Construction Manager submit a complete request.
- G. RFI's used for the following purposes will be returned without review:
 - 1. To request approval of submittals.
 - 2. To request approval of substitutions.
 - 3. To request coordination information already indicated in the Contract Documents.
 - 4. To request changes which entail adjustments in the Contract Time or the Contract Sum (additional cost or credit).
 - 5. To request different methods of performing work than those drawn and specified.
 - 6. To request interpretation of Architect/Engineer's actions on submittals.
 - 7. Incomplete RFI's or RFI's with numerous errors.

- H. In the event the Construction Manager believes that a clarification by the Architect results in additional cost or time, Construction Manager shall not proceed with the Work indicated by the RFI without a written authorization from the Architect. RFI's shall not automatically justify a cost increase in the Work or a change in the Schedule.
 - 1. Answered RFI's shall not be construed as approval to perform extra work.
 - 2. Unanswered RFI's will be returned with a stamp or notation: Not Reviewed.
- I. Construction Manager will prepare and maintain a log of RFI's and provide updated copies at the weekly Construction Progress Meetings showing outstanding RFI's.
- J. RFI Response: The Architect will endeavor to respond in a timely fashion to RFI's, however, the following minimum time periods are required. RFI's which are received by the Architect after 1PM local time shall be considered received on the following working day.
 - 1. RFI's which require only Architect's Response: Construction Manager shall allow up to Three (3) full work days review and response time,
 - 2. RFI's which require Architect's and an Engineering or Consultant Response: Construction Manager shall allow up to Four (4) full work days review and response time.

1.4 ARCHITECT'S RESPONSE TO RFI'S

- A. Architect will respond to RFI's on one of the following forms:
 - 1. Properly prepared RFI's:
 - a. Response on the RFI form.
 - b. Architect's Supplemental Instruction.
 - c. Request for Proposal.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

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Section 01 29 00
PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Schedule of Values.
- B. Applications for payment.
- C. Change procedures.

1.2 COORDINATION

- A. Coordinate the Schedule of Values and Applications for Payment with the Construction Manager's Construction Schedule, List of Subcontracts, and Submittal Schedule.
 - 1. Related Requirements:
 - a. Section 01 32 00 – CONSTRUCTION PROGRESS DOCUMENTATION: Construction Manager's Construction Schedule.
 - b. Section 01 33 00 - SUBMITTAL PROCEDURES: Construction Manager's Construction Submittal Schedule.

1.3 SCHEDULE OF VALUES

- A. Coordinate preparation of the Schedule of Values with preparation of the Construction Manager's Construction Schedule.
 - 1. Schedule of values shall be used only as basis for Construction Manager's application for payment.
 - 2. Breakdown schedule of values into separate line items, each having a value of not more than \$25,000.
- B. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:
 - 1. Construction Manager's construction schedule.
 - 2. Application for Payment form.
 - a. List of Trade Contractors and subcontractors.
 - b. List of products.
 - c. List of principal suppliers and fabricators.
 - d. Schedule of submittals.
- C. Submit typewritten schedule of values to the Architect at least 10 days prior to submitting first application for payment.
- D. Sub-Schedules: Where the Work is separated into phases that require separately phased payments, provide sub-schedules showing values correlated with each phase of payment.
- E. Identification: Include the following Project identification on the Schedule of Values:

1. Project name and location.
 2. Name of the Architect.
 3. Project number.
 4. Construction Manager's name and address.
 5. Date of submittal.
- F. Arrange the Schedule of Values in a tabular form with separate columns to indicate the following for each item listed:
1. Generic name.
 2. Related Specification Section.
 3. Name of Trade Contractor or subcontractor.
 4. Name of manufacturer or fabricator.
 5. Name of supplier.
 6. Change Orders (numbers) that have affected value.
 7. Dollar value.
 8. Percentage of Contract Sum to the nearest one-hundredth percent, adjusted to total 100 percent.
- G. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Break principal subcontract amounts down into several line items.
1. Upon request by Architect, submit data that will substantiate values given.
- H. Round amounts off to the nearest whole dollar; the total shall equal the Contract Sum.
- I. For each part of the Work where an Application for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed, provide separate line items on the Schedule of Values for initial cost of the materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
- J. Unit Cost Allowances: Show line item value of unit cost allowances as a product of unit cost times measured quantity as estimated from the best indication in the Contract Documents.
- K. Margins of Cost: Show line items for indirect costs, and margins on actual costs, only to the extent that such items will be listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete including its total cost and proportionate share of general overhead and profit margin.
- L. At the Construction Manager's option, temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown as separate line items in the Schedule of Values or distributed as general overhead expense.
- M. Schedule Updating: Update and resubmit the Schedule of Values when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.4 PROCEDURES FOR APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.
 - 1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.
- B. Payment Application Times: Each progress payment date is as indicated in the Agreement. The period of construction Work covered by each Application or Payment is the period indicated in the Agreement.
- C. Payment Application Forms: Use standard City of Worcester forms for Application for Payment.
- D. Application Preparation: Complete every entry on the form, including notarization and execution by person authorized to sign legal documents on behalf of the Owner. Incomplete applications will be returned without action.
 - 1. Entries shall match data on the Schedule of Values and Construction Manager's Construction Schedule. Use updated schedules if revisions have been made.
 - 2. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.
- E. Transmittal: Submit 3 executed copies of each Application for Payment to the Architect by means ensuring receipt within 24 hours.
- F. Transmit each copy with a transmittal form listing attachments, and recording appropriate information related to the application in a manner acceptable to the Architect.

1.5 INITIAL APPLICATION FOR PAYMENT

- A. Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include the following:
 - 1. List of Trade Contractors and subcontractors with contact information.
 - 2. Updated insurance certificates for all subcontractors working onsite
 - 3. List of principal suppliers and fabricators.
 - 4. Schedule of Values.
 - 5. Construction Manager's Construction Schedule (preliminary if not final).
 - 6. Schedule of principal products.
 - 7. Schedule of unit prices.
 - 8. Submittal Schedule (preliminary if not final).
 - 9. List of Construction Manager's staff assignments.
 - 10. List of Construction Manager's principal consultants.
 - 11. Copies of building permits.
 - 12. Copies of authorizations and licenses from governing authorities for performance of the Work.

13. Initial progress report.
14. Report of pre-construction meeting.
15. Data needed to acquire Owner's insurance.
16. Initial settlement survey and damage report, if required.
17. Names, addresses and telephone numbers of key members of Construction Manager, Superintendent and personnel at the site, to be contacted in the event of emergencies which may occur during non-working hours

1.6 MONTHLY APPLICATION FOR PAYMENT

- A. Administrative actions and submittals that must precede or coincide with submittal of the period Application for payment, include the following:
 1. As-built record documents, required documents and submittal records on site.
 2. Copies of Construction Manager's daily reports.
 3. Accepted overtime for Owner's Project Manager for each specific month.
 4. Construction Manager's backup documentation for each Trade Contractor or subcontractor requesting payment.
 5. Construction Manager's construction schedule, updated, with corrective action plan as applicable.
 6. Weekly up-to-date, accurate, certified submission of payroll records.
 7. Pre-installation meeting conducted in accordance with Section 01 31 00, prior to first billing for any activity.
 8. Material Status Report.
 9. Stored Materials forms.
 10. Submittal Schedule and submittal status reports.
 11. Monthly Progress report and Notarized Progress report Statement from the Construction Manager's project manager stating that the work is on schedule and that the Construction Manager will meet the Substantial Completion date for the Work and the Substantial Completion dates for every portion thereof as established under Construction Phasing Schedule Section.
 12. Construction progress photographs.
 13. Quality control reports and procedures in compliance with Section 01 45 00 - QUALITY CONTROL.

1.7 APPLICATION FOR PAYMENT AT SUBSTANTIAL COMPLETION:

- A. Following issuance of the Certificate of Substantial Completion, submit an Application for Payment; this application shall reflect any Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- B. Administrative actions and submittals that shall proceed or coincide with this application include:
 1. Occupancy permits and similar approvals.
 2. Warranties (guarantees) and maintenance agreements.
 3. Test/adjust/balance records.

4. Maintenance instructions.
5. Meter readings.
6. Start-up performance reports.
7. Change-over information related to Owner's occupancy, use, operation and maintenance.
8. Final cleaning.
9. Application for reduction of retainage, and consent of surety.
10. Advice on shifting insurance coverage.
11. Final progress photographs.
12. List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.

1.8 FINAL PAYMENT APPLICATION

- A. Administrative actions and submittals which must precede or coincide with submittal of the final payment Application for Payment include the following:
 1. Completion of Project Closeout requirements.
 2. Completion of items specified for completion after Substantial Completion.
 3. Assurance that unsettled claims will be settled.
 - a. Assurance that Work not complete and accepted will be completed without undue delay.
 4. Transmittal of required Project construction records to Owner.
 5. Certified property survey.
 6. Proof that taxes, fees and similar obligations have been paid.
 7. Removal of temporary facilities and services.
 8. Removal of surplus materials, rubbish and similar elements.
 9. Change of door locks to Owner's access.

1.9 PAYMENT FOR STORED MATERIALS

- A. Provide supporting documentation for the value of stored materials. Acceptable form of supporting documentation include a certified and notarized invoice from the manufacturer or supplier which indicates the actual amount due, including discounts to which the Construction Manager may be entitled, and the date which the invoice was paid.
- B. Provide notice to Architect 48 hours in advance, and provide transportation for Architect and Owner's Representative to the site where materials are stored to permit inspection of the materials.
- C. With Application for Payment, submit notarized certificate of title and evidence of insurance for materials stored off-site.
- D. With each subsequent Application for Payment, indicate in the appropriate columns the value of stored material which has been taken from off-site location and brought to the project site. Provide supporting documentation.

1.10 CHANGE PROCEDURES

- A. The Architect will advise of minor change in the Work not involving adjustment to Contract Sum/Price or Contract Time as authorized under the General and Supplementary Conditions of Contract, by issuing supplemental instructions on standard City of Worcester forms.
- B. The Architect may issue a Proposal Request or Notice of Change which includes a detailed description of a proposed change with supplementary or revised Drawings and Specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the request price will be considered valid. The Construction Manager will prepare and submit an estimate within 10 days.
- C. The Construction Manager may propose changes by submitting a request for change to the Architect describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Sum/Price and Contract Time and full documentation and a statement describing the effect on Work by Trade Contractors or subcontractors. Document any requested substitutions in accordance with Section 01 25 13 - PRODUCT SUBSTITUTION PROCEDURES.
- D. Stipulated Sum/Price Change order:
 - 1. Based on Proposal Request or Notice of Change and Construction Managers price quotation or Construction Managers request for a Change Order as approved by the Architect.
- E. Unit Price Change Order:
 - 1. For a pre-determined unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of work which are not pre-determined, execute Work under a Construction Change Directive. Changes in Contract Sum/Price or Contract Time will be computed as specified for Time and Material Change Order.
- F. Construction Change Directive:
 - 1. Architect may issue a directive on standard City of Worcester forms signed by the Owner instructing the Construction Manager to proceed with a change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work and designate method of determining any change in Contract Sum/Price or Contract Time.
 - 2. Promptly execute the change.
- G. Time and Material Change Order:
 - 1. Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract. Architect will determine the change allowable in Contract Sum/Price and Contract Time as provided in the Contract Documents.
 - 2. Maintain detailed records of work done on Time and Material basis. Document each quotation for a change in cost or time with sufficient data to allow evaluation of proposed changes and to substantiate changes in the Work.
- H. Documentation of change in Contract Sum/Price and Contract Time:

1. Change order Forms: Standard City of Worcester forms (as appropriate to Owner-Construction Manager Agreement).
 2. Maintain detailed records. Document each quotation for a change in cost or time with sufficient data to allow evaluation of the quotation.
 3. On request, provide additional data to support computations:
 - a. Quantities of products, labor and equipment.
 - b. Taxes, insurance and bonds.
 - c. Overhead and profit.
 - d. Justification for any change in Contract Time.
 - e. Credit for deletions from Contract, similarly document.
 4. Support each claim for additional costs and for work done on a time and material basis, with additional information:
 - a. Origin and date of claim.
 - b. Dates and times work was performed, and by whom.
 - c. Time records and wage rates paid.
 - d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
- I. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

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Section 01 31 00
PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Existing conditions.
- B. Project coordination.
- C. Project meetings.

1.2 RELATED REQUIREMENTS

- A. Section 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION.
- B. Section 01 33 00 - SUBMITTAL PROCEDURES.
- C. Section 01 33 29 - SUSTAINABLE DESIGN REPORTING: Special administrative and procedure requirements related to the Owner's *LEED v4, LEED for Building Design and Construction, LEED BD+C: Schools* rating system certificate goals of energy conservation and efficiency, indoor air quality, and natural resource efficiency.
- D. Section 01 60 00 - PRODUCT REQUIREMENTS: Listing of VOC requirements for adhesives, cleaning/maintenance materials, paints, coatings, and sealants.
- E. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.
- F. Section 01 78 00 - CLOSEOUT SUBMITTALS: Requirements for Project Record Drawings (As-built drawings).
- G. Section 02 41 17 - BUILDING DEMOLITION.

1.3 GENERAL PROJECT COORDINATION

- A. Coordination: The Construction Manager is fully responsible for coordinating the Work of this Contract including scheduling, submittals, LEED certification, Work and other activities included in various Sections to assure efficient and orderly sequence of installation of interdependent construction elements. The Construction Manager is responsible for coordinating actual installed location and interface of work, and to make provisions to accommodate items scheduled for later installation.
- B. Where installation of one component depends on installation of other components before or after its own installation, schedule activities in the sequence required to obtain efficient installation with the least amount of alterations, or cutting and patching, to completed Work.
 - 1. The Construction Manager shall be responsible to uncover work completed in order to install ill-timed work, at no additional cost to the Owner.

- C. Where space is limited, coordinate installation of different components to assure maximum accessibility for maintenance, service and repair.
- D. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. Verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service such equipment.
- F. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- G. Coordinate completion and clean up of Work of separate Sections in preparation for Substantial Completion and Owner's occupancy.
- H. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.4 UTILITIES, MECHANICAL AND ELECTRICAL COORDINATION

- A. Coordinate all Work of this Project. Provide full and complete coordination for utilities, mechanical and electrical work in Divisions 11, 13, and 21 through 28, with Work of other Divisions.
 - 1. Each Trade Contractor shall compare his drawings and specifications with those of other Trades and report any discrepancies between them to the Construction Manager. The Construction Manager shall obtain from the Architect written instructions for changes necessary in the mechanical or electrical work, to ensure that all work is installed in coordination and cooperation with other Trades installing interrelated work. Before installation, each Trade Contractor shall make proper provisions to avoid interferences in a manner approved by the Architect. All changes required in the work of each Trade Contractor caused by his negligence, shall be corrected by him at his own expense, to the Architect's satisfaction.
- B. Give all advance notice to public utility companies as required by law, and provide proper disposition, subject to Architect's approval of all existing pipe lines, conduits, sewers, drains, poles, wiring, and other utilities that in any way interfere with the Work, whether or not they are specifically shown on the Drawings.
- C. Coordination regarding existing utilities:
 - 1. Notify Owner and appropriate authorities when coming across an unknown utility line(s), and await decision as to how to dispose of same.
 - 2. When an existing utility line must be cut and plugged or capped, moved, or relocated, or has become damaged, notify the Owner and utility company

involved, and assure the protection, support, or moving of utilities to adjust them to the new work.

3. The Construction Manager shall be responsible for all damage caused to existing, active utilities located within the limits of this Contract, whether or not such utilities are shown on the Drawings, including resultant damages or injuries to persons or properties.

D. General coordination of piping, ductwork, conduits and equipment:

1. The Contract Drawings are diagrammatic only intending to show general runs and general locations of piping, ductwork, equipment and sprinkler heads. Determine exact routing and location of individual systems prior to fabrication of components or installation.
 - a. Piping runs requiring pitch have "right-of-way" over those systems that do not pitch.
 - b. System components whose elevations cannot be changed have "right-of-way" over those components whose elevations can be changed.
2. Adjust locations of piping, ductwork, conduits and equipment as required to accommodate new work with interferences anticipated and as encountered during installation.
 - a. Locate piping, conduits and ductwork to be clear of swinging doors, access doors, and clear for unimpeded equipment access.
3. Provide all offsets, transitions and changes of direction for all systems, as may be required to maintain proper clearances for headroom, and as may be required for coordination with other "fixed-in-place" building components (such as structural systems).
 - a. Furnish all vents, drains and similar accessories as may be required for offsets, transitions and changes of direction.
4. Provide openings in the work for penetration of mechanical and electrical work.
5. Coordinate final locations of ceiling mounted devices (including air distribution devices, thermostats, heaters, control devices, sprinkler heads and similar work) with reflected ceiling plans. Review locations with Architect and obtain approval of all devices prior to installation.

1.5 COORDINATION DOCUMENTS

- A. General: Prepare coordination drawings for areas where close coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space necessitates maximum utilization of space for efficient installation of different components.
1. Coordination Drawings include, but are not necessarily limited to:
 - a. Structure.
 - b. Partition/room layout.
 - c. Ceiling layout and heights.
 - d. Light fixtures.

- e. Access panels.
 - f. Sheet metal, heating coils, boxes, grilles, diffusers, and similar items.
 - g. All heating piping and valves.
 - h. Smoke and fire dampers.
 - i. Soil, waste and vent piping.
 - j. Major water.
 - k. Rain water drainage piping.
 - l. Major electrical conduit runs, panelboards, feeder conduit and racks of branch conduit.
 - m. Above ceiling miscellaneous metal.
 - n. Sprinkler piping and heads.
 - o. All equipment, including items in the Contract as well as OFCI and OFI items.
 - p. Equipment located above finished ceiling requiring access for maintenance and service. In locations where acoustical lay-in ceilings occur, indicate areas in which the required access area may be greater than the suspended grid system.
 - q. Seismic Restraints.
- B. Timing: Prior to fabricating materials or beginning work, supervise and direct the creation of one complete set of coordination drawings showing complete coordination and integration of work, including, but not limited to, structural, architectural, mechanical, plumbing, fire protection, elevators, and electrical disciplines.
- C. Intent: Coordination drawings are for the Construction Manager's and Trade Contractor's use during construction and are not to be construed as replacing shop drawings, as-built or record drawings. Architect's review of submitted coordination drawings shall not relieve the Construction Manager from his overall responsibility for the coordination of the Work of the Contract.
- D. Base sheets: Architect will provide CAD files for use by the Construction Manager for the development of building coordination drawing "base sheets" upon signed receipt of Architect's disclaimer form. Construction Manager is responsible to prepare and provide one accurately scaled set of building coordination drawing "base sheets" showing all architectural and structural work. Base sheets shall be at appropriate scale; congested areas and sections through vertical shafts shall be at larger scale.
- 1. Highlight all fire rated and smoke partitions.
 - 2. Indicate horizontal and vertical dimensions to avoid interference with structural framing, ceilings, partitions, and other services.
 - 3. Indicate elevations relative to finish floor for bottom of ductwork and piping and conduit (6 inches and greater in diameter).
 - 4. Indicate the main paths for the installation of equipment from mechanical and electrical rooms.

5. CAD Files: Architect's CAD drawings will be made available for use by Construction Manager, Trade Contractors and subcontractors. Each party receiving drawings will be required to sign a use and liability waiver. Refer to Appendix 00 - Computer File Document Use Agreement Between Contractor And Architect included in the Project Manual.
- E. Construction Manager shall circulate coordination drawings to the following subcontractors and any other installers whose work might conflict with other work. Each of these subcontractors shall accurately and neatly show actual size and location of respective equipment and work. Each Trade Contractor and subcontractor shall note apparent conflicts, suggest alternate solutions, and return drawings to Construction Manager.
 1. Elevator Trade Contractor.
 2. Plumbing Trade Contractor.
 3. Fire protection Trade Contractor.
 4. Heating ventilating and air conditioning Trade Contractor(s).
 5. Electrical discipline Trade Contractor(s).
 6. Control system subcontractors.
- F. Review and modify and approve coordination drawings in cooperation with individual installers and Trade Contractor to assure conflicts are resolved before work in field is begun and to ensure location of work exposed to view is as indicated or as approved by Architect.
 1. The Construction Manager shall stamp, sign and submit coordination drawing originals to Architect for review.
 2. Do not commence work in areas described in the coordination drawings until receipt of Architect's comments.

1.6 GENERAL PROJECT ADMINISTRATION

- A. Prepare memoranda for distribution to each party involved outlining required coordination procedures. Include required notices, reports, and attendance at meetings.
- B. Prepare similar memoranda for the Owner and separate contractors where coordination of their Work is required.
- C. Conduct conferences among Trade Contractor, subcontractors and others concerned with the Work, to establish and maintain coordination and schedules, and to resolve coordination matters in dispute.
- D. Administrative Procedures: Coordinate scheduling and timing of administrative procedures with other activities to avoid conflicts and ensure orderly progress. Such activities include:
 1. Preparation of schedules.
 2. Installation and removal of temporary facilities.
 3. Delivery and processing of submittals.

4. Progress meetings.
5. Project Closeout activities.

1.7 SITE MOBILIZATION CONFERENCE

- A. In addition to the pre-bid conference specified under Section 00 11 16 - INVITATION TO BID, the Architect may, prior to commencement of the Work, schedule a meeting at a meeting room provided by the Owner.
 1. Attendance is required by Owner, Architect, Owner's Project Manager, engineering consultants, Construction Managers' Project Manager and Superintendent, Construction Managers' LEED Representative, Trade Contractors, and other major subcontractors, applicators, installers and suppliers. Other persons are required to attend as the Architect may direct or the Construction Manager may wish to have present.
 2. Items of Agenda:
 - a. Use of premises by Owner, Construction Manager, and subcontractor(s).
 - b. Owner's requirements and partial occupancy considerations.
 - c. Demolition procedures, identity tagging of existing furnishings and equipment for salvage or disposal.
 - d. Temporary utilities.
 - e. Barricading and protection of the public, dust barriers.
 - f. Survey and building layout.
 - g. Wetlands protection.
 - h. Potentially difficult areas of work.
 - i. Project coordination.
 - j. Construction-waste management and recycling procedures.
 - k. Sustainability product requirements and procedures.
 - l. LEED Certification requirements and procedures.
 - m. Indoor air quality standards and testing requirements.
 - n. Security and housekeeping procedures.
 - o. Construction schedules.
 - p. Work beyond Contract Limit.
 - q. Procedures for testing and inspection.
 - r. Procedures for maintaining record documents.
 - s. Requirements for equipment start-up.
 - t. Inspection and acceptance of equipment put into service during construction period.

1.8 PRE-INSTALLATION/PRE-FABRICATION CONFERENCES

- A. When required in individual specification sections, prior to commencing the work of that trade, convene a pre-installation conference at work site, if possible, on same day as weekly progress meeting.

- B. Notify Architect and Owner's Project Manager a minimum of one week in advance of meeting date.
- C. Attendance is required by Construction Manager's Project Manager and Superintendent, and parties directly affecting, or affected by, work of the Section.
 - 1. Construction Manager shall include discussions on waste management goals and requirements in all pre-fabrication meetings conducted with subcontractors, fabricators, and vendors.
 - 2. Construction Manager shall include discussions on Owner's LEED certification environmental/sustainability goals, procedures and requirements in all pre-fabrication meetings conducted with subcontractors, fabricators, and vendors.

1.9 COORDINATION MEETINGS

- A. In addition to other specified meetings and additional meetings as required. Construction Manager shall hold project coordination meetings, at least monthly at regularly scheduled times. Hold meetings more frequently when necessary to ensure full coordination of work. Request representation at each meeting by every entity involved in coordination or planning for work of the entire project. Conduct meetings in a similar manner to progress meetings, to resolve coordination problems.
- B. Keep minutes of coordination meetings and distribute copies to all attendees, related parties and to Owner, Owner's Project Manager, Architect and its engineering consultants within 3 business days following meeting. Coordination meetings shall continue on an appropriate schedule, even after completion of coordination drawings by Construction Manager, to review progress and resolve minor conflicts not identified in the coordination drawings.
- C. The following trades shall participate in coordination meetings, preparation of coordination drawings and reviews. Additional trades shall participate as the Construction Manager deems necessary for proper coordination of the Work.
 - 1. Concrete work.
 - 2. Masonry.
 - 3. Structural steel, light gage metal framing and metal fabrications.
 - 4. Rough carpentry.
 - 5. Air and vapor barrier work.
 - 6. Finish wall and ceiling construction.
 - 7. Food service equipment.
 - 8. Elevators.
 - 9. Fire protection systems.
 - 10. Plumbing systems, including roof drainage, waste and vent systems and distribution.
 - 11. Ductwork including appurtenances and equipment.
 - 12. HVAC piping.
 - 13. HVAC equipment and controls.

14. Electrical lighting, power, communications and signaling, fire detection and related systems.
 15. Excavation, site utilities and site improvements.
- D. All adjustments necessary to achieve full coordination shall be determined in a timely manner, so as not to delay the work. Include time necessary for consideration by the Architect and Resident Project Representative(s) for proposed modifications. No claim for additional compensation for extension of time arising from delays due to failure of Construction Manager to identify potential conflicts requiring coordination in a timely manner or from additional work made necessary by such failure will be valid.

1.10 PROGRESS MEETINGS

- A. The Owner's Project Manager shall schedule and administer meetings throughout the progress of the Work at regular intervals; make arrangements for meetings, prepare agenda with copies for participants, preside at meetings and record minutes.
1. Distribute copies within 24 hours to Architect, Owner and participants, and to those affected by decisions made. Architect will review and send comments within 2 working days from receipt of minutes.
 2. Scheduled Frequency of Meetings: Weekly.
- B. Attendance: Required are Construction Manager's Project Manager and Project Superintendent, and each Trade Contractor, subcontractor, applicator, installer, and supplier whose work is ongoing or scheduled. Owner, Architect, engineering consultants, and other persons are required to attend as the Architect may direct. Trade Contractors and subcontractors, vendors, suppliers shall be present at meetings upon request of Construction Manager.
1. Attendee Authority: Subcontractors and supplier representatives present at meetings shall have authority to act for and make commitments for, the entity which they represent.
 2. Restricted Attendance: Owner and Architect reserve the right to expel or exclude from any Progress Meeting any person(s) or company representative(s) without statement of reason or excuse.
 3. Attendance of Architect's Consultants: Construction Manager shall make an attendance request for specific Architect's consultants and engineers at least 72 hours in advance of the meeting. Clearly identify in the request all consultant related issues and topics to be discussed at the meeting. The Architect will decide if its consultant or engineer will attend.
 4. Attendance of Owner's Independent Consultants: Construction Manager shall make an attendance request for specific Owner's consultants at least 72 hours in advance of the meeting. Clearly identify in the request all consultant related issues and topics to be discussed at the meeting. The Owner will decide if its consultant(s) will attend.
- C. Items of Agenda:
1. Review minutes of previous meetings.

2. Review of Work progress.
3. Field observations, problems, and decisions.
4. Identifications of problems which impede planned progress.
5. Review of submittals schedule and status of submittals.
 - a. Review of environmental/sustainability-related submittals, schedule and status.
6. Review of off-site fabrication and delivery schedules.
7. Maintenance of progress schedule.
8. Corrective measures to regain projected schedules.
9. Coordination of projected progress.
10. Maintenance of quality and work standards.
11. Progress of Work to be adjusted under coordination requirements, and effect of proposed changes on progress schedule and coordination.
12. Review of construction waste management and recycling performance, material quantities disposed and diverted for recycling.
13. LEED Certification Progress Report.
14. Other business relating to Work.

1.11 SPECIAL PROJECT MEETINGS AND BUILDING COMMITTEE MEETINGS

- A. Special project meetings: The Construction Manager shall conduct special project meetings as required throughout the course of the Work. Special Project Meetings are those held in addition to the regularly scheduled progress meetings. The Architect and Owner are not required to attend these meetings. Special meeting issues include, but are not limited to:
 1. Safety issues.
 2. Labor issues.
 3. Construction waste management and recycling issues.
 4. Environmental/sustainability goals and issues.
 5. LEED Certification goals and issues.
 6. Special scheduling issues.
- B. Environmental Quality Review Meetings: The Construction Manager shall conduct special Environment Quality review meetings throughout the course of the Work.
 1. Meetings may be held in conjunction with dates of Project Progress Meetings. The Construction Manager shall notify both the Owner and Architect at least 7 days in advance of the meeting dates. The Construction Manager along with any requested or necessary Trade Contractor, subcontractors, applicators, vendors or material suppliers shall attend.
 2. Meeting shall include the following topics:
 - a. Review of construction waste management and recycling.
 - b. Review of sustainability / environmental related submittals and update on LEED Certification progress.

- c. Review of indoor air quality testing.
- C. Building Committee Meetings: Construction Manager is advised of obligation to attend Building Committee Meetings (held in evenings) as requested by Owner or Architect, at no additional cost to the Contract.
- D. Additional Special Meetings requested by the Architect or Owner: The Construction Manager along with any requested or necessary Trade Contractor, subcontractors, applicators, vendors or material suppliers shall attend additional meetings when requested by the Architect or Owner as they deem necessary. Such meetings may be convened on short notice if conditions at the project site so require and attendance is mandatory. The Architect and Owner are not limited as to the number of additional meetings that may be requested, or the agenda for such meetings.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

Section 01 32 00
CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Survey and layout data.
- B. Critical Path Method (CPM) scheduling of the Work.
- C. Contract progress reporting.
 - 1. Daily construction reports.
 - 2. "Look Ahead" activity reports.
 - 3. Special Reports - Unusual Event Reporting.
- D. Work Documentation:
 - 1. Affirmation of purchase orders for long-lead products.
 - 2. Periodic site observations.
 - 3. Verification of built tolerances.
 - 4. Construction progress photographs.

1.2 SURVEY AND LAYOUT DATA

- A. Prior to starting any construction work, stake out all limits of cut and fill, the limits of proposed walkways and site improvements. Promptly upon completion of layout work and before any construction work is begun on the site, notify the Architect and Owner's Project Manager, who shall conduct a field inspection of the stakeout. The Architect reserves the right to adjust the location of such layouts as it deems necessary to comply with the intent of the Contract Documents.

1.3 CRITICAL PATH METHOD (CPM) SCHEDULING OF THE WORK

- A. Definitions:
 - 1. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - a. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
 - b. Predecessor activity is an activity that must be completed before a given activity can be started.
 - 2. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
 - 3. Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall Project duration and contains no float.

4. Event: The starting or ending point of an activity.
 5. Float: The measure of leeway in starting and completing an activity.
 - a. Float time is not for the exclusive use or benefit of either Owner or Construction Manager, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Date of Substantial Completion.
 - b. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the following activity.
 - c. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
 6. Fragnet: An amplified portion of the CPM schedule, to study a special sequence or establish a difficult time estimate, showing its predecessors, successors and impacts.
 7. Major Area: A story of construction, a separate building, or a similar significant construction element.
 8. Milestone: A key or critical point in time for reference or measurement.
 9. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.
- B. General CPM Requirement: The Construction Manager shall develop and maintain a Network Diagram to demonstrate fulfillment of the contract requirements and shall utilize the plan for scheduling, coordinating and monitoring the Work (including all activities of Trade Contractors and subcontractors, equipment vendors and suppliers). A conventional Critical Path Method (CPM) Precedence Diagramming Method (PDM) technique will be utilized to satisfy both time and cost applications.
- C. Preliminary CPM Schedule: Submit for Architect's and Owner's review Critical Path Method (CPM) construction schedule in triplicate within 45 calendar days after date of commencement stated on Notice to Proceed. Revise and resubmit as required.
1. Before the first progress payment can be approved, the Construction Manager must have an approved CPM Schedule as described herein. It is the Construction Manager's responsibility to submit the CPM schedule with sufficient time for review by the Owner and Architect and any re-submittals and corresponding reviews that may be necessary prior to approval of the first requisition.
 2. Software: Provide to the Architect one complete and legal copy of all software used to prepare the CPM Progress Schedule. Include documentation and user manuals. Software and CPM provided by the Construction Manager shall be fully compatible and useable with Microsoft's "Windows" operating system. Software provided to the Architect will be used solely for "this project only".
 3. Supporting data: Submit the following supporting data in addition to the CPM Network Plots:
 - a. The proposed number of working days per week.
 - b. The holidays to be observed during the life of the contract (by day, month, and year).
 - c. The planned number of shifts per day.

- d. The number of hours per shift.
 - e. List the major construction equipment to be used on the site, describing how each piece relates to and will be used in support of the submitted network diagram work activities/events.
- D. CPM Progress Schedule shall be as described below:
- 1. Network Diagram Plots, General: The network diagram shall be an activity or arrow diagram. The diagram shall show relationships between the various activities. Exercise sufficient care to produce a clear, legible and accurate network diagram. Group activities related to specific physical areas of the project, on the network diagram for ease of understanding and simplification. Provide a key plan on each network diagram sheet showing the project area associated with the work activities/events shown on that sheet.
 - 2. Work Activities (not less than 200 lines), as a minimum include:
 - a. All major, and critical minor portions of the work.
 - 1) Break up the work into activities/events of a duration no longer than 20 work days each, except as to non-construction activities/events (for example: procurement of materials, delivery of equipment, curing times) and any other activities/events for which the Architect may approve the showing of a longer duration.
 - b. Fabrication and delivery time for each item requiring off site fabrication.
 - c. Each mock-up and in-place sample.
 - d. Temporary facilities and controls.
 - 3. Show not only the activities/events for actual construction work for each trade category of the project, but also trade relationships to indicate the movement of trades from one area, floor, or building, to another area, floor, or building, for at least five trades who are performing major work under this contract.
 - 4. Identify all events on which the work is dependent on actions of Architect and Owner, including:
 - a. Submittal of shop drawings, equipment schedules, samples, color submission, coordination drawings, templates, fabrication and material delivery times.
 - b. Architect's review of shop drawings, equipment schedules, samples and templates as defined under Section 01 33 00. Construction Manager shall additionally schedule and allow for in the CPM Progress Schedule time for Architect's response to Construction Manager's request for clarifications and interpretations of the Contract Documents. Time required for such activity, up to 10 or more days, is part of the normal construction process and is not a valid reason for extension of Contract Time, nor increase in the Contract Amount.
 - c. Delivery times of equipment furnished under separate Contracts with Owner, where the Construction Manager has responsibility for installation or coordination.
 - d. Interruption of Owner's existing utilities, delivery of Owner furnished products (OFI and OFCI), rough-in drawings for OFI and OFCI products, project phasing and Owner's scheduling and use of site requirements.

- e. Test, balance and adjust various systems and pieces of equipment, maintenance and operation manuals, instructions and preventive maintenance tasks.
- 5. Activity Descriptive Information: identify the following for each work activity/event:
 - a. Activity/Event ID number. (Uniquely number each activity/event.. The network diagram should be generally numbered in sequence; left to right; top to bottom, and omitting numbers ending in 3, 6, and 9).
 - b. Concise description of activity (35 characters or less including spaces preferred).
 - c. Work location code, coordinated with key plan.
 - d. Performance responsibility or trade code using defined and approved abbreviations.
 - e. Nodes that correspond to the activities on the network diagram.
 - f. Duration (in work days).
 - g. Early Start (calendar day).
 - h. Late Start (calendar day).
 - i. Early Finish (calendar day).
 - j. Late Finish (calendar day).
 - k. Total float time.
 - l. Manpower required (average number of men per day).
 - m. Work Activity/Event Cost Data (as described below).
- E. CPM Submittal Requirements: Submit three copies of Network Plots, and have approved an updated CPM prior to the approval of each progress payment.
 - 1. Plot format (each submittal): Colored plots (minimum 30 by 40 inches) and a CD-ROM disc.
 - a. Electronic info shall be in compressed Primavera, (PDM) format.
 - 2. Plots and reports required:
 - a. Network diagram plots.
 - 1) Bar chart plot.
 - 2) Time logic plot.
 - 3) Critical Path items of work only plot.
 - 4) Early start and finish plot.
 - 5) Late start and finish plot.
 - 6) Individual monthly activity plots for each month for the duration of the entire Contract.
 - b. Activity List.
 - c. Shop drawing and sample submittal schedule.
 - 3. Updates: Update and reissue the CPM Progress Schedule in coordination with each application for progress payment. Submission of complete and accurate monthly CPM Progress Schedules is a pre-requisite to the Architect's Certificate of Payment. The updated CPM; shall include the items specified herein above, in addition the updated CPM shall show the following:

- a. Changes to the Contract and their effect on the schedule and Activity/event costs.
 - b. Delays in submittals, or deliveries, or work stoppage are encountered which make rescheduling of the work necessary.
 - c. Revisions to schedule as required to reflect actual prosecution and progress of the Project. Show current status of activities completed or partially completed. Identify actual start dates and finish dates for each activity.
 - d. Modifications to the Construction Manager's plan of action for future activities.
- F. Work Activity/Event Cost Data:
 - 1. Provide cost loading for all work activities/events except procurement activities. The cumulative amount of all cost loaded work activities/events (including alternates) shall equal the total contract price. Prorate overhead, profit and general conditions on all work activities/events for the entire project length. The Construction Manager shall generate from this information cash flow curves indicating graphically the total percentage of work activity/event dollar value scheduled to be in place on early finish, late finish. These cash flow curves will be used by the Architect to assist him in determining approval or disapproval of the cost loading.
 - a. In the event of disapproval, the Construction Manager shall revise and resubmit.
 - b. Negative work activity/event cost data will not be acceptable.
 - 2. Provide cost loading for work activities/events related to guarantee period services, and system testing, balancing and adjustment.
- G. Special CPM Progress Schedule Meetings: The Owner may require additional special CPM review meetings at any time during the Contract to review the CPM Progress Schedule updates.
- H. Responsibility for Project Completion:
 - 1. Whenever it becomes apparent from the current progress review meeting or the updated CPM progress schedule that phasing or contract completion dates will not be met, the Construction Manager shall execute some or all of the following remedial actions:
 - a. Increase construction manpower in such quantities and trades as necessary to eliminate the backlog of work.
 - b. Increase the number of working hours per shift, shifts per working day, working days per week (pending approval of Owner), the amount of construction equipment, or any combination of the foregoing to eliminate the backlog of work.
 - c. Reschedule the work in conformance with the specification requirements.
 - 2. Prior to proceeding with any of the above actions, the Construction Manager shall notify and obtain approval from the Owner's Representative for the proposed schedule changes. If such actions are approved, the CPM revisions shall be incorporated by the Construction Manager into the network diagram before the next update, at no additional cost to the Owner.

- I. Extension of Contract Time: Each time an extension of Contract Time is requested, submit the request with justification and evidence supporting the request and submit a completely revised and updated CPM Project Schedule showing the impact of the proposed extension of Contract Time on the Progress Schedule. Contract Time may only be adjusted by Change Order issued by the Owner.

1.4 CONTRACT PROGRESS REPORTING

- A. Daily construction reports: Prepare a daily construction report, submit duplicate copies to the Architect at weekly intervals. Record the following information concerning events at the site:
 1. List of Trade Contractors and subcontractors at the site, and approximate count of personnel.
 2. Accidents, unusual events, and emergency procedures.
 3. High and low temperatures, general weather conditions (when exterior work is in progress).
 4. Meetings and significant decisions.
 5. Stoppages, delays, shortages, losses.
 6. Emergency procedures.
 7. Orders and requests of governing authorities.
 8. Change Orders received, and implemented.
 9. Services connected, disconnected.
 10. Meter readings and similar recordings.
 11. Equipment or system tests and start-ups.
 12. Partial Completions/occupancies.
 13. Substantial completions authorized.
- B. "Look Ahead" activity reports: Prepare each week throughout the term of construction a listing of upcoming construction activities. Each weekly report shall include a listing of planned construction activities for the upcoming 2 weeks (14 calendar days). Submit a Look Ahead Activity Report at each job meeting to all participants. If no meeting is planned on a given week, mail the reports directly to both Architect and Owner's Project Representative.
 1. Maintain a record of all Look Ahead Activity Reports in a 3-ring binder in the Construction Manager's field office and make available for review by Architect and Owner's Project Manager.
- C. Special Reports:
 1. Unusual Event Reporting: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Construction Manager's personnel, evaluation of results or effects, and similar pertinent information.

1.5 WORK DOCUMENTATION - AFFIRMATION OF PURCHASE ORDERS

- A. Several items specified in individual specification sections are products requiring long lead time. To ensure smooth progress of the Project without unwarranted delays, and to confirm compliance with the Contract Documents, the Construction Manager shall furnish affirmation of purchase orders for those items indicated in the individual specification sections as being long lead items.
- B. Affirmation of purchase orders made by the Construction Manager, Trade Contractors or subcontractors shall be submitted to the Architect within 7 calendar days from date of Notice to Proceed, or Date of Agreement whichever is earlier.
- C. Affirmation shall include cover letter to Architect naming the purchased products, anticipated date of delivery, and referencing applicable specification section. Attach to letter, copy of Bill of Sale, or other term of receipt, indicating payment or downpayment for each of the indicated products. Bill of Sale shall clearly show date of purchase, product identification, quantities ordered and amount paid.
 - 1. In lieu of Bill of Sale, Construction Manager may obtain from vendor a notarized letter, on the vendor's letterhead. Vendor's letter shall certify placement of order and identify date of purchases products and quantity purchased.

1.6 WORK DOCUMENTATION - PERIODIC SITE OBSERVATIONS

- A. Observe and maintain a record of tests. Record the following:
 - 1. Specification section number, product(s), and name of Trade Contractor, subcontractor or installer.
 - 2. Name of testing agency and name of inspector.
 - 3. Name of manufacturer's representative present.
 - 4. Date, time and duration of tests.
 - 5. Type of test and results.
 - 6. Retesting required.
- B. Observe startup and adjustments; record time and date of equipment start-up and results.
- C. Observe equipment demonstrations to Owner; record times and additional information required for operation and maintenance manuals.
- D. Assist Architect/Engineer with final inspections. Prepare list of items to be completed and corrected.

1.7 WORK DOCUMENTATION - VERIFICATION OF BUILT TOLERANCES

- A. Verification of as-built tolerances: Frequently review work to ensure compliance with Contract Document requirements and verify built construction is plumb, level, and in proper alignment within specified tolerances.
 - 1. Milestone certification: Inspect and verify the Work is installed is complete and complies with the Contract Documents and is within the specified tolerances.

Submit certification to both Architect and Owner's Representative for the following milestones:

- a. Completion of foundation systems and slabs on grade.
 - b. Completion of structural steel.
 - c. Completion of secondary supporting steel elements and decking.
 - d. Completion of light gage steel framing.
 - e. Completion of suspended concrete slabs.
 - f. Completion of exterior masonry walls.
 - g. Completion of interior masonry walls.
 - h. Completion of interior metal framing systems.
2. Improper work: Comply with requirements of Contract Documents. Correct all non-conforming and improper Work which deviates from the requirements of the Contract Documents or which exceed specified tolerances. Built work over non-conforming work is not acceptable and will require complete removal and reinstallation.

1.8 WORK DOCUMENTATION - CONSTRUCTION PROGRESS PHOTOGRAPHS

- A. Furnish digital photographs of site and construction through-out the progress of Work, produced photographer acceptable to Architect.
1. Submit photographic submittals on Discs: 2 copies, per submission.
 - a. Progress photographs, submit monthly and at final project completion.
 - b. LEED compliance photographs, submit within 3 days from date of photograph.
 2. Personal Privacy: After Owner occupancy, take special care not to photograph students. All photographs having patients in them shall be destroyed by the photographer prior to submittal. The photographer will be required to take additional photographs to obtain the specified submission numbers specified.
- B. Views: Take photographs from differing directions indicating the relative progress of the Work. Take photographs monthly on date for Application of Payment, and at final completion.
1. Prior to start of site clearing take one set of exterior photographs showing existing conditions.
 2. As a minimum each month during the Work, furnish the following number of views (as appropriate to Work being performed):
 - a. Views of site construction: 4.
 - b. Exterior views of building: 4.
 - c. Interior views: 6, each floor.
 3. Take additional photographs for the following major portions of work:
 - a. Start and completion of site preparation.
 - b. Completion of hazardous material abatement.
 - c. Completion of excavations, prior to form work or footings.
 - d. Completion of demolition.

- e. Completion of foundations.
 - f. Each stage of completion of structural framing.
 - g. Enclosure of building.
 - h. Provide 3 roof top photographs each month during roofing work, plus another 3 at completion of roofing and flashing work.
- C. Submission of Discs: Identify each disc on the back with the following information:
- 1. Project identification.
 - 2. Date and time of exposure, and orientation(s) of view.
 - 3. Photographer's name, address and phone number.
- D. Submission of Prints: If requested shall be furnished at prevailing commercial rates.
- 1. LEED compliance photographs, submit within 3 days from date of photograph.
 - a. Prints: 2 sets.
 - b. Discs: 2 copies.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

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Section 01 33 00
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Submittal coordination.
- B. Submittal procedures and grading.
- C. Schedule of Submissions.
- D. Owner's environmental policy and LEED credit submittals.
- E. Shop drawings, product data and samples.
- F. Manufacturer's instructions.
- G. Manufacturer's certificates.
- H. Emergency addresses.
- I. Erosion and sediment control program.

1.2 SUBMITTAL COORDINATION

- A. General: The Construction Manager is fully responsible for delay in the delivery of materials, progress of the Work and damages incurred due to Construction Manager's failure to submit, revise and resubmit submissions in accordance with the requirements herein, and in a coordinated and timely manner.
- B. Make submittals in a proper and timely fashion, allowing for administrative procedures, Architect's review, corrections to submissions and resubmittal, if necessary, and fabrication of products without delaying the project. Minimum processing times required by the Architect are as follows:
 - 1. Review for Architect's Office only: Allow a minimum of 10 working days for review and processing. Some submittals may require additional time.
 - a. Simultaneous submission of a large number of shop drawings and product data may require longer than 10 working days for review. (In particular submittals for Divisions 3, 5, 6, 21, 22, 23, 25 and 26).
 - b. Complex Systems (structural, mechanical, electrical) may require longer than 10 working days for review each time shop drawings, layout drawings, and product data are submitted or resubmitted.
 - 2. Review by Architect and its consultant(s): Allow 10 working days for review and processing of submittals by Architect plus an additional 5 working days for review by each consultant as applicable.
 - 3. Reprocessing of submittals: For submittals requiring resubmittal, re-processing time required shall be the same as first submittal.
 - 4. No extension of Contract Time will be authorized due to failure to transmit submittals sufficiently in advance of scheduled performance of Work.

- C. Make submittals of similar items, systems, or those specified in a single specification section together.
- D. Make submittals for products which other products are contingent upon, first.
- E. The Construction Manager is fully responsible for delay in the delivery of materials or progress of work caused by late review of shop drawings due to failure of the Construction Manager to submit, revise, or resubmit shop drawings in adequate time to allow the Architect checking and processing of each submission or resubmission.

1.3 REPETITIVE REVIEW

- A. Shop Drawings, Product Data and Samples, Coordination Drawings submitted for each item will be reviewed by the Architect or Consultants no more than two times at Owner's expense. Submittals failing to comply with Contract requirements will be reviewed at times convenient to the Architect and its Consultants and at the Construction Manager's expense, based upon a flat rate of \$100.00 per hour for each subsequent re-submittal. Construction Manager shall reimburse Owner for such additional submittal reviews monthly, and Owner reserves the right to deduct said reimbursement from Construction Manager's periodic application for payment and the Contract Sum.

1.4 SCHEDULE OF SUBMISSIONS

- A. Schedule procedure: Immediately after being awarded the Contract, meet with the Architect to discuss the schedule of submissions and then prepare and submit within 14 calendar days for approval a schedule of submissions for the Work. The schedule of submissions shall be related to the entire Project, and shall contain the following:
 - 1. Shop Drawing Schedule (for shop and setting drawings to be provided by the Construction Manager).
 - 2. Sample Schedule (for samples to be provided by the Construction Manager).
 - 3. With respect to portions of the Work to be performed by Trade Contractors and subcontractors, such schedule of submissions for the work of each Trade Construction Manager or subcontractor shall be submitted for approval within 30 calendar days after execution of a subcontract with such Trade Contractor or subcontractor.
- B. List all submissions required of each trade:
 - 1. Include the Specification Section number, name of Trade Contractor, subcontractor or vendor, submittal type, item, description, type, quantity and size (where applicable) of each submission.
 - 2. For each submission, provide the following dates, as estimated:
 - a. Scheduled date of submission.
 - b. Required date of approval. (permit time for appropriate review and resubmissions as may be required).
 - c. Estimated date of beginning fabrication or manufacture of product (where applicable).
 - d. Required date of submission of product to testing laboratory.

- e. Required date of testing laboratory approval.
 - f. Required date for delivery of product to site.
 - g. Required date for beginning of installation of product.
 - h. Required date for completion of installation (and in-place testing).
- C. For each submittal, schedule to allow adequate time for review by the Architect and its consultants. The Architect will not be responsible for Work performed in shop or field prior to approval. Long-lead items requiring expedited action must be clearly indicated.
- 1. The schedule shall be reviewed and resubmitted as necessary to conform to approved modifications to the construction Project Schedule, and shall be updated as may be required by the Architect.
- D. Posting of submittal schedule: Print and distribute the submittal schedule to Architect, Owner, Trade Contractors, subcontractors and other parties affected. Post copies in field.
- E. Update schedule throughout progress of the Project, coordinated with scheduling changes in the Work, and redistribute monthly in conjunction with submittal of Application for Payment.

1.5 OWNER'S ENVIRONMENTAL POLICY AND LEED CREDIT SUBMITTALS

- A. Schedule: Immediately after being awarded the Contract, meet with the Architect and Owner's Representative to discuss the schedule of environmental policy submissions and then prepare and submit within 14 calendar days for approval a schedule of LEED credit submissions and submissions related to the Owner's Environmental Policy.
- 1. The "Schedule of Environmental Submissions" shall be related to the entire Project, including commissioning.
 - 2. Update schedule throughout progress of the Project, coordinated with scheduling changes in the Work, and redistribute monthly in conjunction with submittal of Application for Payment.

1.6 SUBMITTAL PROCEDURES AND GRADING

- A. Prepare and submit to the Architect the following:
- 1. Construction Schedule.
 - 2. Schedule of Values.
 - 3. Schedule of shop drawings, product data, and samples.
 - 4. Schedule of Environmental Submissions.
- B. Provide space for Construction Manager, Architect and engineering consultant review stamps, on the front page of each item's submittal copy. Apply Construction Manager's stamp, signed or initialed certifying that review, verification of products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and the Contract Documents. The Architect's stamp shall contain the following data (Engineering consultant review stamps may vary in language, but intent of language is similar):

_____ NO EXCEPTIONS TAKEN

_____ RECEIVED FOR RECORD
_____ MAKE CORRECTIONS NOTED
_____ REVISE AND RESUBMIT
_____ REJECTED
_____ SUBMIT SPECIFIED ITEM

1. The Architect will insert the date of action taken and an identification of the person taking the action.
 2. Submittal grading:
 - a. NO EXCEPTIONS TAKEN - No corrections, no marks.
 - b. RECEIVED FOR RECORD: Submission received for informational purposes only and no action will be taken by the Architect.
 - c. MAKE CORRECTIONS NOTED - Minor corrections required are as noted; all items can be fabricated as noted, without further correction and resubmission of original submission; checking is complete and all corrections are deemed obvious without ambiguity.
 - d. REVISE AND RESUBMIT - Resubmission is required; checking may be incomplete; details of items noted by checker are to be clarified further before full review can be given. Correct and resubmit, do not fabricate noted items requiring correction.
 - e. REJECTED - Submittal is rejected as not in accord with the Contract Documents, too many corrections, or other justifiable reasons. When returning submission, Architect will state reasons for rejection. Correct and resubmit, do not fabricate.
 - f. SUBMIT SPECIFIED ITEM - Submission has been previously rejected by Architect, and the currently submitted product is also rejected as not being in accord with the Contract Documents, or other justifiable reasons. Submission using specified product is required.
 3. Review/approval neither extends nor alters any contractual obligations of the Architect, Engineer or Construction Manager.
- C. Identify all variations from Contract Documents, and product or system limitations which may be detrimental to successful performance of the completed work.
- D. Construction Manager's review: Review all shop drawings, product data and samples. Include, without limitation, verification of the following:
1. Proper title, original date, drawing number (which shall be changed if resubmitted), revision numbers and dates, designation of Trade Contractor, subcontractor and/or supplier.
 2. Identification of Shop Drawings, Product Data or Samples by Specification Section and subsection or paragraph where appropriate and identification of Contract Drawings by number and detail.
 3. On each submittal, as a minimum, Construction Manager shall identify the following:
 - a. Errors, inconsistencies, and omissions discovered in the contract documents and field conditions must be reported at once to the Architect.
 - b. Any variations from code requirements contained in the contract documents must be reported promptly in writing to both the Architect and Owner.

- c. Promptly report to the Architect information that any design, process, or product infringes on a patent.
 - d. Names of Trade Contractor or subcontractor(s) and supplier(s). Include name(s) of contact person(s), address, telephone and fax number(s).
- E. Revise and resubmit submittals as required, identify all changes made since previous submittal. Distribute copies of reviewed submittals to concerned parties; instruct parties to promptly report any inability to comply with provisions.

1.7 ELECTRONIC DOCUMENT PROCEDURES REQUIREMENTS

A. General:

- 1. All documents including but not limited to shop drawing and product data submittals, Request for Information, Proposal Requests, Proposed Change Orders, reports, etc. shall be transmitted to Architect and Owners Project Manager in electronic (PDF) format. The Construction Manager shall utilize a web based service such as Procore Technologies, Submittal Exchange, i Builder or approved equal designed specifically for transmitting submittals between construction team members.
- 2. The intent of electronic submittals is to expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.
- 3. The electronic document process is not intended for color samples, color charts, or physical material samples.

B. Procedures for Documents and Submittals:

- 1. Document Preparation – Construction Manager may use any or all of the following options:
 - a. Trade Contractors, subcontractors and suppliers may provide electronic (PDF) documents to Construction Manager via a web based service.
 - b. Trade Contractors, subcontractors and suppliers may provide paper documents to Construction Manager (subject to approval of the CM) who electronically scans and converts to PDF format.
 - c. Trade Contractors, subcontractors and suppliers may provide paper documents to Scanning Service which electronically scans and converts to PDF format.
- 2. Construction Manager shall review and apply electronic stamp certifying that the submittal complies with the requirements of the Contract Documents including verification of manufacturer / product, dimensions and coordination of information with other parts of the work.
- 3. Construction Manager shall transmit each submittal or document to Architect using web based service.
- 4. Architect review comments will be made available on the web based service for downloading. Construction Manager will receive email notice of completed review.
- 5. Distribution of reviewed submittals to subcontractors and suppliers is the responsibility of the Construction Manager.

6. Submit paper and electronic copies of reviewed submittals or documents at project closeout for record purposes in accordance with Section 01 78 00 – CLOSEOUT SUBMITTALS.

C. Costs:

1. The cost of web based services shall be paid in full by the Construction Manager.
2. The Construction Manager shall provide training for web based service for Architect, OPM and any other entity required to use such service..
3. Internet Service and Equipment Requirements:
 - a. Email address and Internet access at Construction Manager's main office.
 - b. Adobe Acrobat (www.adobe.com), Bluebeam PDF Revu (www.bluebeam.com), or other similar PDF review software for applying electronic stamps and comments.

1.8 SUBMISSION REQUIREMENTS AND QUANTITIES

- A. Furnish Architect with electronic files in Adobe Acrobat Portable Document Format (PDF) files for each of the following submittal types:
 1. Schedules
 2. Shop drawings.
 3. Product data, manufacturer's instructions and certificates and similar submissions.
 4. Emergency addresses: 1 file to Architect, and 1 file direct to Owner.
- B. In addition to electronic submittals furnish Architect with the following quantities of the following physical submittals:
 1. Provide one full size hard copy of each sheet for all structural shop drawings.
 2. Provide one full size hard copy of hardware schedules and product data (greater than 100 pages), door schedules, shop drawings greater than 11 inches by 17 inches for Architect's review, and any other submittals as requested by the Architect. Redlines and action stamp will be returned on the PDFs submitted.
 3. All submittals greater than 50 pages shall be provided with an index.
 4. Samples: Sets of 3 identical samples of each submission required.
- C. All submittals and shop drawings shall include a submittal title sheet that lists the following: Product, Specification Section number, article, paragraph and subparagraph reference (i.e. Section 08 71 00, Article 2.02, Paragraph A - Materials, subparagraph 1 - Door Trim, subparagraph 7 - Wire Pull).
- D. General submission of physical submittals deliver to Architect at the following address:

Lamoureux Pagano & Associates
108 Grove Street, Suite 300
Worcester, Massachusetts 01605

- E. Transmit submittals to Architect at the above address, with individual transmittal forms, Document 00 62 12 – PRODUCT SUBMITTAL FORM for each submission. Document 00 62 12 is bound into the Project Manual; unbound copies are available from the Architect.
 - 1. On transmittal form, identify Project, Construction Manager, Trade Contractor or subcontractor, installer, or supplier, pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate. Transmittals received by the Architect from sources other than the Construction Manager will be returned without any action taken.
 - 2. Construction Manager shall number submittals sequentially by Specifications Section prior to submittal. Resubmitted items shall retain number and be noted as resubmitted (example 260000.01 R1).
- F. Construction Manager shall provide 2 color copies of all approved submittals to the Owner or Owner's Project Manager as directed.

1.9 SHOP DRAWINGS

- A. General: Provide accurately prepared, large scale and detailed shop drawings prepared specifically for this Project. Shop drawings shall include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Standard information prepared without specific reference to Project are not considered shop drawings.
 - 1. Show adjacent conditions and related work. Show accurate field dimensions where appropriate.
 - 2. Identify materials and products shown. Note all conditions where require coordination with other trades and special installation procedures.
 - 3. Show gage and thickness of materials.
 - 4. Indicate welding details and joint types.
 - 5. Show every component of fabricated items, notes regarding manufacturing process coatings and finishes, identifying numbers conforming to the Contract Documents (i.e. stair numbers, door numbers and similar items), dimensions, and appropriate trade names.
 - 6. Show anchorage and fastening details, including type, size and spacing.
 - 7. Review each submittal for conformity with the Contract requirements prior to submittal, certify such review on each shop drawing with Construction Manager's stamp, signature and date. Reference on shop drawings to other sections, installers, suppliers, or trade(s) shall designate the appropriate specification sections, and the term "by others" shall not be used.
- B. Size of Format: Not less than 8-1/2 by 11 inches, and no larger than 30 by 42 inches, except for templates, patterns and similar full-size drawings.
- C. The Architect's comments and corrections will be made on the electronic submission (PDF) and returned to the Contractor. If necessary, the Construction Manager then shall make the necessary corrections on the original drawings and resubmit the corrected drawings in electronic format (PDF) as specified. Prints of any submittals required for the Architect's own use, and those of engineering consultants, will be made without cost to the Contractor. The Contractor is responsible to distribute and furnish (at no additional cost to Owner) all shop

documents needed for use by the Contractor, subcontractors, installers, vendors and suppliers.

- D. Drawing submittals returned " NO EXCEPTIONS TAKEN " or " MAKE CORRECTIONS NOTED " Obtain and distribute adequate prints for construction, including one print of each for designated Owner's Project Manager, and On-site Representative, and then return the reproduces to the Trade Contractor, subcontractor or supplier from whom he originally received them.
- E. Drawing submittals returned "REJECTED" or "REVISE AND RESUBMIT", or "SUBMIT SPECIFIED ITEM". Obtain a record print, and then forward originals to source for correction; resubmit new reproduces and prints as specified herein above.
- F. Each drawing shall have a title block on the right hand side containing the following data:

Name of project -	SOUTH HIGH COMMUNITY SCHOOL
Architect -	Lamoureux Pagano & Associates
Construction Manager -	Fontaine/W.T. Rich, LLC
Trade Contractor/supplier -	
Subcontractor/supplier -	
Date of submission -	

- G. Each drawing shall have a clear space on the right hand side for review stamps of both the Architect and Construction Manager.
 - 1. The Construction Manager's Review and Action Stamp: Provide suitable space on label or title block for Construction Manager's review and action stamp. Stamp and sign each submittal to show Construction Manager's review and approval prior to transmittal Architect. Submittals not signed and stamped by Construction Manager will be returned without action.
 - a. Only submittals received from the Construction Manager will be considered for review by the Architect. Construction Manager shall review each submittal for accuracy and conformance with the requirements of the Contract Documents, and particularly for field measurements and proper fit with adjoining work. Modify submittals as required to show interface with adjacent work and attachment to Building.
 - b. The Construction Manager's Review and Action Stamp shall contain the following language or similar:

APPROVED FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS.
All dimensions and quantities have been reviewed and are accepted by _____
<i>Construction Manager's Name</i>
All dimensions and field conditions have been or will be verified prior to fabrication of the items described herein.

- c. Submittals received from the Construction Manager shall be signed and comply with review requirements. Submittals not certified or improperly certified (stamped but not reviewed) will be returned to the Construction Manager without Architect's review. Claims due to the return of

uncertified, improperly prepared or inadequately reviewed submittals will be rejected.

1.10 PRODUCT DATA

- A. Submit Product data as specified, and as the Architect may additionally prescribe. Product data includes, but is not limited to:
 - 1. Catalog cuts.
 - 2. Complete specifications.
 - 3. Standard color charts.
 - 4. Performance data.
 - a. Compliance with recognized trade association standards.
 - b. Compliance with recognized testing agency standards, labels and seals.
 - 5. Environmental data including, but not limited to:
 - a. Chemical composition.
 - b. Recycled (pre and post consumer) content.
 - c. Locations of material extraction/harvest and manufacture, with respective distances to site.
 - d. VOC content.
 - e. FSC wood content.
 - f. Material certifications as applicable to product.
 - 6. Certified laboratory test report data.
 - 7. Health and safety precautions.
 - 8. Illustrated capacities, characteristics, wiring diagrams, controls, and other pertinent information for complete product and product use description.
- B. If more than one size or type is shown on any printed sheet, indicate clearly intended item(s).
- C. When accepted or not accepted, the Architect will retain three copies. Submit sufficient copies for all other parties. No copies stamped REJECTED or RESUBMIT shall be sent to the job site.

1.11 SAMPLES

- A. Submit samples clearly labeled as to its material, type or make, manufacturer, size or gauge, and other pertinent data, accompanied by an appropriate transmittal form. Samples shall show full range of color and texture variation that can be expected.
 - 1. When accepted or not accepted, the Architect will retain one set of samples and return the other to the Construction Manager. Samples will not be permitted for use in the project.
 - 2. No final color selections shall be made by the Architect until all interior samples have been received and reviewed with the Owner.

1.12 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification Sections, submit manufacturer's printed instructions for delivery, handling, storage, assembly, installation, start-up, adjusting, and finishing.
- B. Identify conflicts between manufacturer's instructions and Contract Documents.

1.13 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification Sections, submit manufacturer's certificates and installer certificates to Architect for review.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.

1.14 EMERGENCY ADDRESSES

- A. Within 15 days of Notice to Proceed, submit in writing, the name, addresses and telephone numbers of key members of their organization including Construction Manager's Superintendent and personnel at the site, to be contacted in the event of emergencies at the building site, which may occur during non-working hours.

1.15 EROSION AND SEDIMENT CONTROL PROGRAM

- A. Submit erosion and sediment control program within 30 days after date of Owner-Construction Manager Agreement for Architect's review. Revise and resubmit as required.
- B. Erosion and sediment program shall indicate proposed methods, materials to be employed, and schedule for effecting erosion and siltation control and preventing erosion damage. Provide sufficient information to fully explain the program; the following are the minimum requirements:
 - 1. Proposed methods for actuating erosion and siltation control including 1 inch equals 40 feet (1"=40') scale plans indicating location of erosion control devices and siltation basins.
 - 2. List of proposed materials including manufacturer's product data, in accordance with Division 32 - EARTHWORK and Division 33 - EXTERIOR IMPROVEMENTS.
 - 3. Schedule of and sediment control program indicating specific dates from implementing programs in each major area of Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

South High Community School

170 Apricot Street, Worcester, MA 01603

REVIEW STAMP

- | | | |
|--|--|---|
| <input type="checkbox"/> No Exceptions Taken | <input type="checkbox"/> Received for Record | <input type="checkbox"/> Make Corrections Noted |
| <input type="checkbox"/> Revise and Resubmit | <input type="checkbox"/> Rejected | <input type="checkbox"/> Submit Specified Item |

Architect's review is only for general conformance with design concept and compliance with requirements of Contract Documents. Review is based on Contractor's representation that he has checked and approved this submittal and has verified dimensions, quantities, field dimensions, relation to existing work, coordination with work to be installed later, and coordination with information in previously approved submittals. Accuracy of all such information is responsibility of the Contractor. Approval does not authorize, or relieve the Contractor of responsibility for, deviations from drawings, specifications, supplementary documents furnished by the Architect, or previously approved submittals unless the Contractor has, in writing, called the Architect's attention to such deviations at the time of submittal. The Contractor is solely responsible for the accuracy of all information in the submittal and for details of fabrication and installation. Refer to Contract Documents for further submittal requirements and limitations on scope of the Architect's review.

LAMOUREUX PAGANO ASSOCIATES | ARCHITECTS

Date: _____ By: _____



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SECTION 01 35 43
ENVIRONMENTAL PROCEDURES

PART 1 – GENERAL

1.1 GENERAL PROVISIONS

- A. General Conditions, Supplementary Conditions and applicable parts of Division 1 form a part of this specification and the Contractor shall consult them in detail for instructions.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this trade.

1.2 RELATED WORK UNDER OTHER SECTIONS

- A. Asbestos Remediation.
- B. Indoor Air Quality Requirements.

1.3 HAZARDOUS MATERIALS PROCEDURE

- A. Asbestos:
 - 1. Asbestos Materials Exist On-Site: There are accessible and inaccessible asbestos containing materials (ACM) in the existing building. ACM affected by the demolition project are included under this contract. The Demolition Contractor shall refer to items below for proper procedures regarding removal and disposal of roofing, flashing, damproofing/paper and transite pipes. The CM at Risk Contractor shall formally notify each subcontractor that there are ACM existing in the building. Hidden ACM may only be found during Demolition. Refer to items 2 and 3 below.
 - 2. Unknown and inaccessible ACM: During the Demolition work of the Contract, it is possible that previously unknown asbestos materials may be discovered in currently concealed locations.
 - 3. Notification: If the Demolition Contractor discover or encounter any ACM during the performance of the work, the Demolition Contractor shall immediately:
 - a. Stop work, notify the Owner and Clerk of the Works about the presence of suspect ACM and request instructions for proper action, and
 - b. Take whatever steps and measures are necessary to reduce, control or eliminate the risk of exposure of workers and the public to the ACM.
 - c. Every effort will be made to obtain DEP (12 working day notification period) waivers to remove hidden or unforeseen ACM by the asbestos contractor. The Demolition Contractor shall allow sufficient time for the removal of the ACM at no additional charges to the owner for delays and should waivers be denied by the DEP.
 - 4. Responsible Person On-Site: The Demolition Contractor shall designate one of its senior on-site employees to be in charge of coordination between the Architect, the CM at Risk Contractor, and all subcontractors with respect to hazardous materials issues.
 - 5. Responsibility for Hazardous Material Discovery: It is the sole responsibility of the CM at Risk Contractor and its Subcontractors to undertake whatever measures methods of procedures are necessary, required or otherwise appropriate to safeguard the

health and safety of all workers and members of the public with respect to identification and discovery of previously unknown hazardous materials during the work of the Project.

6. Roofing materials, including glue, paper, caulking, build up roof products and flashing material were either found or assumed to contain asbestos. The Demolition Contractor shall own the removal and disposal of all roofing material as asbestos at no additional cost to the Owner in accordance with all federal and state regulations. The Demolition Contractor is solely responsible for notifications, means and methods, and techniques used to properly remove and dispose of the material. It is also the Demolition Contractor's responsibility to comply with DEP 310 CMR 7.15 regulations at no additional cost to the owner. Refer to item 9 below.
7. Foundation, building flashing and all types of flashing found around windows/doors were assumed to exist throughout and either found or assumed to contain asbestos. It is the Demolition Contractor's responsibility to retain the services of a licensed asbestos abatement contractor for proper removal and disposal at no additional cost to the Owner in accordance with all federal and state regulations. The Demolition Contractor is solely responsible for means and methods and techniques used to properly remove and dispose of the ACM and shall comply with all federal, state and OSHA regulations. The Demolition Contractor shall include in his bid the disposal of 50 ton of the ACM. UEC will record on a daily basis all quantities removed. The Demolition Contractor will be required to do the same. At the completion of the Demolition project, should quantities of ACM removed were found to be less than 500 ton, the Demolition Contractor will be required to issue a credit to the owner based on \$135.00 per ton or will be paid \$150.00 per ton should quantities of ACM coated walls removed were found to be greater than the listed above. The unit price includes all applicable costs. It is also the Demolition Contractor's responsibility to comply with DEP 310 CMR 7.15 regulations at no additional cost to the owner. Refer to item 9 below.
8. Damproofing/paper on exterior and foundation walls, columns and beams were found to exist and found to contain asbestos (ACM). It is the Demolition Contractor's responsibility to properly remove and dispose at no additional cost to the Owner in accordance with all federal and state regulations. The Demolition Contractor is solely responsible for means and methods and techniques used to properly remove and dispose of the ACM and shall comply with all federal, state and OSHA regulations. The Demolition Contractor shall include in his bid the disposal of 5,500 ton of the ACM. UEC will record on a daily basis all quantities removed. The Demolition Contractor will be required to do the same. At the completion of the Demolition project, should quantities of ACM removed were found to be less than 5,500 ton, the Demolition Contractor will be required to issue a credit to the owner based on \$135.00 per ton or will be paid \$150.00 per ton should quantities of ACM coated walls/beams removed were found to be greater than the listed above. The unit price includes all applicable costs. It is also the Demolition Contractor's responsibility to comply with DEP 310 CMR 7.15 regulations at no additional cost to the owner. Refer to items 9 and 10 below. The Demolition Contractor shall own the cost for any loss of salvage values of the columns and beams at no additional cost to the owner should ACM was found.
9. UEC licensed designer will prepare a non-traditional abatement plans and forms as required by the DEP prior to the anticipated demolition at no additional cost to the owner. The Demolition Contractor must fully comply with the plan at no additional cost to the Owner.
10. The Demolition Contractor shall be responsible for proper disposal of steel columns and beams and shall not be entitled to any cost in reference to lose value and shall dispose per item 8 above.

11. Transite and ACM insulated pipes were assumed to exist underground. The Site/ Demolition Contractor shall excavate around the pipes to expose the pipes at no additional cost to the owner for removal by the asbestos contractor. Refer to item 9 above.
12. Indemnification: To the fullest extent permitted by law, the CM at Risk Contractor and/or the Demolition Contractor shall indemnify and hold harmless the Owner and the Architect and their agents and employees from and against all claims, damages, losses and expenses including, but not limited to, attorneys' fees arising out of or relating to the performance of the Work, including the discovery or identification of any hazardous materials, provided that any such claim, damage, loss or expense if attributable to bodily injury, sickness, disease or death, or to damage to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom; and is caused in whole or in part by any negligent act or omission of the CM at Risk Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

B. Lead:

1. The Demolition Contractors shall be made aware that Lead Based Paint exists on painted surfaces throughout the building.
2. All the work of this Contract shall conform to the standard set by all applicable Federal, State and Local laws, regulations, ordinance and guidelines in such from in which they exist at the time of the work on the Contract and as may be required by subsequent regulations.
3. The Demolition Contractor is solely responsible for means and methods, and techniques used for demolition and lead control. The Demolition Contractor shall collect and control lead contaminated debris and to properly remove and dispose of lead contaminated soil around each building due to demolition activities.
4. The Demolition Contractor shall at his own cost and expense comply with all laws, ordinance, rules and regulations of Federal, State, Regional and Local authorities during demolition, prepping, sanding, cutting, burning, scraping, painting over, grinding and regarding handling, storing and disposing of lead and lead contaminated waste material.
5. The Demolition Contractor shall submit to the Architect prior to commencing of work the following:
 - a. Written respiratory and notification program
 - b. Written lead compliance program in accordance with OSHA regulations including:
 1. Training requirement certifications.
 2. Supervisor qualifications.
 3. Written compliance program specific to this project
 4. Respirators fit test records.
 5. Medical surveillance certificates.
6. The EPA and the DEP require demolition debris with lead to be tested in accordance with the Toxicity Characteristic Leaching Procedure (TCLP) to determine the potential for significant amounts of lead to leach out of the waste. If the results are below the DEP standard (5.0 ppm), the waste may be disposed of in a conventional landfill for demolition debris. If, however, the TCLP results are above the DEP standard, the waste must be disposed of in a DEP approved, hazardous waste landfill. The Demolition Contractor shall at own cost and expense perform all required testing of waste by the TCLP. The Demolition Contractor must submit to the Owner copy of tests performed and all waste shipment records prior to disposing of debris. The Owner reserves the right to have own TCLP samples collected to verify results. All disposal costs shall be at the Demolition Contractor's responsibility.

7. The following references are cited as current applicable publications. This project is subject to compliance with the all regulations including but not limited to:
 - a. Commonwealth of Massachusetts, Department of Labor and Work Force Development 454 CMR 11.00, Structural Painting Safety Code, as currently amended.
 - b. Commonwealth of Massachusetts, Department of Environmental Protection, and Hazardous Materials Regulations at 310 CMR 30.00 as currently amended.
 - c. U. S. Department of Labor, Occupational Safety and Health Administration Title 29 CFR 1910.1025 and 29 CFR Part 1926.62.
 - d. U. S Department of Environmental Protection, Resources Conservation and Recovery Act.
 - e. Commonwealth of Massachusetts, Department of Labor and Work Force Development 454 CMR 22.00.
 - f. Commonwealth of Massachusetts, Department of Environmental Protection, 310 CMR 6.0-8.0.
 - g. Commonwealth of Massachusetts, Department of Environmental Protection ABC rubble rules.
8. All above regulations are applicable to this project. Where there is a conflict between this section and the applicable regulations, the more stringent requirement shall prevail.

C. Other Hazardous Materials:

1. The Demolition Contractor shall be made aware that other hazardous materials are found inside/outside the building.
2. The Demolition Contractor shall be responsible for quantifying, removal and proper disposal of all remaining hazardous materials in/out the building, including but not limited to batteries and related electrolytic material, PCB's, mercury and Freon inside air conditioners, switches, exit signs, thermostats, paint and other hazardous materials.

D. Polychlorinated Biphenyls (PCB's):

1. The Demolition and Asbestos Contractors shall be made aware that building materials (Material) including but not limited to painted surfaces, caulking, glue, roofing, coatings and other building materials are likely to contain >1 ppm of Polychlorinated Biphenyls PCB's.
2. Due to the difficulty associated with exhaustive testing of all surfaces, caulking, glue, and coatings within the building, the Owner has elected to direct the Demolition and Asbestos Contractors to assume that these surfaces do, in fact, contain PCB's and to take all necessary steps for their compliant removal and disposal.
3. EPA does not mandate testing and therefore, no testing will be performed or shall be permitted to be performed on this project.
4. All of the work of this Contract shall conform to the standard set by all applicable Federal, State and Local laws, regulations, ordinance and guidelines.
5. The Demolition and Asbestos Contractors are solely responsible for means and methods, and techniques used for demolition and control. The Demolition and Asbestos Contractors shall collect and control PCB's contaminated debris and soil.
6. The Demolition and Asbestos Contractors shall at his own cost and expense comply with all laws, ordinance, rules and regulations of Federal, State, Regional and Local authorities during prepping, sanding, cutting, burning, scraping, painting over, grinding

and regarding handling, storing and disposing of contaminated waste material and during demolition of the building.

E. Silica Dust:

1. The Demolition Contractor and Asbestos Contractor shall be made aware that building materials (Material) may contain Silica.
2. Due to the difficulty associated with exhaustive testing, the Owner has elected to direct the Demolition Contractor and Asbestos Contractor to assume that Silica was found.
3. The Demolition Contractor and Asbestos Contractor shall review and comply with most recent US Department of Labor Final Rule and shall take extra precautions to protect workers and other personnel on site.

PART 2 – (PRODUCTS) Not Used

PART 3 – (EXECUTION) Not Used

END OF SECTION

Section 01 41 00
REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section consists of:
1. Applicable codes and regulations.
 2. Trade union jurisdictions.
 3. Wage rate compliance.

1.2 DEFINITIONS

- A. Regulations include laws, ordinances, statutes and lawful orders issued by authorities having jurisdiction, and rules, conventions and agreements within the construction industry that control performance of the Work, whether lawfully imposed by authorities having jurisdiction or not.

1.3 APPLICABLE CODES AND REGULATIONS

- A. All work shall be performed in accordance with the latest version, by DATE OF ISSUE for Contract Documents, current on date of Owner-Contractor Agreement, except as indicated otherwise, of all applicable codes including the following:
1. 2015 International Building Code (IBC) with Massachusetts Building Code, Ninth Edition amendments (780 CMR).
 2. 2015 International Energy Conservation Code with Massachusetts Building Code amendments, (Effective August 12, 2016 under the 780 CMR, Eighth Edition).
 3. 2015 International Mechanical Code (IMC).
 4. Massachusetts Electrical Code (2017 National Electrical Code [NFPA 70, 2017 edition], with Massachusetts modifications from 527 CMR 12.00).
 5. Massachusetts Fuel, Gas, and Plumbing Code (2002 National Fuel Gas Code [ANSI Z223.1-NFPA 54], with Massachusetts modifications from 248 CMR 5.00).
 6. Massachusetts Comprehensive Fire Safety Code (527 CMR) [2012 NFPA 1 as amended], effective January 1, 2015, as amended through November 4, 2016 and MGL Chapter 148.
 7. Commonwealth of Massachusetts Regulation 521 CMR: *Architectural Access Board*.
 8. Commonwealth of Massachusetts Regulation CMR 38:00 - *Regulations For Governing School Building Assistance Act*, Chapter 645, 603.
 9. Massachusetts Board of Elevator Regulations (524 CMR).
 10. Commonwealth of Massachusetts, Department of Public Works. "STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES CONSTRUCTION".
 11. Commonwealth of Massachusetts Wetlands Protection Act.
 12. City of Worcester Zoning Regulations / Ordinance , as amended.

13. National Fire Protection Association: NFPA 101 - LIFE SAFETY CODE, 2012 Edition.
14. National Fire Protection Association: NFPA 241 – *Standard for Safeguarding Building Construction And Demolition Operations*, 2013 Edition.
15. United States Occupational Safety and Health Administration (OSHA): Standard N°. 29-CFR-1926.59 - HAZARD COMMUNICATION STANDARD.
16. United States Department of Justice, N° 28 CFR Part 36 - AMERICANS WITH DISABILITIES ACT, (Public Law 101-336).

- B. Publication Dates: Where the date of issue of a code or regulation is not specified, comply with the standard in effect as of date of Contract Documents, or as otherwise required by authorities having jurisdiction.

1.4 TRADE UNION JURISDICTIONS

- A. Maintain current information on jurisdictional matters, regulations, actions and pending actions; and administer/supervise performance of Work in a manner which will minimize possibility of disputes, conflicts, delays, claims or losses.

1.5 WAGE RATE COMPLIANCE

- A. The General Contractor is responsible to ensure that the rate per hour to be paid to mechanics, apprentices, teamsters, laborers and other workers employed on the Work shall not be less than the approved wage rates applicable to this project. A legible copy of the approved rates, along with equal opportunity requirements, shall be posted on a weatherproof bulletin board outside the field office and be clearly visible for review by all workers.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

Section 01 41 17
UTILITIES NOTIFICATION

PART 1 – GENERAL

1.1 GENERAL PROVISIONS

- A. Comply with all regulations and laws concerning excavation, demolition, or explosive work and be advised of utility notification requirements under Chapter 82, Section 40 of the Massachusetts General Laws.

1.2 ADMINISTRATIVE AUTHORITY

- A. Notification of utilities within the Commonwealth is performed through the Utilities Underground Plant Damage Prevention System, commonly referred to as “Dig Safe”.

1.3 REGULATORY REQUIREMENTS

- A. Construction Managers must notify “Dig Safe” by telephone before performing any earth moving operations including: digging, trenching, boring, site demolition, excavation, backfilling, grading, or explosive work in all public ways and private property.
- B. This notification must be made at least 72 hours (excluding weekends and holidays) prior to the Work described above, but not more than 30 calendar days before commencement of the contemplated Work. Notification shall occur between 6:00 AM to 6:00 PM local time from Monday to Friday, except in cases of emergency.
 - 1. The toll free phone number is: **811**.
 - 2. Provide the following information:
 - a. Municipality.
 - b. Location of work.
 - c. Intersecting street.
 - d. Type of work.
 - e. Starting date and time of work.
 - f. Name and title of caller.
 - g. Phone number of caller.
 - h. Best time for “Dig Safe” to return calls.
 - i. Company name of Construction Manager.
 - j. Company name of Trade Construction Manager or subcontractor performing subgrade work.
- C. Member utilities of the Utilities Underground Plant Damage Prevention System are required to respond to the notice within 72 hours from the time said notice is received by designating at the locus the location of pipes, mains, wires, or conduits.

1. Locations of underground utilities will be marked by spray paint or stakes. Marks will be color coded with additional descriptions of letters and arrows as required.
 - D. Do not commence work until "Dig Safe" has been properly notified and has responded as described above.
 - E. Subsequently notify "Dig Safe" of unanticipated additional blasting required after the initial notification to "Dig Safe" has been made. Do not perform the additional blasting work in less than 4 hours following the subsequent notification.
- 1.4 PROTECTION
- A. The Construction Manager is fully responsible for protection of the utility location markings, wherever these occur, on or off-site.
 - B. Perform Work in such a manner, and with reasonable precautions taken to avoid damage to utilities under the surface in said areas of work. Immediately notify any known or suspected damage to underground utilities to the owner of such utilities.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION (not used)

End of Section

Section 01 42 00
REFERENCES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Abbreviations and Acronyms.
- B. Definitions
- C. Reference Standards.

1.2 ABBREVIATIONS AND ACRONYMS

- A. The following list of common abbreviations are referenced in individual specification sections. This list is provided for convenience to the Construction Manager and is not intended to define all abbreviations use in the Contract Documents.
 - 1. Abbreviations for contract and specifications.

DOE	Massachusetts Department of Education
EPA	United States Environmental Protection Agency
HVAC&R	Heating, ventilating, air conditioning, and refrigeration systems
IAQ	Indoor Air Quality
IEQ	Indoor Environmental Quality
LEED™	United States Green Building Council, <i>Leadership in Energy and Environmental Design Rating System</i>
MEPA	Massachusetts Environmental Protection Agency
MGL	Massachusetts General Laws
MHD	Massachusetts Highway Department (Mass Highway)
MSBA	Massachusetts School Building Authority
MSDS	Material Safety Data Sheet
NIC	Not in Contract
OFCI	Owner Furnished, Construction Manager Installed
OFI	Owner Furnished and Installed
VOC	Volatile Organic Compounds
 - 2. Abbreviations for measurements and quantities.

C	Celsius
cm	Centimeter
F	Fahrenheit
Hrs	Hours
Kg	Kilogram
L	Liter
M	meter
m ² or SM	square meter
m ³ or CM	cubic meter

REFERENCES

mm	Millimeter
Mths	Months
psi	Pounds per square inch
t	ton

1.3 DEFINITIONS

- A. Definitions of contracting parties (Owner, Owner's Project Manager, Construction Manager, and Architect): Refer to Section 01 10 00 – PROJECT SUMMARY.
1. The terms "Filed subcontractor" and "Trade Contractor" as used in the Project Manual have the same meaning and are interchangeable in Contract Documents. Both terms refer to the same entity.
- B. Definitions for terms utilized in the Contract Documents:
1. "As necessary," "as directed," "when directed," "satisfactory," "good and sufficient," "approved," or other general qualifying terms are used on the Drawings: These terms are deemed to be followed by the words, "in the opinion of the Architect," or "by the Architect," as the case may be."
 2. "Addenda": written or graphic instruments issued prior to the execution of the Contract which modify or interpret the Bidding Documents, including the Drawings and Specifications, by additions, deletions, clarifications or corrections.
 3. "Approval," "approved," "approved equal," "or equal," or "other approved" means as approved by the Architect."
 4. The term "Day": is defined as the following:
 - a. The term "calendar day" is a full 24 hour period, starting from 12 AM (midnight), and includes all weekends and legal holidays.
 - b. The term "working day" shall mean any calendar day except Saturdays, Sundays, and legal holidays at the place of the building.
 - c. Where the term "day" is used without the adjective of "calendar" or "working", it shall mean "calendar day".
 5. "Furnish and Install" or "Provide": items identified shall be furnished and installed under this Contract. The term "Furnish", when used separately, shall mean that the items referred to shall be furnished, only. Similarly the term "install", when used separately, shall mean that the items referred to shall be installed, only.
 6. "Knowledge," "recognize" and "discover," their respective derivatives and similar terms in the Contract Documents, as used in reference to the Construction Manager, shall be interpreted to mean that which the Construction Manager knows (or should know), recognizes (or should recognize) and discovers (or should discover) in exercising the care, skill and diligence required by the Contract Documents. Analogously, the expression "reasonably inferable" and similar terms in the Contract Documents shall be interpreted to mean reasonably inferable by the Construction Manager, Trade Construction Manager or subcontractor familiar with the Project and exercising the care, skill and diligence required by the Contract Documents.
 7. "Not in Contract" or "N.I.C.": equipment, furnishings, or other materials not included as a part of this Contract.

REFERENCES

8. "Product": materials, systems and equipment.
- C. Definitions pertaining to sustainable development: As defined in ASTM E 2114 - *Standard Terminology for Sustainability Relative to the Performance of Buildings*, and as specified herein.
1. Biobased Materials: As defined in the Farm Security and Rural Investment Act, for purposes of Federal procurement of biobased products, "biobased" means a "commercial or industrial product (other than food or feed) that is composed, in whole or in significant part, of biological products or renewable domestic agricultural materials (including plant, animal, and marine materials) or forestry materials." Biobased materials also include fuels, chemicals, building materials, or electric power or heat produced from biomass as defined by The Biomass Research and Development Act of 2000.
 - a. Biobased content: The amount of biobased carbon in the material or product as a percentage of weight (mass) of the total organic carbon in the material or product.
 2. Chain-of-Custody: Process whereby a product or material is maintained under the physical possession or control during its entire life cycle.
 3. Deconstruction: Disassembly of buildings for the purpose of recovering materials.
 4. DfE (Design for the Environment): A technique that includes elements of resource conservation and pollution prevention as applied in various product sectors. A technique that incorporates approaches which are part of product (or assembly) concept, need and design. Considerations involve material selection, material and energy efficiency, reuse, maintainability and design for disassembly and recyclability. Refer to ISO Guide 64, and EPA's website at <http://www.epa.gov/dfe/> for additional clarification on Design for the Environment for additional clarification
 5. Environmentally preferable products: Products and services that have a lesser or reduced effect on the environment in comparison to conventional products and services. Refer to EPA's Final Guidance on Environmentally Preferable Purchasing for more information
<<http://www.epa.gov/epp/guidance/finalguidancetoc.htm>>.
 6. Non-Renewable Resource: A resource that exists in a fixed amount that cannot be replenished on a human time scale. Non-renewable resources have the potential for renewal only by geological, physical, and chemical processes taking place over of millions of years. Examples include: iron ore, coal, and oil.
 7. Perpetual Resource: A resource that is virtually inexhaustible on a human time scale. Examples include solar energy, tidal energy, and wind energy.
 8. Recycled Content Materials: Products that contain preconsumer or post-consumer materials as all or part of their feedstock. Recycled content claim shall be consistent with Federal Trade Commission (FTC) Guide for the Use of Environmental Marketing Claims.
 9. Renewable Resource: A resource that is grown, naturally replenished, or cleansed, at a rate which exceeds depletion of the usable supply of that resource. A renewable resource can be exhausted if improperly managed. However, a renewable resource can last indefinitely with proper stewardship. Examples include: trees in forests, grasses in grasslands, and fertile soil.

REFERENCES

1.4 REFERENCE STANDARDS

- A. For products or workmanship specified by association, trade, or Federal Standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by DATE OF ISSUE for Contract Documents, current on date of Owner-Construction Manager Agreement.
- C. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
- D. The contractual relationship to the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

E. Schedule of References

- 1. Listed below are abbreviations for the names and titles of trade association names, federal government agencies and similar organizations which are referenced in the individual specification sections. The addresses and phone numbers provided are for the Construction Manager's convenience and are believed to be current and accurate, however addresses and phone numbers frequently change, and no assurance is made on their accuracy:

AA	Aluminum Association 900 19th Street N.W., Suite 300 Washington, DC 20006 www.aluminum.com
ABAA	Air Barrier Association of America 1600 Boston-Providence Highway Walpole, MA 02081 www.airbarrier.org
AAMA	American Architectural Manufacturer's Association 1827 Walden Office Sq., Suite 104 Schaumburg, IL 60173-4268 www.aamanet.org
AASHTO	American Assoc. of State Highway & Transportation Officials 444 N. Capitol Street NW, Suite 249 Washington, DC 20001 www.aashto.org
AATCC	American Association of Textile Chemists and Colorists PO Box 12215, 1 Davis Drive, Research Triangle Park, NC 27709-2215 www.aatcc.org
ACI	American Concrete Institute, International 38800 Country Club Drive, Farmington Hills, Michigan 48331 www.aci-int.org
ACPA	American Concrete Pipe Association 222 West Las Colinas Boulevard, Suite 641, Irving TX www.concrete-pipe.org
ADC	Air Diffusion Council 104 S. Michigan Ave, Suite 1500, Chicago, IL 60603 www.flexibleduct.org
AFPA	American Forest & Paper Association (Formerly NFPA National Forest Products Association) 1111 19 th St. N.W., Suite 800, Washington, DC 20036 www.afandpa.org
AGAI	American Galvanizers Association Inc. 12200 E.Lliff Ave, Suite 204, Aurora, CO 80014-1252

REFERENCES

	www.galvanizeit.org
AIA	American Institute of Architects 1735 New York Avenue, N.W., Washington, DC 20006-5292 www.aia.org
AIHA	American Industrial Hygiene Association 2700 Prosperity Ave, Suite 250, Fairfax VA 22031 www.aiha.org
AISC	American Institute of Steel Construction 1 E. Wacker Dr., Suite 3100, Chicago, IL 60601-2001 www.aisc.org
AMCA	Air Movement and Control Association 30 W. University Drive, Arlington Heights, IL 60004-1893 www.amca.org
ANSI	American National Standards Institute 11 W. 42 nd Street, 13 Floor, New York, NY 10036 www.ansi.org
APA	APA - The Engineered Wood Association (formerly APA - American Plywood Association) P.O. Box 11700, Tacoma, WA 98411-0070 www.apawood.org
ARI	Air-Conditioning and Refrigeration Institute 4301 N. Fairfax Dr., Suite 425, Arlington, VA 22203 www.ari.org
ARMA	Asphalt Roofing Manufacturers Association 6000 Executive Blvd., Suite 201, Rockville, MD 20852-3803 www.asphaultroofing.org
ASCA	Architectural Spray Coaters Association 230 West Wells Street, Suite 311, Milwaukee WI 53203 www.aecinfo.com
ASCE	American Society of Civil Engineers 1015 15 th St. N.W., Washington, DC 20005 www.asce.org
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers 1791 Tullie Circle NE, Atlanta GA.30329 www.ashrae.org
ASME	American Society of Mechanical Engineers 345 East 47th Street, New York, NY 10017-2392 www.asme.org
ASTM	American Society for Testing and Materials 100 Barr Harbor Drive, West Conshohocken, PA 19428 www.astm.org
AWI	Architectural Woodwork Institute 1952 Isaac Newton Square W., Reston, VA 20190 www.awinet.org
AWPA	American Wood Preservers' Association P.O. Box 286, Woodstock, MD 21163-0286 www.awpa.com
AWPI	American Wood Preservers' Institution 1945 Old Gallows Rd., Suite 150, Vienna, VA 22182 www.oas.org
AWS	American Welding Society

REFERENCES

	550 LeJeune Road, N.W., Miami, FL 33126 www.aws.org
BHMA	Builders Hardware Manufacturers Association, Inc. 355 Lexington Ave., 17 Floor New York, NY 10017 www.buildershardware.com
BIA	Brick Industry Association 11490 Commerce Park Drive, Reston, VA 22091-1525 www.bia.org
CDA	Copper Development Association 260 Madison Ave., 16 th Floor, New York, NY 10016 www.copper.org
CISCA	Ceilings & Interior Systems Construction Association 579 W. North Ave., Suite 301, Elmhurst, IL 60126 www.cisca.org
CRI	Carpet and Rug Institute 310 Holiday Ave, Dalton, GA 30720 www.carpet-rug.com
CRSI	Concrete Reinforcing Steel Institute 933 N. Plum Grove Road, Schaumburg, IL 60173-4758 www.crsi.org
DHI	Door and Hardware Institute 14170 Newbrook Dr., Chantilly, VA 22021-2223 www.dhi.org
FM	Factory Mutual Engineering & Research Corp. 1151 Boston-Providence Turnpike Norwood, MA 02062 www.fmglobal.com
FSC	Forest Stewardship Council (United States Chapter) 1155 30th Street NW, Suite 300, Washington, DC 20007 www.c-f-c.com
GA	Gypsum Association 6525 Belcrest Road, Suite 480, Hyattsville, MD 20782 www.gypsum.org
GANA	Glass Association of North America 2945 S.W. Wanamaker Dr., Suite A, Topeka, KS 66612-5321 www.glass.org
GICC	Glazing Industry Code Committee 3310 Harrison St., Topeka, KS 66611-2279 www.glazingcodes.net
IGCC	Insulating Glass Certification Council 3933 US Route 11, PO Box 2040, Cortland, NY 13045 www.igcc.org
IPCI	International Polished Concrete Institute Norris TN www.ipcaonline.org
LSGA	Laminators Safety Glass Association 3310 Harrison Street, Topeka KS 66611-2279 www.glass.org
MCAA	Mason Contractors Association of America 1910 S. Highland Ave. Suite 101, Lombard, IL 60148 www.masoncontractors.org
MFMA	Maple Flooring Manufacturers Association

REFERENCES

	60 Revere Drive, Suite 500, Northbrook, IL 60062 www.maplefloor.org
MIL	Military Specifications and Standards Naval Publications and Forms Center 5801 Tabor Avenue, Philadelphia, PA 19120 www.milspec.com
NAAMM	National Association of Architectural Metal Manufacturers 8 South Michigan Avenue, Suite 1000, Chicago, IL 60603 www.naamm.org
NCMA	National Concrete Masonry Association 2302 Horse Pen Road, Herndon, VA 20171-3499 www.ncma.org
NEBB	National Environmental Balancing Bureau 8575 Government Circle, Gaithersburg, MD 20877-4121 www.nebb.org
NEMA	National Electrical Manufacturers' Association 1300 N. 17 th St., Suite 1846, Rosslyn, VA 22209 www.nema.org
NFPA	National Fire Protection Association 1 Battery March Park, PO Box 9101, Quincy, MA 02269 www.nfpa.org
NFSHA	National Federation of State High School Associations PO Box 20626, Kansas City MO. 64195 www.nfhs.org
NRCA	National Roofing Contractors Association O'Hare International Center 10255 W. Higgins Road, Suite 600, Rosemont, IL 60018-5607 www.nrca.net
PCA	Portland Cement Association 5420 Old Orchard Road, Skokie, IL 60077-1083 www.cement.org
PEI	Porcelain Enamel Institute 4004 Hillsboro Pike, Suite 224B, Nashville, TN 37215 www.porcelainenamel.com
PS	Product Standard U. S. Department of Commerce www.omg.org
SDI	Steel Deck Institute P.O. Box 25, Fox River Grove, IL 60021-0025 www.sdi.org
SDI	Steel Door Institute 30200 Detroit Road, Cleveland, OH 44145-1967 www.steeldoor.org
SGCC	Safety Glass Certification Council RMS, P.O. Box 9 Henderson Harbor, NY 13651 www.sgcc.org
SIGMA	Sealed Insulating Glass Manufacturers Association 401 N. Michigan Ave., Suite 2400, Chicago, IL 60611 www.glasschange.com
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association 4201 Lafayette Center Dr., Chantilly, VA 22022-1209 www.smacnapa.org

REFERENCES

SPIB	Southern Pine Inspection Bureau 4709 Scenic Highway, Pensacola, FL 32504-9094 www.spib.org
SSMA	Steel Stud Manufacturer's Association 8 South Michigan Avenue, Chicago IL 60603 www.ssma.com
SSPC	The Society for Protective Coatings 40 24 th Street, 6 th Floor, Pittsburgh PA 15222-4623 www.sspc.org
SWRI	Sealant, Waterproofing & Restoration Institute 2841 Main Street, Suite 585, Kansas City, MO 64108 www.swrionline.org
TCNA	Tile Council of North America, Inc. 100 Clemson Research Blvd., Anderson, SC 29625 www.tileusa.com (formerly TCA, Tile Council of America)
UL	Underwriters' Laboratories, Inc. 333 Pfingston Road, Northbrook, IL 60602 www.ul.com
USGBC	United States Green Building Council 1800 Massachusetts Avenue NW, Suite 300 Washington DC 20036 www.usgbc.org
WDMA	Window & Door Manufacturers Association (formerly National Wood Window & Door Association, NWWDA) 205 E. Touhy Avenue, Suite G-54, Des Plaines, IL 60018 www.nwwda.org

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

Section 01 43 39
MOCK-UPS

PART 1 - GENERAL

1.1 SUMMARY

- A. Mockup requirements. Mock-ups are required for, but not limited to the following:
 - 1. On-site exterior wall section sample panel. Mock up panel; will be subject to testing under Section 01 45 29 – TESTING LABORATORY SERVICES.
 - 2. Typical classroom mock-up.
 - 3. Additional site mock-ups as specified in individual sections.
- B. All mock-ups specified herein, under other Sections of the Specifications, and shown on drawings will be reviewed and approved by the Architect and Owner. Unaccepted mock-ups shall be replaced or reconstructed in part or in total and the extent of the replacement or reconstruction shall be at the discretion of the Architect and Owner. The Construction Manager shall carry forth mock-up replacement or reconstruction until Architect's acceptance is obtained. Mock-up costs, including as many replacements or reconstruction as necessary to gain Architect's acceptance, shall be included in the Contract Cost and Schedule.

1.2 RELATED REQUIREMENTS

- A. Section 01 81 13 - SUSTAINABLE DESIGN REQUIREMENTS: Special administrative and procedure requirements related to the Owner's *LEED v4, LEED for Building Design and Construction, LEED BD+C: Schools* rating system certificate goals of energy conservation and efficiency, indoor air quality, and natural resource efficiency.
- B. Section 01 60 00 - PRODUCT REQUIREMENTS: Listing of VOC requirements for adhesives, cleaning/maintenance materials, paints, coatings, and sealants.
- C. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.
- D. Section 01 45 00 - QUALITY CONTROL.
- E. Section 01 45 29 – TESTING LABORATORY SERVICES.
- F. Section 01 91 13 –COMMISSIONING REQUIREMENTS.
- G. Section 03 30 00 - CAST-IN-PLACE CONCRETE.
- H. Section 04 20 00 - UNIT MASONRY.
- I. Section 04 73 13 - CALCIUM SILICATE MANUFACTURED STONE MASONRY UNITS.
- J. Section 05 12 00 – STRUCTURAL STEEL.
- K. Section 05 40 00 - COLD-FORMED METAL FRAMING.
- L. Section 05 50 00 – METAL FABRICATIONS.
- M. Section 06 00 00 – ROUGH CARPENTRY.

- N. Section 06 16 00 - SHEATHING.
- O. Section 07 11 13 - BITUMINOUS DAMPPROOFING.
- P. Section 07 21 00 - THERMAL INSULATION.
- Q. Section 07 26 00 - VAPOR RETARDERS.
- R. Section 07 27 13 - MEMBRANE AIR BARRIERS.
- S. Section 07 42 43 - COMPOSITE WALL PANELS.
- T. Section 07 46 46 - FIBER CEMENT SIDING.
- U. Section 07 54 19 - POLYVINYL CHLORIDE (PVC) ROOFING.
- V. Section 07 61 20 - FIELD-FORMED METAL ROOFING AND CLADDING.
- W. Section 07 62 00 - SHEET METAL FLASHING AND TRIM.
- X. Section 07 71 00 - ROOF SPECIALTIES.
- Y. Section 07 81 00 – APPLIED FIREPROOFING.
- Z. Section 07 92 00 - JOINT SEALERS.
- AA. Section 08 11 13 - HOLLOW METAL DOORS AND FRAMES.
- BB. Section 08 43 13 - ALUMINUM-FRAMED STOREFRONTS.
- CC. Section 08 44 13 - GLAZED ALUMINUM CURTAIN WALLS
- DD. Section 08 45 13 - FIBERGLASS SANDWICH PANEL ASSEMBLIES.
- EE. Section 08 51 13 - ALUMINUM WINDOWS.

1.3 SUBMITTALS

- A. Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
 - 1. Submit shop drawing of mockup indicating sizes, finishes and method of construction and installation of each component

1.4 GENERAL

- A. Where requested by Architect, or as specified in individual specification sections, assemble and erect specified items, with specified attachment and anchorage devices, flashings, seals, and finishes. Remove mock-up assemblies prior to date of Final Inspection, or as directed.
- B. Mock-ups, when approved by the Architect, will be used as datum for comparison with the remainder of the Work for the purposes of acceptance or rejection. Maintain mockup throughout construction period until Substantial Completion or as otherwise directed by Architect.

1. Finishes, colors and textures of components shall be as specified for each component and shall be selected by the Architect.
- C. Demolish and remove from site prior to requesting inspection for certification of Substantial Completion, all Mock-ups which are not permitted to remain as part of the finished work.

1.5 COORDINATION

- A. Coordinate work of trades and schedule elements to expedite the fabricating, furnishing, and installation of multiple component mock-ups specified herein, in other Sections of the Specifications, and as shown in the Contract Documents.

PART 2 - PRODUCTS

2.1 EXTERIOR WALL SECTION MOCK-UP

- A. Mockup Unit: Shall consist of one full size facsimile exterior wall section, using specified products as noted below. Mock-up shall be size and configuration as indicated on the Drawings.
 1. General description: Mockup unit shall include exterior masonry construction, with light gage steel stud framing backup and sheathing assembly as well as concrete masonry unit backup. Mockup shall include all components specified and indicated which are typical to the exterior wall construction and additional components specified herein.
 - a. Fabricate mockup unit with face brick, calcium silicate stone masonry, fiber cement siding, composite panels as specified. Use selected masonry mortar and backup consisting of 8 inch metal studs, sheathing with specified anchors.
 - 1) Provide additional metal stud framing and cross bracing required for construction of various components of the mockup panel.
 - 2) Provide concealed various wood blocking, edgings, nailers, curbs, and cants required for receipt of various finishes and surfacing materials.
 - b. Fabricate aluminum window unit with glazing.
 - c. Include into mockup assembly all flashing, joint sealers, and all finish trim and accessories necessary to show typical completed construction.
 - d. Mock up shall include typical roof construction and all associated components.
 2. Finishes, colors and textures of components shall be as specified for each component and shall be selected by the Architect.
 - a. Provide window unit with specified insulated glazing.
- B. Components to be included in the mockup include, but are not limited to:
 1. Section 03 30 00 - CAST-IN-PLACE CONCRETE.
 - a. Provide a concrete foundation wall to a depth required to support wall mockup.
 - b. Provide dampproofing at concrete as specified in Section 07 11 13 - BITUMINOUS DAMPPROOFING.

2. Section 04 20 00 - UNIT MASONRY.
 - a. Provide type of brick and colored mortar specified, installed over wall panel backup with specified anchorage devices.
 - b. Provide face brick in bond pattern, mortar color, and joint type to be used in the Work.
3. Section 04 73 13 - CALCIUM SILICATE MANUFACTURED STONE MASONRY UNITS.
 - a. Provide type of masonry units and colored mortar specified, installed over wall panel backup with specified anchorage devices.
 - b. Provide masonry units in bond pattern, mortar color, and joint type to be used in the Work.
4. Section 05 12 00 – STRUCTURAL STEEL.
 - a. Support framing and typical building framing for mock-up conditions.
 - b. Provide applied fireproofing at structural steel as specified in Section 07 81 00 – APPLIED FIREPROOFING to confirm tolerances at actual locations.
5. Section 05 40 00 - COLD-FORMED METAL FRAMING:
 - a. Provide cold formed metal stud framing with bracing for construction and support of the mockup panel.
6. Section 05 50 00 – METAL FABRICATIONS.
 - a. Provide galvanized steel lintels for openings in the mockup panel.
7. Section 06 10 00 – ROUGH CARPENTRY:
 - a. Provide wood blocking at typical locations as part of mockup.
8. Section 06 16 00 - SHEATHING:
 - a. Install sheathing board, on both sides of metal stud framing, with taped joints and metal and membrane flashing.
9. Section 07 21 00 - THERMAL INSULATION:
 - a. Provide insulation over sheathing and masonry backup.
10. Section 07 26 00 - VAPOR RETARDERS:
 - a. Provide under slab vapor barrier as part of mock up assembly.
11. Section 07 27 13 - MEMBRANE AIR BARRIERS:
 - a. Provide air barrier over sheathing and masonry back-up including typical flashing conditions and transitional tie-ins to windows, storefront and curtain wall.
12. Section 07 42 43 –COMPOSITE WALL PANELS:
 - a. Install composite wall panel over metal stud framing, with membrane flashing.
13. Section 07 46 46 - FIBER CEMENT SIDING:
 - a. Provide typical mineral fiber cement siding and trim elements as part of mock up panel showing interface with adjacent materials.
14. Section 07 54 19 - POLYVINYL CHLORIDE (PVC) ROOFING:
 - a. Provide standard roof construction with interfacing conditions at masonry wall construction including roof edge.
15. Section 07 61 20 - FIELD-FORMED METAL ROOFING AND CLADDING:

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- a. Provide field formed metal roof and cladding construction with interfacing conditions.
16. Section 07 62 00 - SHEET METAL FLASHING AND TRIM:
- a. Provide typical metal flashing built into masonry construction.
17. Section 07 71 00 - ROOF SPECIALTIES:
- a. Provide typical roof edge built into masonry and roof construction.
18. Section 07 92 00 - JOINT SEALERS:
- a. Provide joint sealant at perimeter of all components. Colors shall be selected by the Architect.
19. Section 08 11 13 – HOLLOW METAL DOORS AND FRAMES:
- a. Provide exterior door construction in mock up construction.
20. Section 08 43 13 - ALUMINUM-FRAMED STOREFRONTS: Provide fixed glass type storefront assembly and door, matching indicated profiles and dimensions exactly.
- a. Fabricate with removable stop for installation of glass.
 - b. Storefront to be enamel shop finished to match selected PVDF finish specified for aluminum windows, matching color and sheen.
 - c. Mock-up shall pass testing requirements specified in Section 01 45 29 – TESTING LABORATORY SERVICES before the Metal Window Trade Contractor shall be allowed to proceed with the work.
21. Section 08 44 13 - GLAZED ALUMINUM CURTAIN WALLS: Provide aluminum curtain wall matching indicated profiles and dimensions exactly.
- a. Fabricate with removable stop for installation of glass.
 - b. Curtain wall to be enamel shop finished to match selected PVDF finish specified for aluminum windows, matching color and sheen.
 - c. Mock-up shall pass testing requirements specified in Section 01 45 29 – TESTING LABORATORY SERVICES before the Metal Window Trade Contractor shall be allowed to proceed with the work.
22. Section 08 45 13 - FIBERGLASS SANDWICH PANEL ASSEMBLIES: Provide fiberglass sandwich panels matching indicated profiles and dimensions exactly.
- a. Mock-up shall pass testing requirements specified in Section 01 45 29 – TESTING LABORATORY SERVICES before the Metal Window Trade Contractor shall be allowed to proceed with the work.
23. Section 08 51 13 - ALUMINUM WINDOWS: Provide fixed glass type aluminum windows, matching indicated window unit profiles and dimensions exactly.
- a. Fabricate with removable stop for installation of glass.
 - b. Window to be enamel shop finished to match selected PVDF finish specified for aluminum windows, matching color and sheen.
 - c. Provide specified insulated glass into windows, storefront and curtain wall.
 - d. Mock-up shall pass testing requirements specified in Section 01 45 29 – TESTING LABORATORY SERVICES before the Metal Window Trade Contractor shall be allowed to proceed with the work.
-

2.2 TYPICAL CLASSROOM MOCK-UP

- A. Mockup Unit: Shall consist of one entire classroom with all materials, finishes and appurtenances in place including building systems. Mock-up shall be size and configuration as indicated on the Drawings.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Construct mock-ups at locations indicated or, if not indicated, at locations directed by the Architect.
- B. Construct mockup in time to make product and/or assembly modifications without delaying production work.
- C. Construction of components on building correlating with mock-up wall shall not commence until mock-up wall has been fully accepted by Owner and Architect.

3.2 INSTALLATION

- A. Construct mockup to duplicate actual job conditions.
 - 1. Locate at an area on site as directed by the Architect.
 - 2. Provide foundations, bases, supports and braces adequate to make mockup stable and safe.
- B. Provide weather protection for materials in mockups that are not exposed to weather in intended service.

3.3 REMOVAL

- A. Retain mock-ups during construction as a standard for judging completed work until time designated by the Architect and the Owner,
 - 1. Completely demolish and remove mockups from the job site at time designated by Architect.
 - 2. Accepted mock-ups (which are specifically identified by the Architect to become part of the work) may be incorporated into the work provided they are not damaged during subsequent construction.

End of Section

Section 01 45 00
QUALITY CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. General quality assurance and control of installation.
- B. Site safety, worker safety and training.
- C. Construction Manager's quality control (QC) program.
- D. Source quality control.
- E. Field samples and mock-ups.
- F. Manufacturer's field services and reports.
- G. Field quality control, Owner's right for confirmation.

1.2 RELATED REQUIREMENTS

- A. Section 01 33 29 - SUSTAINABLE DESIGN REPORTING: Special administrative and procedure requirements related to the Owner's *LEED v4, LEED for Building Design and Construction, LEED BD+C: Schools* rating system certificate goals of energy conservation and efficiency, indoor air quality, and natural resource efficiency.
- B. Section 01 60 00 - PRODUCT REQUIREMENTS: Listing of VOC requirements for adhesives, cleaning/maintenance materials, paints, coatings, and sealants.
- C. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.
- D. Section 01 43 39 - MOCK-UPS.
- E. Section 01 45 29 - TESTING LABORATORY SERVICES.

1.3 GENERAL QUALITY ASSURANCE AND CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply fully with manufacturers' instructions, including performance of each step in sequence. Notify Architect when manufacturers' instructions conflict with the provisions and requirements of the Contract Documents; obtain clarification before proceeding with the work affected by the conflict.
- C. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate high standards or more precise workmanship.
- D. Perform work by persons qualified to produce workmanship of specified quality.

- E. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.4 SITE SAFETY, WORKER SAFETY AND TRAINING

- A. General: The Construction Manager (and his subcontractors and Trade Contractors) shall, at all times, exercise reasonable precautions for the safety of all persons. All rules, regulations, and laws concerning safety that are in effect at the work site, and in particular, all applicable regulations of the Occupational Safety and Health Administration (OSHA) of the U.S. Government, in addition to specified requirements shall be complied with in all respects.
 - 1. Construction Manager's responsibility for safety shall apply continuously twenty four (24) hours per Day during the term of this Contract and is not limited to normal working hours.
- B. Construction Manager's Safety Program: Prior to commencement of the Work, the Construction Manager shall develop and implement a Safety and Health Plan to comply with the Occupational Safety and Health Administration (OSHA) standards for the Construction Industry and all other applicable Federal, State, local laws and regulations. Construction Manager's Safety and Health Plan, and included health and safety procedures and policies, shall be submitted to the Architect and Owner's Representative within fifteen (15) Days after the date of Notice to Proceed and in no event later than commencement of the Work, whichever occurs first.
 - 1. Perform pre planning to ensure access is provided to Fire Department for all areas of the work site throughout the duration of the Contract. The Construction Manager's shall provide the Fire Department site access maps, updated regularly, to reflect changes in the layout of the work site and shall notify the Fire Department when each update is made
 - 2. Post and maintain, at prominent locations throughout the Project site, emergency telephone numbers and shall insure that all personnel on site are continuously aware of this information.
 - 3. Ensure safe access to the Work for the Owner, Architect, Architect's consultants, their designated representatives, and all others charged with inspection, testing and monitoring of the Work, and visitors to the site. The Construction Manager's shall furnish site visitors with safety equipment, test equipment, safety apparel and instructions that are required to insure their safety on site, and In the performance of their duties related to the Work of this Contract
- C. All employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration (OSHA) that is at least 10 hours in duration. The OSHA training and certification course shall occur at the time each employee begins work. Furnish documentation to Owner and Architect, for each employee documenting successful completion of the OSHA safety training and certification course. Submit with the first certified payroll report. Comply fully with all laws and regulations applicable to awards made subject to Massachusetts General Laws (MGL) Chapter 149, Section 44A.

1.5 CONSTRUCTION MANAGER'S QUALITY CONTROL PROGRAM

- A. Procedures: Construction Manager, Trade Contractors and each subcontractor shall include all labor, materials, equipment, services and incidental items necessary to implement quality control procedures to the extent necessary to demonstrate and maintain compliance with the Contract Documents.
- B. It is recognized that the Construction Manager maintains standing written procedures as a corporation for the assurance of quality in finished projects. The Architect and Owner shall review and approve such corporate QA/QC program; review will be against the guidance provided by the following paragraphs and approval may be conditioned with requirements to expand specific sections to meet specific requirements of the Owner and/or the Owner's funders.
- C. Quality Control Plan: Within 20 days after Notice to Proceed, the Construction Manager shall submit a Quality Control (QC) Plan to the Owner's Representative and Architect for approval. The plan shall address the following, as a minimum:
 - 1. The Construction Manager's commitment to quality and implementing and managing the QC program.
 - 2. Identification of the Construction Manager's onsite QC Manager, with name, qualifications, duties and responsibilities. The QC Manager shall have the authority to direct the removal and replacement of non-conforming work. The QC Manager shall be present for all QC meetings, inspections and tests during the project.
 - 3. Procedures for addressing and commenting QC with Construction Manager's staff, all Trade Contractors, subcontractors and suppliers, and Owner, Architect and Owner's representative.
 - 4. Procedures for review of submittals and submittal status, and documentation of same.
 - 5. Procedures for pre-installation meetings and documentation of same.
 - 6. Procedures for inspections of deliveries and documentation of same.
 - 7. Procedures for benchmark inspections, defined as initial installations, and documentation of same.
 - 8. Procedures for mockup inspections and documentation of same.
 - 9. Procedures for equipment in place, inspections and documentation of same.
 - 10. Procedures for inspections prior to closures of concealment and documentation of same.
 - 11. Procedures for start-up and commissioning and documentation of same.
 - 12. Procedures for turnover and documentation of same.
 - 13. Procedures for identifying, recording, tracking correcting and reporting items requiring rework, using a Rolling Completion list chronological item number, phase area, date listed, description, party responsible for correction, date notified, and date corrected.
 - 14. Procedures for testing and documentation of same.
 - 15. Procedures for corrective action on Architect's Field Reports and Testing Agency reports and documentation of same.
- D. Procedures for reporting on all of the above on a monthly basis as a condition precedent to review of the Construction Manager's application for payment.

1.6 SOURCE QUALITY CONTROL

- A. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- B. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Product Labeling: Attach label from agency approved by authority having jurisdiction for products, assemblies, and systems required to be labeled by applicable code(s).
 - 1. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label.
 - a. Model number.
 - b. Serial number.
 - c. Performance characteristics.

1.7 FIELD SAMPLES

- A. Install field samples demonstrating quality level for the Work, at the site as required by individual specifications Sections for review and acceptance by Architect. Remove field samples prior to date of Final Inspection, or as directed.

1.8 MOCK-UPS

- A. Comply with requirements of Section 01 43 39 - MOCK-UPS.

1.9 MANUFACTURER'S FIELD SERVICES AND REPORTS

- A. When called for by individual Specification Sections, provide at no additional cost to the Owner, manufacturers' or product suppliers' qualified staff personnel, to observe site conditions, start-up of equipment, adjusting and balancing of equipment, conditions of surfaces and installation, quality of workmanship, and as specified under the various Sections.
 - 1. Individuals shall report all observations, site decisions, and instructions given to applicators or installers. Immediately notify Architect of any circumstances which are supplemental, or contrary to, manufacturer's written instructions.
 - 2. Submit full report within 30 calendar days from observed site conditions to Architect for review.

1.10 FIELD QUALITY CONTROL

- A. The Owner reserves the right to take samples and perform, at random, tests of approved materials delivered to the job site to verify compliance of actual materials with specifications.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

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Section 01 45 29
TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section consists of the following:
 - 1. Quality assurance.
 - 2. Laboratory responsibilities.
 - 3. Laboratory reports.
 - 4. Limits on testing laboratory authority.
 - 5. Construction Manager responsibilities.
 - 6. Construction Manager submittals.
 - 7. Schedule of inspections and tests.
 - 8. Concrete in situ relative humidity, calcium chloride and acidity/alkalinity testing.

1.2 REFERENCES

- A. Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.
 - 1. ANSI/ASTM D 3740 - Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock
 - 2. ANSI/ASTM E 329 - Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.
 - 3. ASTM F 1869 – Standard Test Method for Measuring Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
 - 4. ASTM F 2170 – Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In-Situ Probes
 - 5. ASTM F 710 – Standard Practice for Preparing Concrete Floors and Other Monolithic Floors to Receive Resilient Flooring.

1.3 QUALITY ASSURANCE

- A. Comply with requirements of ANSI/ASTM D 3740 and ANSI/ASTM E 329.
- B. Laboratory: Authorized to operate in state in which Project is located.
- C. Laboratory staff: Maintain a full time specialist on staff to review services. Provide registered Engineer on staff for all review of services related to structural testing.
- D. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to either the National Bureau of Standards (NBS) Standards or accepted values of natural physical constraints.

1.4 LABORATORY RESPONSIBILITIES

- A. Cooperate with Architect and Construction Manager in performance of services; provide qualified personnel promptly on notice.
 - 1. Attend preconstruction conferences and progress meetings, as requested.
- B. Acquaint Owner's Project Manager, Architect, and Construction Manager's superintendent with testing procedures and with all special conditions encountered at the site.
- C. Perform specified Inspection, sampling, and testing of products and construction methods in accordance with specified standards as specified in individual technical specification sections:
 - 1. Comply with specified standards, ASTM, ANSI, and other recognized authorities.
 - 2. Conduct and interpret the tests and state in each report whether the test specimens comply with the requirements, and specifically state any deviations therefrom.
 - 3. Obtain Construction Manager's written acknowledgment of each inspection, sampling, and test made. Test samples of mixes submitted by Construction Manager.
 - 4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
- D. Promptly notify Architect and Construction Manager of irregularities, deficiencies, or non-conformance of Work or Products which are observed during performance of services.
- E. Promptly submit written report of each test and inspection with one copy each to Architect, Owner's Project Manager, Construction Manager, and one copy to Project Record Documents File.
- F. Perform additional inspections and tests required by Architect/Engineer.

1.5 LABORATORY REPORTS

- A. After each test, promptly distribute directly from the testing laboratory, copies of laboratory report to:
 - 1. Owner's Project Manager.
 - 2. Architect's office.
 - 3. Consulting engineer's office.
 - 4. Construction Manager's office.
 - 5. Municipal Inspectional Services Department, if required.
- B. Include in report the following information:
 - 1. Date issued,
 - 2. Project title and number,
 - 3. Testing laboratory name, address, and telephone number.
 - 4. Name and signature of laboratory inspector.

5. Date and time of sampling,
6. Record of temperature and weather conditions (as appropriate to test).
7. Identification of product and Specifications Section,
8. Location of sample or test in the Project.
9. Type of inspection or test.
10. Results of tests and compliance with Contract Documents.
11. Interpretation of test results, when requested by Architect.
12. Observations regarding compliance with Contract Documents

1.6 LIMITS ON TESTING LABORATORY AUTHORITY

- A. Laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
- B. Laboratory may not approve or accept any portion of Work.
- C. Laboratory may not assume any duties for Construction Manager.
- D. Laboratory has no authority to stop the Work.

1.7 CONSTRUCTION MANAGER RESPONSIBILITIES

- A. Coordinate and cooperate with laboratory personnel, provide access to Work, and to manufacturer's facilities.
 1. Monitor each inspection, sampling, and test.
 2. Provide Laboratory or Agency with written -acknowledgment of each Inspection, sampling, and test.
 3. Within 24 hours notify Architect and Owner in writing of reasons for not acknowledging Laboratory results.
- B. Secure and deliver to the Laboratory or designated location, adequate quantities of representational samples of materials proposed to be used and which require testing, along with proposed mix designs.
- C. Furnish incidental labor and facilities:
 1. To provide access to Work to be tested.
 2. To obtain and handle samples at the Project site or at the source of the Product to be tested.
 3. To facilitate inspections and tests.
 4. For storage and curing of test samples.
- D. Furnish verification of materials and equipment compliance with Contract Documents.
- E. Notify Architect and laboratory 24 hours prior to expected time for operations requiring inspection and testing services.
- F. Identify materials to be tested or inspected by Testing Laboratory or Agency.

- G. After determination of need for testing or inspecting by Owner, notify Laboratory sufficiently in advance, minimum five days, of operations to allow for its assignment of personnel and scheduling of tests.
 - 1. When tests or inspections cannot be performed after such notice, reimburse Owner for laboratory personnel and travel expenses incurred due to Construction Managers negligence.
- H. Make arrangements with laboratory and pay for additional samples and tests required for the following conditions:
 - 1. Initial testing indicates Work does not comply with Contract Documents.
 - 2. Construction Manager requested testing for additional testing and laboratory services beyond specified requirements.

1.8 CONDUCT OF INSPECTIONS AND TESTS

- A. The Construction Manager shall notify the Owner's Project Manager, Architect, and Testing Laboratory a minimum of 72 hours before the performance of work to permit the proper conduct of Owner authorized inspections and tests.
- B. Representatives of Testing Laboratory will inspect the manufacture, assembly, and placement of materials as required and as authorized by the Owner, and report their findings to the Architect, Owner's Project Manager, and Construction Manager.
- C. Work shall be checked as it progresses, but failure to detect any defective work or materials shall in no way prevent later rejection when such defect is discovered nor shall it obligate the Owner to accept such work.

1.9 SCHEDULE OF TESTING AND LABORATORIES BY OWNER

- A. Except as otherwise specified, Owner will appoint, employ, and pay services of independent firm(s) to perform inspection and testing and other services specified herein, in individual specification Sections, and as additionally required by the Architect.
- B. Requirements for testing, observations, and inspections are described in individual specification sections; the schedule provided below is not intended to completely describe all of the inspection and testing Work required for this Contract, and is only furnished as a guide.
 - 1. Section 03 30 00 - Cast-in-Place Concrete: Concrete test cylinders
 - 2. Section 04 20 00 - Unit Masonry: One day per week observation of masonry installation. grout, mortar and prism testing.
 - a. Three cylinders tested for compressive strength at 10 days; ASTM C 91 test.
 - b. Obtain sample face brick units (minimum 4) and test for conformance to ASTM C 67.
 - 3. Section 05 12 00 - Structural Steel Framing: Testing of welds of field and shop fabricated components. Testing of bolting.
 - a. Bolt torque testing.
 - b. Welding X-ray and ultrasonic tests as specified.

- c. Coating thickness of primer coats.
 - 4. Section 05 31 00 - Steel Decking: Periodic inspection of steel decking installation prior to concrete placement.
 - 5. Section 07 13 53 - Elastomeric Sheet Waterproofing: Minimum three (3) visual inspections of waterproofing installations.
 - 6. Section 07 26 00 - Vapor Retarders: Minimum three (3) visual inspections of underslab vapor barrier installation
 - 7. Section 07 81 00 - Fireproofing: Testing and certification of density, thickness and adhesion of installation.
 - 8. Section 07 92 00 - Joint Sealants: Chemical analysis; adhesive strength; compatibility with adjacent materials; elasticity.
 - 9. Section 09 91 00 - Painting: Chemical analysis; coating thickness
- C. Concrete slabs and floors: Relative Humidity, Moisture Vapor Emission and acidity/alkalinity (pH)Testing:
- 1. Owner will employ and pay for services of an independent testing laboratory to perform relative humidity, moisture vapor emission, and pH tests on concrete slabs as follows. The test shall be witnessed by the Construction Manager, flooring Trade Contractors, subcontractors and Owner's Project Manager.
 - a. Relative Humidity, Moisture Vapor Emission and pH Testing on all concrete slabs over-which a finished floor is to be installed. This includes, but is not limited to:
 - 1) Wood flooring of all types.
 - 2) Resilient flooring of all types.
 - 3) Resinous flooring and seamless flooring of all types.
 - 4) Carpet and carpet tile.
 - 5) Concrete sealers.
 - b. Perform moisture and pH tests on all concrete floors over-which stone flooring is to be applied.
 - 2. Requirements: As specified under Part 3 of this Section.
 - a. Submit 1 copy of test data to the installers of all flooring materials or coating materials scheduled to be installed.
 - b. Provide additional testing in the event test results indicate higher moisture content than recommended by the flooring material and coating material manufacturers for the installation of their products. Perform such additional testing, at no additional cost to the Owner, after procedures have been performed to reduce moisture content to ratings acceptable to the various flooring and coating manufacturers.
- D. Special Tests and Inspections: Owner will engage a testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner.
- 1. Testing agency will notify Architect, Owner's Project Manager, and Construction Manager promptly of irregularities and deficiencies observed in the Work during performance of its services.

2. Testing agency will submit a certified written report of each test, inspection, and similar quality-control service to Architect, through Construction Manager, with copy to Owner's Project Manager and to authorities having jurisdiction.
3. Testing agency will submit a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
4. Testing agency will interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
5. Testing agency will retest and re-inspect corrected work.

1.10 SCHEDULE OF TESTING AND LABORATORIES BY CONSTRUCTION MANAGER

- A. Construction Manager shall employ and pay for services of an approved independent testing laboratory to perform inspection and testing specified under this Article and as additionally in individual specification sections
 1. Submit to Architect/Engineer a minimum of three independent testing laboratories for each type of testing specified by individual specification sections and those required by the referenced applicable codes, regulations and standards.
 2. Employment of testing laboratory shall in no way relieve Construction Manager of obligation to perform work in accordance with requirements of Contract Documents.
- B. Earthwork: Lab tests to determine suitability of all fill materials shall be paid for by Construction Manager.
 1. Owner reserves the right to retain and pay for his own testing for checking purposes
- C. Concrete Paving and General Concrete Work: Concrete mix design testing shall be paid for by Construction Manager. Owner reserves the right to retain and pay for his own testing for checking purposes.
- D. Moisture content testing of interior and exterior wood prior to application of field painted coatings.
- E. Local Authority Inspections: The Construction Manager is also responsible for coordinating and cooperating with local requirements for inspections by local Authorities.
- F. Massachusetts Energy Code Witness Testing: The Construction Manager shall engage the services of Massachusetts registered professional mechanical and electrical engineers who shall perform witness testing of all HVAC, lighting and power distribution systems in accordance with the requirements of the Massachusetts Energy Code. The registered professional engineer shall prepare a final performance acceptance report in accordance with the code requirements and in a form acceptable to the local code official. The actual testing shall be performed by the Construction Manager, his designated Trade Contractors or authorized manufacturers' representatives. All costs associated with the testing, witnessing of the testing and preparation of reports shall be part of the base contract bid.

1.11 SCHEDULE OF TESTING AND LABORATORIES BY TRADE CONTRACTORS

- A. Respective Trade Contractor shall employ and pay for services of an approved independent testing laboratory to perform inspection and testing specified under this Article and as additionally in individual specification sections
 - 1. Submit to Architect a minimum of three independent testing laboratories for each type of testing specified by individual specification sections and those required by the referenced applicable codes, regulations and standards.
 - 2. Employment of testing laboratory shall in no way relieve Construction Manager of obligations to perform work in accordance with requirements of Contract Documents.
- B. Membrane air barriers: Provide a minimum of three (3) field pull tests performed by an independent testing agency. The test shall be paid for by the Trade Contractor and witnessed by the Construction Manager, Owner's Project Manager and authorities having jurisdiction. Provide report for review within one (1) week of testing.
- C. Aluminum framed storefront, glazed aluminum curtain wall, aluminum windows and fiberglass sandwich panels:
 - 1. Testing shall be performed and paid for by the Metal Window Trade Contractor and witnessed by the Construction Manager, Owner's Project Manager and Commissioning Agent.
 - 2. Testing of mock-ups and installed work subject to the following requirements:
 - a. Independent inspection and testing agency engaged on the project shall be authorized by authorities having jurisdiction to operate in the Commonwealth of Massachusetts and as acceptable to the Owner, Construction Manager, Architect and Commissioning Agent.
 - 1) Testing agency will notify Architect, Construction Manager, Owner's Project Manager and Trade Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 - 2) Testing agency will submit a certified written report of each test, inspection, and similar quality control service to Architect with copy to Construction Manager, Owner's Project Manager and Trade Contractor.
 - 3) Testing agency will submit a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 - 4) Testing agency will interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 - 5) Testing agency will retest and re-inspect corrected work.
 - b. In-place testing of specified limits of air infiltration and water resistance according to following:
 - 1) AAMA 501.1 - Standard Test Method for Water Penetration of Windows, Curtain Walls and Doors Using Dynamic Pressure.
 - 2) AAMA 501.2 - Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems

- 3) AAMA 502 -Voluntary Specification for Field Testing of Newly Installed Fenestration Products.
 - 4) ASTM E 783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors
 - 5) ASTM E 1105 – Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference.
- c. Failed tests will result in additional testing of the failed specimens and an additional specimen at the cost of the Trade Contractor. Testing will be concluded only when satisfactory results are achieved. Any required re-testing that is a result of deficient installation shall not be considered a justified reason for a claim of delay or for a time extension by the Construction Manager or Trade Contractor.
- d. Schedule of testing:
- 1) Mockup wall (refer to drawings):
 - a) Window with precast concrete head condition; qty. = 1
 - b) Window with profiled metal panel head condition; qty. = 1
 - c) Curtain wall with composite metal panel head condition; qty. = 1
 - d) Storefront with precast head condition; qty. = 1
 - 2) In-place building (actual locations to be selected by the architect):
 - a) Window with precast concrete head condition; qty. = 2
 - b) Window with profiled metal panel head condition; qty. = 2
 - c) Curtain wall with profiled metal panel head condition; qty. = 1
 - d) Curtain wall with composite metal panel head condition; qty. = 1
 - e) Storefront with profiled metal panel head condition; qty. = 1
 - f) Storefront with composite metal panel head condition; qty. = 1
 - g) Storefront with precast concrete head condition; qty. = 1
- D. Fire Protection System: At least the following tests shall be performed. Conform to requirements specified in individual Division 21 Specification Sections. The test shall be performed and paid for by the Trade Contractor and witnessed by the Construction Manager, Owner's Project Manager and authorities having jurisdiction:
1. Fire protection system flushed and pressure tested.
 2. Provide system testing compliant with NFPA 72 prior to 12 months from the date of substantial completion
- E. Plumbing: At least the following tests shall be performed. Conform to requirements specified in individual Division 22 Specification Sections. The test shall be performed and paid for by the Trade Contractor and witnessed by the Construction Manager, Owner's Project Manager and authorities having jurisdiction:
1. Water supply piping hydrostatic pressure test.
 2. Sanitary piping test before fixture installation: Cap pipes and fill to highest point in system.
 3. Plumbing fixture operation.

- F. HVAC Testing: All HVAC work shall be tested by an independent testing and balancing agency, approved by Owner. Conform to requirements specified in individual Division 23 Specification Sections. The tests shall be performed and paid for by the Trade Contractor and witnessed by the Construction Manager, Owner's Project Manager and authorities having jurisdiction. Adjustments shall be made by the Trade Contractors directed by the Owner. At least the following tests shall be performed:
 - 1. Piping hydrostatic tests.
 - 2. Air and water balancing.
 - 3. Thermostat control monitoring and testing.
 - 4. Boiler efficiency testing.
 - 5. Energy Management System operation.
- G. Electrical Power System Testing: At least the following tests shall be performed. Conform to requirements specified in individual Division 26 Specification Sections. The tests shall be performed and paid for by the Trade Contractor and witnessed by the Construction Manager, Owner's Project Manager and authorities having jurisdiction:
 - 1. Polarity tests.
 - 2. Operation of all circuits.
 - 3. Testing of emergency system.
 - 4. Security systems.
 - 5. Generation system.
 - 6. Grounding systems.
 - 7. Voice/Video/Data networking testing.
- H. Electrical Lighting System Testing: Conform to requirements specified in individual Division 26 Specification Sections. At least the following tests shall be performed and paid for by the Trade Contractor:
 - 1. Operation of every component of entire system.
- I. Fire Alarm System Testing: At least the following tests will be performed. Conform to requirements specified in individual Division 26 Specification Sections. The test shall be performed and paid for by the Trade Contractor and witnessed by the Construction Manager, and Owner's Project Manager:
 - 1. All smoke and heat detectors.
 - 2. Proper operation as required by authorities having jurisdiction.
- J. Where no testing requirements are described but the Owner or Architect/Engineer decides that testing is required, testing will be performed under current pertinent standards for testing.

1.12 FOLLOW-UP AND CORRECTIVE ACTION

- A. The Construction Manager and the Owner will note the test record on the Testing Log to acknowledge test procedures and results. If follow-up or corrective action is needed, the Construction Manager shall submit to the Owner two written copies of

proposed follow-up or corrective plans and obtain the Owner's written approval before proceeding.

1. Cost of Testing: If tests indicate that materials or work do not comply with requirements, the Construction Manager shall pay for all retesting, and shall remove and replace non-complying work at no additional cost to the Owner.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 CONCRETE IN SITU RELATIVE HUMIDITY, CALCIUM CHLORIDE AND ACIDITY/ALKALINITY TESTING

- A. Scope:
 1. Provide in situ concrete relative humidity and surface pH testing to all concrete slabs specified to be covered with floor coverings or resinous coatings. Includes concrete placed as part of this Work which occurs below grade, above grade (suspended slabs), and slabs on grade.
 - a. Existing building suspended slabs may be excluded from this requirement.
- B. Scheduling:
 1. Testing shall take place after allowing concrete to dry for a minimum of 90 days. Testing to be scheduled no less than one, nor more than three weeks prior to scheduled flooring installation.
 - a. DO NOT conduct testing unless the slab environment is identical to that in which the finished flooring is to be installed.
 2. In the event new flooring is to be installed over existing resilient flooring, remove the portion of the existing flooring and adhesive directly under the area where testing will be conducted. Patch flooring to match existing construction after completion of testing.
- C. Test result submittals:
 1. Report all test results in chart form listing test dates, time, depth of test well, in situ temperature, relative humidity, moisture vapor and pH levels.
 2. List test locations on chart and show same on marked up Floor Plan Drawings.
 3. Submit results in duplicate. Deliver copies directly to Architect, Owner's Project Representative and Construction Manager.
- D. Testing equipment: shall be equal to the following
 1. For relative humidity testing:
 - a. Digital Meter and Calibrated Humidity and Temperature probe kit as manufactured by Vaisala Inc. (Boston Office) 10D Gill Street, Woburn, MA, 01801 (telephone 781-933-4500).
 - 1) Minimum 2 point probe calibration.
 2. For calcium chloride testing:
 - a. Anhydrous calcium chloride testing in accordance with Rubber Manufacturer's Association (RMA) Test requirements.

- b. Test kits: Vaprecision, inc. 2941 West MacArthur Boulevard, Suite 135. Santa Ana, CA 92704 (telephone 800-449-6194).
 - 3. For pH testing:
 - a. pH test paper by Micro Essential Laboratory, Inc., P.O. Box 100824 4224 Avenue "H", Brooklyn, NY 11210, (telephone 718-338-3618).
 - b. Distilled or de ionized water.
- E. Testing Procedures Quantification of Relative Humidity
 - 1. The test site should be maintained at the same temperature and humidity conditions as those anticipated during normal occupancy. These temperature and humidity levels should be maintained for 48 hours prior and during test period. If meeting this criteria is not possible, then minimum conditions should be 75 degrees F (plus or minus 10 degrees F), and 50 percent (plus or minus 10 percent) relative humidity. When a building is not under HVAC control, a recording hygrometer or data logger shall be in place recording conditions during the test period. A transcript of this information must be Included with the test report.
 - 2. The number of In situ relative humidity test sites is determined by the square footage of the facility. The minimum number of tests to be placed is equal to 3 in the first 1,000 square feet and 1 per each additional 1,000 square feet.
 - 3. Drill test holes utilizing a roto hammer drill. Hole diameter shall not exceed outside diameter of the insertable test sleeve by more than 0.04 inch. Drilling operation must be dry. Determine the thickness of the concrete slab from Construction Documents. Depths of test holes shall be as follows:
 - a. For elevated slabs (not poured in pans): Drill test holes to a depth equal to 20 percent of the concrete thickness.
 - b. For slabs on grade and elevated slabs in pans: Drill test holes to a depth equal to 40 percent of the concrete thickness.
 - 4. Vacuum all concrete dust from test hole.
 - 5. Insert a hole liner, or sleeve, to the full depth of test hole, assuring that the liner is capped or plugged at the end protruding from the concrete surface.
 - 6. Permit the test site to acclimate, or equilibrate, for 72 hours prior to taking relative humidity readings.
 - 7. Remove the sleeve plug and place a probe into the sleeve assuring that it reaches the bottom of the test hole.
 - 8. Allow the probe to sit in the test sleeve for 30 minutes before taking readings.
 - 9. Read and record temperature and relative humidity at the test site.
- F. Testing Procedures - Quantification of Concrete Moisture Vapor Emission through Calcium Chloride Testing.
 - 1. The test site should be maintained at the same temperature and humidity conditions as those anticipated during normal occupancy. These temperature and humidity levels should be maintained for 48 hours prior and during test period. If meeting this criteria is not possible, then minimum conditions should be 75 degrees F (plus or minus 10 degrees F) and 50 percent relative humidity (plus or minus 10 percent). When a building is not under HVAC control, a recording hygrometer or data logger shall be in place recording

conditions during the test period. A transcript of this information must be included with the test report.

2. The number of vapor emission test sites is determined by the square footage of the facility. The minimum number of tests to be placed is equal to 3 in the first 1,000 square feet and 1 per each additional 1,000 square feet.
3. Tests sites are to be cleaned of all adhesive residue, curing compounds, paints, sealers, floor coverings, and similar materials. 24 hours prior to the placement of test kits.
4. Weigh test dish on site prior to start of test. Scale must report weight to 0.1 grams. Record weight and start time.
5. Expose Calcium Chloride and set dish on concrete surface.
6. Install test containment dome and allow test to proceed for 60 to 72 hours.
7. Retrieve test dish by carefully cutting through containment dome. Close and reseal test dish.
8. Weigh test dish on site recording weight and stop time.
9. Calculate and report results as pounds of emission per 1,000 square feet per 24 hours."

G. Testing Procedures Quantification of Acidity/Alkalinity (pH) Level

1. At or near the relative humidity test site and each vapor emission (calcium chloride) test site, perform pH test.
 - a. At each testing site, lay down a loose 2 foot by 2 foot sheet of rubber flooring or non perforated polyethelene sheet backed by plywood. Leave in place for 48 hours.
 - b. Remove rubber sheet/polyethelene and place several drops of distilled or de ionized water onto the concrete surface to form a puddle approximately 1 inches in diameter.
 - c. Allow the water to set for approximately 60 seconds.
 - d. Dip the pH paper into the water and remove immediately, compare color to chart provided by paper supplier to determine pH reading
2. Record and report results.

H. Testing Procedures:

1. Initial testing: Provide 3 tests for the first 1,000 square feet.
2. Add one test for each additional 1,000 square feet.
3. Concrete surface area to be tested shall be completely clean. Remove all adhesives, residue, debris and sealing compounds. Remove all dust by vacuum or other methods. Do not use chemicals of any kind to clean concrete.
4. Perform moisture tests in strict accordance with the kit manufacturer's Instructions. Moisture tests shall remain undisturbed for 60 to 72 hours.
5. Immediately after moisture test has been removed from test area, conduct pH test in area previously covered by plastic dome of moisture test kit.
6. After completion of tests submit 2 copies of test data to the Architect. Submit a copy of the test data to all installers of flooring materials and resinous flooring materials scheduled to be installed.

7. Provide additional testing in the event test results indicate higher moisture content than recommended by the flooring material and coating material manufacturers for the installation of their products. Perform such additional testing, at no additional cost to the Owner, after procedures have been performed to reduce moisture content to ratings acceptable to the various flooring and coating manufacturers.

End of Section

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Program of Structural Tests and Inspections
For compliance with Chapter 17 of the 9th Edition of the
Massachusetts State Building Code

Project: South High Community School
Location: Worcester, MA
Owner: Worcester School District
Architect of Record: Lamoureux Pagano and Associates
Structural Engineer of Record (SER): Bolton & DiMartino, Inc.

This program of structural tests and inspections is submitted as a condition for issuance of the building permit in accordance with 780 CMR 1705.0 of the 9th edition of the Massachusetts State Building Code.

The Structural Engineer of Record (SER) shall review records of all inspections and tests. These tests and inspections shall be furnished to the Building Official, Owner, and Architect of Record by the relevant agencies. The SER shall review inspections and testing reports and shall give written notice of non-conforming work to the Contractor for correction and the Owner's representative. The Program of Structural Tests and Inspections does not relieve the Contractor of his/her responsibility and obligations to comply with the Contract Documents. Furthermore, the results of the Program of Structural Tests and Inspections do not relieve the Contractor of his/her responsibility.

A final report documenting completion of all the required Structural Tests and Inspections and correction of any of the discrepancies noted on interim reports will be submitted by the Structural Engineer of Record to the Building Official, Owner, and Architect of Record prior to the issuance of a certificate of use and occupancy.

Job site safety is solely the responsibility of the Contractor and not the part of Structural Tests and Inspections. Material and activities to be inspected do not include the Contractor's equipment or the means, methods, and procedures used to erect or install the materials or assemblies listed.

Prepared by the Structural Engineer of Record:

Name

Signature

Date

Owner's Authorization:

Building Official's Acceptance:

Name (please print)

Name (please print)

Signature

Date

Signature

Date

Schedule of Structural Tests and Inspections

South High Community School Worcester, Massachusetts

The following categories of Structural Tests and Inspections are included in the program for structural tests and inspections for this project. The specific tests and inspections required for each category are listed on the page noted opposite the category.

<u>Division 31</u>	<u>Page</u>
• Controlled gravel fill (prepared fill)	<u>3</u>
• In-situ bearing strata for footings	<u>3</u>
<u>Division 3</u>	
• Cast-in-place Concrete	<u>4</u>
<u>Division 4</u>	
• Unit Masonry	<u>5</u>
<u>Division 5</u>	
• Structural Steel	<u>6</u>
• Steel Joists	<u>7</u>
• Steel Deck	<u>7</u>
• Steel Stud Shear Connectors	<u>8</u>

The following categories are excluded from this Program of Structural Tests and Inspections, since they are designed by other structural engineers not under the aegis of the SER and the SER was not retained to provide performance specifications for their design. These other structural engineers must be assigned by the owner, architect, or construction contractor, as applicable, to be Special SER's for their respective designs and to provide a program of structural tests and inspections for their respective designs.

<u>Division 3</u>	
• Pre-cast Architectural Concrete	
<u>Division 5</u>	
• Cold Formed Metal Framing	
• Metal Fabrications	

The following firms, agencies, or individuals (hereinafter referred to collectively as agents) except for the Geotechnical Engineer, will perform the tests and inspections under the direction of the SER. (The Geotechnical Engineer is responsible for directing the testing and inspection of controlled structural fill, in situ bearing stratum for footings.)

<u>Abbreviation</u>	<u>Agent</u>
SER	Structural Engineer of Record (Listed above)
OIAF	Owner's Inspection Agency - Field
OIAP	Owner's Inspection Agency - Plant
GE	Geotechnical Engineer
FQP	Fabricator's Quality Control Program
CQP	Contractor's Quality Control Program
NR	Not Required
NA	Not Applicable

Controlled Gravel Fill (Prepared Fill) –31 20 00

Item	Agent	Scope
1. Fill Material.	GE OIAF	Test material for conformance to the specifications. Perform laboratory compaction tests in accordance with the specifications to determine optimum water content and maximum dry density (GE, OIAF)
2. Installation of controlled gravel fill (780 CMR 1705.9.1 and 2)	GE OIAF	Provide full-time inspection of the installation in accordance with the specifications and 780 CMR 1705.9.1 and 2 (GE, OIAF)
3. Density of Fill (780 CMR 1705.9.3)	SER GE OIAF	Perform field density tests of the in-place fill in accordance with the specifications and 780 CMR 1705.9.3 (GE, OIAF). Review test reports for conformance to the construction documents (SER, GE).

In-Situ Bearing Strata for Footings – 31 20 00

Item	Agent	Scope
1. Bearing strata for footings.	GE	Inspect strata for conformance to the structural drawings, specifications, and/or geotechnical report (GE).
2. Bearing surfaces of footings.	GE OIAF	Inspect bearing surfaces for conformance to the requirements of the structural drawings, specifications, and/or geotechnical report. Observe field conditions for cold weather protection, as required (GE, OIAF).

Cast-in-Place Concrete – 03 30 00

Item	Agent	Scope
1. Mix Design.	SER OIAF	Review mix designs for conformance to specifications (SER). Perform plant inspection for use of proper mix proportions and mix techniques (OIAF).
2. Materials Certification	OIAF	Review for conformance to construction documents (OIAF).
3. Batching Plant.	SER OIAF	Review plant certificates and quality control procedures. Perform in-plant inspections as required to insure concrete quality (OIAF). Review OIAF reports (SER).
4. Reinforcing Installation.	SER OIAF	Inspect reinforcing for size, quantity, condition, and placement of reinforcing steel and embedded items for conformance to the contract documents and approved shop drawings (SER, OIAF).
5. Formwork Geometry.	OIAF	Inspect formwork for general conformance with the construction documents (OIAF).
6. Concrete Placement.	SER OIAF	Observe concrete placement operations. Verify conformance to specifications including cold-weather and hot weather placement procedures. During concrete placement, perform slump, density, and air content tests in conformance with construction documents (OIAF). Review OIAF reports (SER).
7. Evaluation of Concrete Strength.	SER OIAF	Perform strength evaluation tests on concrete cylinders in accordance with the construction documents (OIAF). Review concrete test reports for conformance with the construction documents (SER).
8. Curing and Protection.	SER OIAF	Review hot and cold weather protection procedures. After concrete placement, observe curing and protection procedures for conformance with construction documents (OIAF). Review OIAF reports (SER).

Unit Masonry – 04 20 00

Item	Agent	Scope
1. Material Certification.	ARCH SER	Review material certificates for conformance to construction documents (ARCH, SER).
2. Evaluation of Masonry Strength.	SER OIAF	Sample and test the masonry mortar and grout, brick, concrete masonry units, and the concrete prism at the approved frequency for conformance with the construction documents (OIAF). Review test reports for conformance with the specifications (SER).
3. Proportioning, Mixing and Consistency of Mortar and Grout.	OIAF	Inspect field-mixing procedures for conformance to the specifications (OIAF).
4. Installation of Masonry.	ARCH SER OIAF CQP	Inspect unit masonry placement, mortar application, and grouting operations for conformance to the construction documents (ARCH, OIAF, CQP). Review all reports for conformance with the construction documents (SER).
5. Veneer Installation and Attachment to the Back-up Structure.	ARCH OIAF CQP	Observe the installation of the brick veneer, including relieving angles, loose lintels, accessories, and attachments to the back-up structure, for conformance with the construction documents, the approved shop drawings, and the approved sample panels and mock-ups (ARCH, OIAF, CQP)
6. Reinforcement Installation.	SER TL CQP	Inspect reinforcing steel for size, quantity, condition and placement for conformance to SER approved submittals and Contract Documents. Inspect welding of reinforcement and review welder's certifications (SER, TL, CQP).
7. Weather Protection.	TL CQP	Inspect protection for cold and hot weather for conformance with the specifications (TL, CQP).
8. Anchorage.	TL CQP	Inspect anchorage of masonry to structural members, foundation walls, or other construction, and the installation of embedded items for conformance with the Contract Documents (TL, CQP).

Structural Steel – 05 12 00

Item	Agent	Scope
1. Fabricator Certification and Quality Control Procedures.	SER OIAP	Review each fabricator's and welder's certificates and the fabrication shop quality control procedures (OIAP). Review OIAP reports (SER).
2. Fabricator Inspection. (780 CMR 1705.4.2 and 780 CMR R1705.4.2)	FQP OIAP SER	Inspect in-plant fabrication, or review Fabricator's approved Independent Inspection Agency's reports (FQP, OIAP). Review OIAP reports (SER)
3. Material Certification.	FQP OIAP SER	Review steel mill reports for conformance to the specifications (FQP,OIAP, SER).
4. Bolting.	OIAP OIAF FQP	Review field and shop bolting procedures for conformance with the construction documents. Inspect and test all field and shop bolted connections in accordance with specifications and approved shop drawings. Verify bolt size and grade (OIAP, OIAF, FQP). Review reports (SER).
5. Welding.	OIAP OIAF FQPTL	Review field and shop welding procedures for conformance with the construction documents Check welder qualifications. Visually inspect all field and shop welds in accordance with construction documents and approved shop drawings (OIAP,OIAF,FQP). Review reports (SER).
6. Structural Framing, Details and Assemblies.	SER OIAP OIAF	Inspect for size, grade of steel, camber, installation and connection details. Check against approved construction documents and shop drawings (OIAP, OIAF). Review reports (SER).

Steel Joists – 05 21 00

Item	Agent	Scope
1. Fabricator Certification and Quality Control Procedures.	SER OIAP	Review each fabricator's and welder's certificates and the fabrication shop quality control procedures (OIAP). Review OIAP reports (SER).
2. Material Certification.	SER FQP OIAP	Review steel mill certificates for conformance to the specifications (SER, FQP, OIAP).
3. Installation.	SER OIAF CQP	Inspect for size, placement, bridging, bearing and connection to structure. Visually inspect all welds of a minimum of 5% of the joists, randomly selected (OIAF, CQP). Review OIAF reports (SER).

Steel Deck – 05 31 00

Item	Agent	Scope
1. Manufacturer's Certification and Quality Control Procedures.	SER OIAP	Review the manufacturer's certificates for production and quality control procedures (OIAP, SER).
2. Material Certification.	SER FQP OIAP	Review for conformance to the contract documents (SER, FQP, OIAP).
3. Installation.	SER OIAF CQP	Inspect placement, laps, welds, side lap attachment, and screws or other mechanical fasteners as per approved shop drawings. Check welder qualifications (OIAF, CQP). Review OIAF reports (SER).

Steel Stud Shear Connectors – 05 41 00

Item	Agent	Scope
1. Quality Control Procedures.	SER OIAP	Review the quality control procedures of the installer (OIAP). Review Reports (SER).
2. Material Certification.	SER FQP OIAP	Review for conformance to the contract documents (SER, FQP, OIAP).
3. Installation.	SER OIAF CQP	Observe the installation of the connectors and test the percentage required by the specifications (OIAF, CQP). Review the test reports for conformance to the construction documents (SER).

Section 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. General requirements for temporary facilities and controls for each site.
- B. Temporary utilities.
- C. Construction facilities.
- D. Temporary construction.
- E. Construction aids.
- F. Vehicular access and parking.
- G. Temporary barriers and enclosures.
- H. Site and environment controls.
- I. LEED required temporary protection from moisture, mold and dust.
- J. Fire prevention measures.
- K. Security measures.
- L. Project identification and temporary signage.
- M. Removal of temporary utilities, controls, and facilities.

1.2 GENERAL REQUIREMENTS

- A. The Construction Manager shall provide and maintain all temporary facilities, controls, and construction aids as specified herein, until they are replaced by permanent work, or until Project Substantial Completion, as appropriate.
 - 1. Additional temporary facilities and controls which may be specified under individual Trade Contract sections are the responsibility of the respective Trade Contractors.
 - 2. Temporary facilities removed from the Project shall remain the property of the Construction Manager, except as otherwise specified.
 - 3. Construction trailers have been located on-site through Phase IV. At the completion of Phase IV field offices shall be relocated into the new school building in the Early Childhood area. At substantial completion this area shall be re-painted, repaired, and cleaned prior to acceptance by the City of Worcester.
- B. Except where specifically noted otherwise, cost or use charges for temporary facilities, utility services, controls, and construction aids and similar items specified in this Section or as required to perform the Work, are not chargeable to the Owner or Architect, and will not be accepted as a basis of claims for a Change Order.

- C. Establish and initiate use of each temporary facility at time first reasonably required for proper performance of the Work. Terminate use and remove facilities at earliest reasonable time when they are no longer needed, or when permanent facilities have, with authorized use, replaced the temporary facilities.
 - 1. Locate temporary facilities where they will serve Project adequately and result in minimum interference with performance of the Work.

1.3 SUBMITTALS

- A. Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
 - 1. Reports of tests, inspections, meter readings and similar procedures performed on temporary utilities.
 - 2. Schedule showing implementation and termination of each temporary utility within 15 days of commencement of the Work.
 - 3. Shop drawings:
 - a. Temporary signage.
 - b. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

1.4 REFERENCES

- A. Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.
 - 1. ANSI A 10 - Safety Requirements for Construction and Demolition.
 - 2. NFPA 70 - National Electrical Code.
 - 3. NFPA 241 - Building Construction and Demolition Operations.

1.5 TEMPORARY WEATHER PROTECTION

- A. Definition of Weather Protection: "Weather Protection" means temporary protection of work that may be adversely affected by moisture, cold, heat, and wind by the use of temporary covers, enclosures, and heat. Maintain at least the minimum temperatures specified. Comply with specific requirements which are specified within individual Specification sections.
 - 1. Temperature at the working surface shall be at least forty degrees Fahrenheit (40 degrees F). This provision does not supersede any specific greater requirements for methods of construction of curing of materials.
 - 2. Construction Managers Responsibilities:
 - a. The Construction Manager shall furnish and install all "weather protection" required for ongoing and in-place work related to the building envelope. The Construction Manager is responsible to ensure that protection is provided for the building and all materials and equipment from weather at all times.
 - b. At completion of work, the Construction Manager shall remove temporary weather protection and restore all surfaces.

3. Trade Contractors Responsibilities: Individual Trade Contractors (including Masonry and Roofing and Flashing Trade Contractors, refer to 00 73 00 – SUPPLEMENTARY INSTRUCTIONS TO BIDDERS for additional requirements) are responsible for all tarpaulins and similar protective measures necessary to cover scaffolding for inclement weather conditions and when winter conditions are encountered.
 - a. The Construction Manager shall provide temporary heat for all Trade Contractor enclosures.
 4. Proposed Plan: The Construction Manager shall within 30 calendar days after Award of Contract, submit three copies of a typewritten proposed plan for “Weather Protection” and obtain the Architect’s and Owner’s written approval.
 5. Reporting Requirements:
 - a. Within thirty (30) calendar days after Contract award, the Construction Manager shall submit in writing to the Owner for approval, three copies of its proposed plan for weather protection.
 - b. The Construction Manager shall furnish and install accurate Fahrenheit thermometers at places designated by the Owner to determine whether the required temperature is being maintained.
 6. Weather protection materials, equipment, and the installation thereof, shall comply with all the safety rules and regulations including provisions for adequate ventilation and fire protection devices.
 7. Use of Permanent Heating System(s): The Construction Manager may choose, if the Owner approves, to use the permanent heating system for temporary heat after the building is enclosed and the system has been tested and is ready to operate.
 - a. The HVAC Trade Contractor shall thoroughly clean and restore to first class condition, acceptable to the Owner, all portions of the permanent heating system that are used for heating during construction.
 - b. Use of the permanent heating system for weather protection shall not affect any heating system guarantee that may be due to the Owner; such guarantee shall begin to run only when the Owner accepts the building.
- B. Additional weather protection requirements: The Construction Manager is responsible to ensure that the protection is provided by for the building interior and all materials and equipment from weather at all times (year round).
1. Where removal of roofing, roof sheathing, windows, doors, and other items is necessary to accomplish work, have materials and workmen ready to provide adequate and approve temporary covering of exposed areas.
 2. Temporary coverings shall be attended as necessary to insure effectiveness and to prevent displacement.
 3. Construction Manager shall repair or replace all elements of the building damaged by failure to properly protect them from the weather to the satisfaction of the Architect at no additional cost to the Owner.

1.6 TEMPORARY UTILITIES, GENERAL REQUIREMENTS

- A. General Installation: Install temporary utility service(s), or connect to existing service(s) as indicated, and as specified. Comply with all applicable laws, regulations, and requirements of authorities having jurisdiction.

- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.7 TEMPORARY UTILITIES, ELECTRICITY

- A. Temporary electricity: The Construction Manager will pay for and furnish electrical energy required for temporary light and power, for the Project while under construction. Additional requirements are specified under Division 26 - ELECTRICAL, and as follows:
 - 1. Electric power service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics. Include meters, transformers, overload protected disconnects, automatic ground-fault interrupters and main distribution switch gear.
 - a. Heavy electrical loads such as welding and other equipment with similar special power requirements must be powered by individual installers using portable electric generators at each users own cost.
 - 1) Except as otherwise specifically provided, all additional costs resulting from such use shall be borne by the Construction Manager.
 - 2. Distribution: A grounded receptacle (outlet) for an extension cord shall be provided by the Electrical Trade Contractor within one hundred (100) feet of any part of the building. Individual users are responsible for their own work lamps and extension cords.

1.8 TEMPORARY UTILITIES, LIGHTING

- A. Temporary lighting: The Electrical Trade Contractor shall provide lighting with local switching to fulfill security requirements and provide illumination for construction operations and traffic conditions. Maintain lighting, replace broken lamps and provide routine repairs.
 - 1. Temporary lighting shall be based on the following requirements:
 - a. Rooms or spaces under 250 square feet: Two 100 watt lamps.
 - b. Rooms or spaces over 250 square feet and under 500 square feet: Four 100 watt lamps.
 - c. Rooms or spaces 500 square feet and over: Two 200 watt lamps for spaces 500 to 1000 square feet, and two 200-watt lamps for every additional 1,000 square feet or fraction thereof.
 - d. Provide sufficient additional fixtures and lamps to insure proper lighting in stairwells, corridors and passage areas.
 - 2. Lamps: The Electrical Trade Contractor shall furnish and install all lamps, both initial and all required replacements until the date of Substantial Completion.
 - 3. Use of permanent lighting fixtures.
 - a. Permanent building lighting may be utilized during construction.
 - b. Permanent lighting fixtures which have been used during Construction shall be thoroughly cleaned by the Electrical Trade Contractor.
 - c. Immediately prior to the Architect's inspection for Substantial Completion the Electrical Trade Contractor is required to replace all lamps, which are broken, burned out or are producing reduced light output (darkened).

- B. Protective night lighting is required at all times (24 hours a day, seven days a week). Construction Manager is required to arrange for adequate outdoor lighting to illuminate staging, stockpiles, trenches, dangerous projections, excavations and similar conditions and as additionally required to protect the safety of workmen, other personnel, and the public and as an aid in the protection against theft and vandalism.
 - 1. Shield lighting to protect overflow beyond Contract limits, protect neighbors from night light overflow.

1.9 TEMPORARY UTILITIES, INTERNET

- A. Temporary internet service: Provide internet service at time of project mobilization, and pay all costs for installation, maintenance, and removal. The Construction Manager shall pay service charges through date of Substantial Completion.
 - 1. For Owner's Project Manager's Field Office: Contractor shall provide and maintain internet access consisting of cable or Fiber-Optic Service (FiOS) services, (dial up modem service is not acceptable). Internet speed shall be a minimum of 100 Mbps download and 5 Mbps upload. Internet service shall include email account allowing a minimum of 10MB attachments to ensure exchange of all construction related email to the Architect's and Owner's Project Manager's Field Office.
 - 2. For Construction Manager's Field Office, Construction Manager shall provide and maintain internet and email service. Internet service shall include e-mail account allowing a minimum of 10mb attachments to ensure exchange of all construction related e-mail to Construction Manager's field office. Provide WIFI capability as [part of internet service.

1.10 TEMPORARY UTILITIES, WATER

- A. Temporary water: The Construction Manager shall provide and maintain water service and distribution piping of sizes and pressures adequate for construction, including water meter and hose bib(s) at location(s) to be determined by Construction Manager so that water is available throughout the construction by the use of hoses.
 - 1. Protect piping and fittings against freezing.

1.11 TEMPORARY HEATING AND COOLING

- A. Temporary heat: Provide heat for curing or drying of completed installations or protection of installed construction from adverse effects of low temperatures or high humidity. Provide vented self-contained liquid propane gas or fuel oil heaters with individual space thermostatic control, UL approved and acceptable to local fire department. Use of gasoline-burning space heaters, open flame, or salamander type units is prohibited.
 - 1. Vent heaters directly to outside air, in areas where concrete is less than 15 days old.
 - 2. In enclosed areas, maintain a minimum temperature of 50 degrees Fahrenheit; provide higher temperatures where required by individual specification sections. Construction Manager is required to provide enclosures necessary to maintain specified temporary heat.

1.12 TEMPORARY VENTILATION AND HUMIDITY CONTROL

- A. General:
 - 1. Humidity Control: Monitor and regulate relative humidity as required for the installation of all interior products. Relative humidity shall be maintained within the limits set by manufacturers of all interior materials and equipment. Refer to individual specification sections in Divisions 6, 8, 9, 10, 11 and 12 for additional environmental requirements.
 - a. Construction Manager shall enclose interior work areas, protect from weather, and maintain specified temperature and humidity prior to commencement of construction activities relating to interior finishes.
 - 2. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases. Extend and supplement equipment with temporary fan units as required to maintain clean air for construction operations.
 - a. During construction, Construction Manager shall meet or exceed the minimum requirements of the SMACNA IAQ Guideline for Occupied Buildings under Construction, 2008 edition.
- B. Monitor Humidity: Provide Hygrometer to measure temperature and relative humidity in each construction area.
 - 1. Provide dehumidifier(s), as required to maintain humidity of enclosed areas below 70 percent. Humidity level shall be maintained in all areas where interior finish work is being performed, and all areas where interior finishes has been completed.
 - 2. Provide fans as specified herein, and as required to eliminate significant variation in humidity levels within enclosed spaces.
- C. Temporary Construction Ventilation: Construction Manager shall maintain sufficient temporary ventilation of areas where materials are being used that emit VOC's and maintain ventilation continuously during installation and until emissions dissipate after installation. If continuous ventilation is not possible via the building's HVAC system(s) then Construction Manager shall supply ventilation via open windows and temporary fans, sufficient to provide no less than three air changes per hour.
 - 1. Vent all areas directly to outside. Areas shall not be vented to other enclosed areas.
 - 2. During dust producing activities (e.g. drywall installation and finishing) Construction Manager shall turn off ventilation system and protect openings in supply and return HVAC system from dust infiltration. Provide temporary ventilation as required.
 - 3. Dissipation of VOC's: The period after installation shall be sufficient to dissipate odors and elevated concentrations of VOCs. A minimum time period of 72 hours is required except where longer periods of time are specified under individual specification sections.
- D. Preconditioning: Prior to installation, Construction Manager shall allow products which have odors and VOC emissions to off-gas in dry, well-ventilated space outside of building for 14 calendar days, in order to allow for reasonable dissipation of odors and emissions.

- E. Storage and fabrication sheds: Provide as required, sheds, equipped to accommodate materials and equipment involved.
 - 1. Trade Contractors and subcontractors are responsible for their own storage facilities, coordinate locations.
- F. Maintain approach walks to field office and storage/fabrication sheds free of mud, water, and snow.
- G. When permanent facilities are enclosed with operable utilities, relocate offices and storage into building, with written agreement of Owner, and remove temporary buildings.

1.13 SANITARY FACILITIES

- A. Sanitary facilities: Provide self-contained single-occupant chemical toilet units, wash facilities and drinking water fixtures.
 - 1. Locate sanitary facilities within the fenced construction zone.
 - 2. Permanent facilities located in completed work may not be used by the Construction Manager's personnel.
- B. Provide toilet tissue, paper towels, paper cups, cleaning compounds and similar materials.
- C. Maintain facilities, throughout term of construction, and keep clean, provide covered waste containers for used material.

1.14 CANTEEN SERVICES

- A. Canteen vehicles must access the worksite at predetermined times coordinated with the Owner, and are limited to service within the construction site only.

1.15 FIRST AID AND FIRE EXTINGUISHERS

- A. First aid supplies: Comply with governing regulations.
- B. Fire extinguishers: Provide and maintain on site, adequate fire extinguishers UL rated for A-B-C type fires. Provide red-painted plywood standards for each extinguisher. Additionally provide a dry chemical fire extinguisher at each location where welding, torch cutting and other similar hazardous work is in progress.
 - 1. At welding and heat cutting work: Provide not less than a Multi-purpose dry chemical type (mono ammonium phosphate) fire extinguisher, 20 pound capacity, multi-purpose rated "2A, 120 B:C".

1.16 CONSTRUCTION AIDS - USE OF PERMANENT ELEVATORS

- A. Temporary use of elevator(s): Use of the permanent elevators during construction for the transportation of personnel and material shall not be permitted.

1.17 VEHICULAR ACCESS AND PARKING

- A. Vehicular access: Construct temporary all-weather access roads from public thoroughfares to serve construction area, of a width and load bearing capacity to provide unimpeded traffic for construction purposes.

1. Construct temporary bridges and culverts to span low areas and allow unimpeded drainage.
 2. Extend and relocate as Work progress requires, provide detours as necessary for unimpeded traffic flow.
 3. Locate access roads where acceptable to Architect/Engineer.
- B. Provide and maintain access to fire hydrants free of obstructions. Provide unimpeded access for emergency vehicles. Maintain 20 foot width driveways with turning space between and around combustible materials.
- B. Vehicular access: Construct temporary all-weather access roads from public thoroughfares to serve construction area, of a width and load bearing capacity to provide unimpeded traffic for construction purposes.
1. Construct temporary bridges and culverts to span low areas and allow unimpeded drainage.
 2. Extend and relocate as Work progress requires, provide detours as necessary for unimpeded traffic flow.
 3. Locate access roads where acceptable to Architect/Engineer.
 4. Arrange for off-site parking areas as needed to accommodate construction personnel with Construction Manager, Awarding Authority and the City of Worcester as applicable.
- C. Snow and ice removal: Maintain all vehicular and pedestrian access roads and walkways free from ice and snow during the winter season for the duration of the Project.
- D. Towing Services: Make arrangements to have illegally parked and stopped vehicles towed. Post conspicuous warning signs. Obtain approval of signs from authorities having jurisdiction.
- E. Prior to Substantial Completion, the installed base for permanent roads and parking areas may be used for construction traffic.
1. Avoid traffic loading beyond paving design capacity.
- C. Prior to Substantial Completion, the installed base for permanent roads and parking areas may be used for construction traffic.
1. Avoid traffic loading beyond paving design capacity.
 2. Permanent parking structures and final paved areas may be used by construction personnel on execution of agreement with the City of Worcester.

1.18 VEHICULAR TRAFFIC CONTROL

- A. The Construction Manager shall not close or obstruct any portion of any street public or private, without obtaining permits therefore from the proper authorities.
1. Provide and pay for police traffic details at anytime that construction takes place in a public street (right of way). The Construction Manager is responsible for coordinating, requesting, and paying the prevailing rate of wage for police traffic details directly with the City of Worcester Police Department.

- B. Construction parking control: Control vehicular parking to preclude interference with public traffic or parking, access by emergency vehicles, Owner's operations, or construction operations.
 - 1. Monitor parking of construction personnel private vehicles. Maintain free vehicular access to and through parking areas. Prohibit parking on or adjacent to access roads, or in non-designated areas.
- C. Vehicle and Equipment Security: Lock all unattended vehicles including construction machinery and equipment. Do not leave vehicles or equipment unattended accessible to public with the motor running, or with keys easily accessible.
- D. Haul routes: Consult with governing authorities and establish public thoroughfares which will be used as haul routes and site access. Confine construction traffic to designated haul routes.
 - 1. Confine construction traffic to designated haul routes.
 - 2. Provide traffic control at critical areas of haul routes to expedite traffic flow and to minimize interference with normal public traffic.
- E. Traffic signals and signs: Provide, operate and maintain temporary equipment, services, and personnel, with traffic control and protective devices, as required to direct and maintain an orderly flow of traffic in all areas under Construction Managers control, or affected by Construction Managers operations, including but not limited to haul routes, at site entrances, at on-site access roads, and parking areas during construction.
 - 1. Provide traffic control and directional signs, mounted on barricades or standard posts as needed to direct construction and public traffic, including but not limited to:
 - a. At each change of direction of a roadway and each crossroad.
 - b. At detours.
 - c. At parking areas.
 - d. At entrance points onto public roads.
 - 2. Provide traffic signal and detour signs with breakaway post assemblies conforming to the applicable provisions of the Standard Specifications.
 - 3. Provide automatic traffic control signals where required by local authorities having jurisdiction.
 - 4. Provide traffic cones and drums as required to maintain orderly flow of traffic.
 - 5. Provide flares and lights during periods of low visibility to clearly delineate traffic lanes and to guide traffic.
- F. Provide areas of illumination of critical traffic and parking areas.

1.19 DUST CONTROL

- A. Provide positive means to prevent air-borne dust from dispersing into atmosphere.
 - 1. Take all necessary measures and provide equipment and materials to minimize dust from rising and blowing across the site and also to control surface water throughout the operation so that it does not run onto paved

- ways without being filtered. Control all dust created by construction operations and movement of construction vehicles, both on site and on paved ways.
2. During the progress of the work, maintain the areas of construction activities including sweeping and sprinkling of streets as necessary. Provide and use calcium chloride for more effective dust control, when deemed necessary by regulatory agencies, without additional cost to the Owner.
- B. Construction Entrances: Stabilized construction entrances shall be installed at all points of access to reduce or eliminate tracking or flowing of sediment onto the town roads in accordance with the following criteria:
1. Provide nominal 1 to 2-1/2 inch washed crushed stone, minimum 8 inches thick.
 2. Construction entrance shall be as wide or wider than all points of ingress and egress.
 3. Washing vehicle wheels before traveling on paved ways.
 4. Provide temporary swales and interceptor ditches to control runoff water where necessary.
- C. Prevent air-borne dust from dispersing into ducts (air supply and return) during construction. Seal all open ends of completed ductwork, and overnight work-in-progress. Inspect ducts on daily basis to ensure seals are intact. Protect ductwork waiting, to be installed with surface wrapping.
1. Ductwork protection during construction is a joint responsibility between the Construction Manager and HVAC Trade Contractor.
 2. HVAC Trade Contractor is responsible to wipe down internal surfaces of ductwork immediately prior to installation to remove all dust and debris.
- D. Prevent air-borne dust from dispersing into occupied spaces. Provide interior dust-tight temporary partitions as specified under the Article entitled "Interior enclosures".
1. Provide air filters over openings and grilles in air-return ducts occurring within construction areas.
 2. Provide openings in temporary partitions where air-return grilles occur outside of work areas. In each opening, provide standard 2 inch thick, throw-away type filter having a rated efficiency of 35 percent. Review with Architect size requirements of filtered openings, locations of openings and how many are required.
 3. Replace air filters as required to maintain their efficiency.

1.20 NOISE CONTROL

- A. Develop and maintain a noise-abatement program and enforce strict discipline over all personnel to keep noise to a minimum.
- B. Execute construction work by methods and by use of equipment which will reduce excess noise.
1. Equip air compressors with silencers, and power equipment with mufflers.
 2. Manage vehicular traffic and scheduling to reduce noise

- C. Interior work involving cutting, drilling, hammering or noise generating procedures shall be completed during times schedule with the Owner in advance.

1.21 TEMPORARY BARRICADES

- A. Provide barriers and barricades to prevent unauthorized entry to construction areas.
 - 1. Comply with standards and code requirements for erection of barricades, where required provide lighting, including flashing lights.
 - 2. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against.
 - 3. Provide special barriers necessary to protect entrances and areas around building and to prevent persons from coming in contact with material or construction operations.
- B. Provide temporary enclosures, as required, for protection of construction from exposure to weather, other construction operations and similar activities. Where heat is needed and the building envelope is incomplete, provide enclosures where there is no other provision for containment of heat.
 - 1. Provide doors with self-closing hardware and locks.
 - 2. Provide barricades and protective entrances at least 48 inches high around openings in floors, and elevators.
- C. Provide temporary roofing as needed to maintain the building water tight.

1.22 TEMPORARY FENCES

- A. Construction fence: Provide a 6 foot high commercial grade chain link fence around construction site; equip with vehicular and pedestrian gates and locks.
 - 1. Relocation of all fences and gates as required due to construction phasing. Relocations shall be provide at no additional cost to the Owner.
 - 2. Vehicular and Pedestrian Gates: Build into fence at approved locations. Provide gates with cross-bracing, and hung on heavy strap hinges with post and hook for double gates. Provide heavy hasps and padlocks.
 - a. Provide a set of keys to Owner's Project Manager to facilitate emergency access.
- B. Fence, General: Fence shall be industrial-grade, heavy-duty construction: Galvanized fabric with galvanized frame.
 - 1. Chain link fabric shall be made of coated-steel, 9 gage (0.148 inch) core wire woven in 2-inch uniform mesh, height (roll width) to suit fence height, with bottom selvage knuckled, top selvage twisted, with woven fabric having a minimum breaking strength of 1290 pounds.
 - a. Privacy slats: Vinyl strips, sized to fit fabric weave, color as selected by Architect from manufacturer's full available range. Provide at fencing along public ways.
 - 2. Framework: Posts and rails shall be sized as detailed on the drawings , Type 1 seamless steel pipe, ASTM A-120, standard weight schedule 40, hydrostatic testing waived.

3. Gate Posts: Standard weight pipe 2-7/8 inches OD nominal weight, 5.79 pounds per foot.
4. Gate Frames: 2 inches OD standard weight pipe, 2.73 pounds. per foot with heavy malleable iron or pressed steel corner fittings securely riveted. Fabric to match the fence shall be installed in the frame by means of tension bars and hook bolts. Each frame to be equipped with 3/8 inches diameter adjustable truss rods.
5. Bottom hinges to be ball and socket type designed to carry the weight of the gate on the post footing. Upper hinge to be wrap around adjustable type. All gates to be equipped for padlocking and with semi-automatic outer catches to secure gates in opened position.
6. Fittings: Pressed steel or malleable iron, hot-dipped galvanized conforming to the requirements of ASTM A153. Tie wires shall be minimum nine-gage galvanized wire,. Attachment bolts shall be galvanized.
7. Post Settings: Driven into ground. Temporary concrete bases may be considered where fencing is scheduled for relocation.

1.23 POLLUTION CONTROL

- A. Provide methods, means, and facilities required to prevent contamination of soil, water, or atmosphere by, the discharge of noxious substances from construction operations.
 1. Comply with all applicable Federal, State, County, and municipal laws regarding pollution.
 2. Prevent pollution of streams, lakes, or reservoirs with fuels, oils, bitumens, calcium chloride, acids, waste products, effluents, chemicals or other harmful substances. Prevent from such substances from entering storm drains and sanitary sewers.
- B. Provide equipment and personnel, perform emergency measures required to contain any spillage and to remove contaminated soils or liquids.
 1. Excavate and legally dispose of any contaminated earth off-site, and replace with suitable compacted fill and topsoil.

1.24 EROSION AND SEDIMENT CONTROL

- A. General: Comply with requirements with Division 31 – EARTHWORK and as specified herein. The more stringent requirements shall apply.
 1. Obtain all required permits from authorities having jurisdiction regarding erosion control and silt fence.
- B. Erosion and sediment control: Provide an erosion and sediment control program for minimizing erosion and siltation during the term of construction. The following minimum erosion control principles shall apply to the land grading and construction phases:
 1. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

- a. Stripping of vegetation, grading, or other soil disturbance shall be done in a manner which will minimize amount of bare soil exposed at one time. Whenever feasible, natural vegetation shall be retained and protected.
 - b. Erosion control devices shall be installed as early as possible in the construction sequence prior to start of clearing and grubbing operations and excavation work.
 - c. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.
2. Sediment shall be retained on-site. Temporary erosion protection shall be accomplished by covering land with erosion protection materials, as appropriate for prevailing conditions.
 - a. Use baled hay or straw to trap sediment and prevent sediment from clogging drainage systems. Handle baled units in manner to prevent from breaking apart.
 - b. Locate baled hay or straw where required and as directed by the Architect and stake bales to prevent overturning, flotation, or displacement.
 - c. Remove deposited sediment periodically.
 - d. Temporary seeding, mulching, or other suitable stabilization measures, shall be used to protect exposed critical areas during prolonged construction or other land disturbance, where the period of exposure will be greater than two (2) months.
3. Drainage provisions shall accommodate increased runoff resulting from modifications of soil and surface conditions during and after development or disturbance. Such provisions shall be in addition to existing requirements.
 - a. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.
4. Cut and fill slopes and stockpiled materials shall be protected to prevent erosion. Slopes shall be protected with permanent erosion protection when erosion exposure period is expected to be greater than or equal to six months, and temporary erosion protection when erosion exposure period is expected to be less than six months.
 - a. Except where specified slope is indicated on Drawings, fill slopes shall be limited to a grade of 2:1 (horizontal:vertical) cut slopes shall be limited to a grade of 1-1/2:1.
 - b. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
5. Inspect and adjust erosion and sediment control devices twice each month and after each heavy rain. Remove silt if greater than 6 inches deep. Replace damaged or deteriorated items devices.
 - a. Hay bales shall be inspected frequently and maintained or replaced as required to maintain both their effectiveness and essentially their original condition. Underside of bales shall be kept in close contact with the earth below at all times, as required to prevent water from washing beneath bales.
 - b. Sediment deposits shall be disposed to off-site, in a location and manner which will not cause sediment nuisance elsewhere.

1.25 PEST CONTROL

- A. Provide rodent control as necessary to prevent infestation of construction and storage areas. Employ methods and use materials which will not adversely affect conditions at the site or on adjoining properties.
- B. Provide marked metal containers with lids for all edible rubbish and enforce their use by all employees. Empty containers and legally dispose of contents off site as required to maintain rodent control.
- C. If the Construction Manager's basic rodent control program proves to be ineffective, obtain the services of a professional exterminator, at no additional cost to the Owner .
- D. Should rodenticides be considered necessary, submit copies of proposed program to Owner and Architect. Use of rodenticide shall comply with manufacturer's published instructions and recommendations. Clearly indicate:
 - 1. Area or areas to be treated.
 - 2. Rodenticides to be used.
 - 3. Manufacture's printed instructions.
 - 4. Pollution preventive measures to be employed.

1.26 FIRE PREVENTION MEASURES

- A. Prior to commencement of work at the site, the Owner's Project Manager, Construction Manager shall meet with the Local Fire Marshal to plan site and building access in the event of fire.
 - 1. Access paths for heavy fire fighting equipment shall be laid out and maintained.
 - 2. Free access from streets to fire hydrants and to outside connections for standpipes, sprinklers or other fire extinguishing equipment shall be provided and maintained.
- B. The Construction Manager shall take all necessary precautions for the prevention of fire during construction. Install and maintain temporary fire protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways, and other access routes. Ascertain and comply with requirements of Project insurance carrier, local fire department and the state fire marshal.
 - 1. Maintain the area within contract limits orderly and clean.
 - a. Remove combustible rubbish promptly from the site and when required, store combustible materials in containers in fire-safe locations.
 - 2. Maintain clear access to exits from within the building.
 - 3. Smoking is not permitted in the building or adjacent areas.
- C. Establish procedures for fire protection for welding, cutting and open torch work, and other potentially hazardous operations. Obtain permission from local authorities having jurisdiction for such work as required by law. Provide special fire extinguishers at welding and torch cutting work.

1. After Owner occupancy or partial occupancy: Maintain a fire watch when fire protection and warning systems have been temporarily de-activated. Maintain watch during all working hours for full period of de-activation.
 2. The Construction Manager will assign personnel to inspect all construction areas at the end of each day's work for fire hazards prior to lock-up.
- D. Provide for outside storage of gas tanks, sufficiently clear of any structure. Promptly remove welding and cutting equipment from the building when no longer required. Do not store welding or cutting materials within the building when work is not being performed.
- E. Permanent fire protection system may be activated to meet these requirements. Replace fusible link heads and other expended or discharged components at time of Substantial Completion.

1.27 SECURITY MEASURES

- A. Protect Work, and Owner's, operations from theft, vandalism, and unauthorized entry.
- B. Initiate a security program in coordination with Owner's, existing security system at job mobilization.
1. Maintain security program throughout construction period until Owner acceptance precludes the need for Construction Manager security
- C. Provide entry control:
1. Restrict entrance of persons and vehicles into Project Site.
 2. Allow entrance only to authorized persons with proper identification.
 3. Maintain log of workmen and visitors, make available to Owner on request.
 4. Construction Manager shall control entrance of persons and vehicles.
 5. Owner will control entrance of persons and vehicles related to Owner's operations.
 6. Coordinate access of Owner's personnel to site in coordination, with Owner's security forces.
- D. Employ uniformed guard service to provide watchmen at site during all non-working hours.
- E. Do not allow cameras on site or photographs taken except by written approval of Owner.

1.28 PROJECT IDENTIFICATION AND TEMPORARY SIGNAGE

- A. General: Signs other than those specified herein are not permitted, except those required by law or expressly authorized by the Owner.
1. At all times during the project, signage must clearly direct occupants and the general public in the safe use of the building. Signs must clearly indicate areas of no admittance, and further must clearly define and direct users to building entries, exits, and other important destinations.

- a. All such interim signage must be painted by a professional sign painter on 3/4-inch medium density overlay plywood with letters no less than 3 inches in height.
 - b. Coordinate required signage with Architect/Engineer.
 - B. Project sign:
 - 1. Provide 8 foot wide by 4 foot high foot project sign of exterior grade MDO plywood and wood frame construction, painted, with self-adhesive color printed text with reproduction of building rendering. Architect will provide signage design.
 - a. Color prints for rendering shall be 3M Scotchprint marking film series 8640 or equal, 4 mil thickness, "ControlTac" vinyl film as manufactured by 3M company having a positionable pressure activated pigmented adhesive.
 - b. Overlay protecting film, Scotchprint Film, clear overlaminating film, as manufactured by 3M company.
 - 2. Project sign shall include title of project, and names of Owner, Architect, Owner's Project Manager, professional subconsultants, Construction Manager.
 - 3. Project sign shall additionally include statement that project is partially funded by Massachusetts School Building Authority (MSBA).
 - 4. Erect on site at location established by Architect.
 - C. Signage at perimeter of construction site: Provide clear and visible warning signage with appropriate language such as: "Prohibited Access – Hard Hat Only – No Admittance – Authorized personnel Only".
 - D. Conservation sign: Provide and maintain painted white sign not less than two square feet or more than three square feet in size bearing the words "MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION, FILE NUMBER 349-1110". Locate sign where directed.
- 1.29 REMOVAL OF TEMPORARY UTILITIES, CONTROLS, AND FACILITIES
- A. Remove temporary materials and construction prior to Substantial Completion.
 - 1. Do not remove erosion control devices until after all disturbed earth has been paved or vegetated.
 - B. Remove underground work and compacted materials to a depth of 2 feet; fill and grade site as specified.
 - C. Restore permanent facilities used during construction to specified condition.
 - D. Clean and repair damage caused by installation or use of temporary work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

Section 01 56 39
TEMPORARY TREE AND PLANT PROTECTION

PART 1 GENERAL

1.0 RELATED DOCUMENTS

- A. Division 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
Division 01 - GENERAL REQUIREMENTS, as listed in the Table of Contents, including but not limited to the following sections, shall be included in and made a part of this Section:
- 01 30 00 – SUBMITTALS
 - 01 43 39 – MOCK-UPS
 - 01 81 13 – SUSTAINABLE DESIGN REQUIREMENTS

1.1 DESCRIPTION OF WORK

- A. Protection of existing trees and plants from damage as a result of the Contractor's operations including, but not limited to:
- 1. Tree protection fencing.
 - 2. Root pruning and construction pruning.

1.2 RELATED REQUIREMENTS

- A. Examine Contract Documents for requirements that affect work of this Section. Other Specification Sections that directly relate to work of this Section include, but are not limited to:
- 1. Section 31 10 00, SITE CLEARING.
 - 2. Section 31 20 00, EARTH MOVING: Silt fencing.
 - 3. Section 32 91 19, LANDSCAPE GRADING
 - 4. Section 32 93 00, TREES, PLANTS, AND GROUND COVERS: New plant material.

1.3 REFERENCED STANDARDS

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.
- 1. American National Standards Institute (ANSI):
 - Z133.1 Safety Requirements for Pruning, Trimming, Repairing, Maintaining and Removing Trees, and for Cutting Brush.
 - A300 Tree Care Operations - Tree, Shrub And Other Woody Plant Maintenance - Standard Practices (All Parts)

2. International Society of Arboriculture (ISA):

Guide Guide for Establishing Values of Trees and Other Plants

3. TCIA -- Tree Care Industry Association, Inc. (TCIA):

Ref. 1 Pruning Standards for Shade Trees

1.4 SUBMITTALS

- A. Prepare and submit drawings indicating the extent of tree protection fencing required.
- B. Proposed methods, and schedule for effecting tree and plant protection shall be submitted for approval.
- C. Proposed methods, materials, and schedule for root pruning, construction pruning, and tree fertilization, in accordance with ANSI A300 Tree Management standards specification writing guidelines, shall be submitted by Certified Arborist for approval.
- D. A Certified Arborist may be hired by the contractor to review various site conditions and perform work as listed in these specifications. In this case Arborist qualifications shall be submitted for Architect's review and approval.

1.5 QUALITY ASSURANCE

- A. Tree Service Firm Qualifications: An experienced tree service firm that has successfully completed tree protection and trimming work similar to that required for this Project and that will assign an experienced, certified arborist to Project site during execution of tree protection and trimming.
- B. All tree work shall be performed by a professional Certified Arborist with a minimum five years' experience, who has successfully completed a certification program equal to the Massachusetts Certified Arborist (MCA) program/examination sponsored by the Massachusetts Arborists Association, 8-D Pleasant Street, South Natick, MA 01760; (508) 653-3320; FAX: (508) 653-4112; E-mail: MaarbAssn@aol.com.
- C. Arborist shall have the following minimum qualifications:
 - 1. Membership in:
 - a. TCIA -- Tree Care Industry Association, Inc.
 - b. ISA -- International Society of Arborists
 - 2. Meet state requirements for insurance.
 - 3. Licenses for application and use of pesticides.

1.6 DAMAGE PENALTIES

- A. Certain specimen trees within the construction areas and in other key locations will be identified by the Owner and the Architect, and marked with red tags. Loss of any of these trees will result in fines assessed at \$10,000 per tree. Damage to or loss of all other trees on the property will be assessed at the rate of \$500 per inch caliper of the tree.

- B. A fine of \$2,500 will be levied against the Contractor for each incident of construction inside tree protection areas.
- C. Damages to trees, shrubs, and other vegetation will be assessed by the Architect and Owner in accordance with the ISA Guide.
- D. Trees or roots visibly damaged will cause the Owner to withhold from the Contractor an assessed amount conforming to the requirements stipulated above for a period of two years. After that period the impact of the damage to any tree will be assessed accordingly.
- E. If any trees or shrubs designated to be saved are damaged and replacement is required, a number and diameter of trees or shrubs of the same species and variety, as specified by the Owner and Architect, shall be furnished and planted by the Contractor. The total inch diameter of the replacement trees or shrubs shall equal the diameter of the tree or shrub to be replaced.

PART 2 PRODUCTS

2.1 TREE PROTECTION FENCING

- A. Tree protection fencing shall be the following:
 - 1. Galvanized chain link fencing, 6 ft. high.
 - 2. Fabric shall be a good commercial quality of steel wire of 2 in. mesh and 11 gauge.
 - 3. Fittings shall be malleable iron casting, wrought iron forgings, or pressed steel and provided with pin connections. Equipment shall be designed to carry 100% overload.
 - 4. Piping shall be steel conforming to ASTM A 120 except that pipe shall be unthreaded and untested for water pressure.
- B. Stakes for fencing shall be 9 ft. galvanized steel posts, driven a minimum of 3 ft. into the ground. Posts shall be spaced 10 ft. o.c. maximum.
 - 1. No fence posts shall be driven until underground utilities have been located by "DigSafe 811". Concrete or weighted bases may be acceptable alternatives used for surface mounting. Review with Architect for approval.
- C. For fencing within the drip line of trees, surface mounted post anchors may be acceptable. Review with Architect to obtain written approval prior to installing. Post installation shall not damage tree root systems.

2.2 ROOT PRUNING

- A. Peat moss and mulch materials shall be as specified under:
Section 32 93 00 - TREES, PLANTS, AND GROUND COVERS

- B. Liquid fertilizer to be applied to root pruned and construction pruned trees shall be Peters M 77 Sequestered-Chelated Soluble Fertilizer manufactured by W.R. Grace and Co., Cambridge, MA 02140, Gold Start Liquid Fertilizer, manufactured by Nutra-Flo Company, 1919 Grand Ave, Sioux City, IA 51106-5708; Phone: 712-277-2011; 800-831-4815; Fax: 712-279-1946; Agro-Culture Liquid Fertilizer, manufactured by Agro-Culture Liquid Fertilizers, 3055 W. M-21, P.O. Box 150, St. Johns, Michigan 48879; 1-800-678-9029, or approved equal. Liquid fertilizer shall be approved by Landscape Architect or Certified Arborist.
- C. Dormant oil spray shall be a dormant miscible spray equal to Sunspray' Scalecide' or Volck Oil.
- D. Insecticide shall be EPA approved for the intended use and the names should be provided to, and approved by the Landscape Architect prior to use.

2.3 TREE ARMOR

- A. 2" x 4" pressure-treated lumber
- B. Galvanized wire, 16 gauge minimum.

PART 3 EXECUTION

3.1 PROTECTION FOR EXISTING TREES TO BE PRESERVED:

- A. All trees to be preserved on the property shall be protected against damage from construction operations.
 - 1. Includes associated understory and areas within dripline of the tree (Root Protection Zone [RPZ]).
- B. Only those trees located within the limit of work to be constructed as indicated, shall be removed.
 - 1. All trees to remain shall be flagged for review after the location of improvements to be constructed are staked in the field.
 - 2. Any tree to be removed shall be reviewed by the Architect and Owner for approval prior to removal.
- C. Erect fencing and armor protection prior to beginning any clearing, demolition or construction activity, and unless otherwise instructed, maintain in place until construction is completed.
 - 1. Obtain approval of installation of tree barricade fencing from Owner and Architect prior to the initiation of any removal of vegetation and construction.
 - 2. Tree protection barricade shall be erected at the edge of the dripline except in extreme circumstances and with the approval of the Architect, fencing may be located at the edge of the root protection zone.
 - a. For trees 10 inch caliper and less, the minimum distance the barrier shall be erected is ten (10) feet from the trunk of tree or clump of trees.
 - 3. Trees immediately adjacent to and within one hundred feet (100) of any construction activities are to be protected by barricade fencing; subject to approval of the Architect and Owner.
 - 4. Trees exposed to construction activity within the dripline or within twenty-five (25) feet of any construction activity are to have trunks protected with tree armor in addition to barricade fencing.

5. The tree protection barricade shall be placed before any excavating or grading is begun and maintained for the duration of the construction work unless otherwise directed.
 6. No material shall be stored or construction operation shall be carried on within the tree protection barricade or within tree dripline.
 7. Tree protection barricade shall remain until all work is completed.
 8. Remove tree protection barricade at commencement of finish grading.
 9. Remove tree armor immediately prior to Substantial Completion.
- D. Protect tree trunk with tree armor to a height of 8' or to the limits of lower branching (when exposed to construction activity within the drip line) with 2x4's butted side to side completely around trunk.
1. Wire wrap do not nail, around trees.
- E. Protect trees that are to remain, whether within barricade fencing or not, from the following:
1. Compaction of root area by equipment or material storage; construction materials shall not be stored closer to trees than the farthest extension of their limbs (dripline).
 2. The proposed finished grade within the root protection zone (RPZ) of any preserved tree shall not be raised or lowered unless indicated in the drawings.
 - a. If grading is absolutely necessary, as per the drawings, within the RPZ, the maximum depth of cut/fill shall not be more than three (3) inches.
 - a. Retaining methods can be used to protect and/or provide lateral support to the area outside the root protection zone.
 3. Trunk damage by moving equipment, material storage, nailing or bolting.
 4. Strangling by tying ropes or guy wires to trunks or large branches.
 5. Poisoning by pouring solvents, gas, paint, etc., on or around trees and roots.
 6. Cutting on roots by excavating, ditching, etc.
 - a. Prior to excavation within the tree drip lines or the removal of trees adjacent to other trees that are to remain, make a clean cut between the disturbed and undisturbed root zones with a rock saw or similar equipment to minimize root damage to be performed by Certified Arborist.
 - b. Refer to EXCAVATION AROUND TREES for additional information.
 7. Damage of branches by improper pruning.
 8. Drought from failure to water or by cutting or changing normal drainage pattern past roots. Contractor shall provide means as necessary to ensure positive drainage.
 9. Changes of soil pH factor by disposal of lime base materials such as concrete, plaster, lime treatment at pavement subgrade, etc. When installing concrete adjacent to the root zone of a tree, use a minimum 6 mil. plastic vapor barrier behind the concrete to prohibit leaching of lime into the soil.
 10. All excavation and earthwork within the RPZ of trees shall be done by hand and performed by a Certified Arborist.
 11. Protect all existing trees near areas to be stabilized from underground contaminations by placing a 6 mil. Plastic film barrier along exposed vertical cut extending a minimum 12" into undisturbed subgrade below depth of stabilization.
 12. No vehicular traffic shall occur within the drip line of any tree; including parking of vehicles.
 13. No soil shall be spread, spoiled, or otherwise disposed of under any tree within the RPZ.
- F. Any damage done to existing tree crowns or root systems shall be repaired by the Arborist to the satisfaction of the Architect and Owner's Representative.
1. Broken branches shall be cut cleanly.

2. Any roots cut shall be cut cleanly with a saw or other means approved by the Architect and Owner's Representative.
 - G. Damage to trees caused through negligence of Contractor or their employees will be assessed by Owner and Project Arborist as described in Paragraph 1.6.
- 3.2 ROOT PROTECTION ZONE:
- A. Root Protection Zone (RPZ).
 1. No disturbance shall occur closer to the tree than one-half (1/2) the radius of the RPZ (dripline) or within five (5) feet of the tree whichever is greater.
- 3.3 ROOT PROTECTED ZONE IMPACTS:
- A. Those trees to remain which have some encroachment on their protected root zone shall have the following maximum allowable impacts:
 1. No disturbance of natural grade, e.g. trenching or excavation, can occur closer to the tree than one-half (1/2) the radius of the RPZ or within five (5) feet of the tree whichever is greater.
 2. No cut or fill greater than three (3) inches will be located closer to the tree trunk than one-half (1/2) the RPZ radius distance.
 - B. Trees impacted shall have a minimum of a six (6) inch layer of mulch placed and maintained over the root protection zone and the undisturbed area within the dripline.
 1. Immediate pruning and fertilization shall occur per the pruning and fertilization sections of this specification.
 2. Provide water in a slow drip manner to impacted trees as approved by the Architect and Owner's Representative.
 3. Provide water to apply equivalent to 1 inch once per week to deeply soak in over the area within the dripline of the tree during periods of hot, dry weather.
 4. Spray tree crowns periodically to reduce dust accumulation on the leaves.
- 3.4 EXCAVATION AROUND TREES
- A. Excavate within the dripline of trees only where required and when absolutely necessary.
 1. Any excavation within the RPZ of trees shall be under the direction of the Arborist.
 2. Arborist shall be at site at all times while excavation is occurring within the RPZ.
 3. Air spade all removals within the RPZ.
 4. Refer to ROOT PROTECTION ZONE.
 - B. When excavating for new construction is required within the RPZ, air spade and hand excavate to minimize damage to root systems.
 1. Use narrow tine spading forks and comb soil to expose roots.
 2. Relocate roots back into backfill areas wherever possible.
 3. If large main lateral roots are encountered, expose beyond excavation limits as required to bend and relocate without breaking.
 4. If root relocation is not practical, clean cut roots using sharp ax approximately three (3) inches back from new construction.
 - C. Where existing grade is above new finish grade, carefully excavate within the dripline to the new finish grade.

1. Carefully hand excavate an additional six (6) inches below the finish grade.
2. Use narrow tine spading forks to comb the soil to expose the roots, and prune the exposed root structure as recommended by the Arborist.
3. Keep the exposed roots damp.
4. Treat the cut roots as specified and as recommended by the Arborist.
5. After pruning and treatment of the root structure is complete, backfill to finish grade with approved plant mix.

3.5 INSTALLATION OF FENCING

- A. Prior to start of demolition work and clearing and grubbing operations, tree protection fencing shall be installed in accordance with Paragraph 3.1C.

3.6 ROOT PRUNING

- A. Where construction will occur within drip line of existing trees designated to remain, roots shall be pruned in accordance with ANSI A300.
- B. All root pruning shall be done by Certified Arborist only. Trenching, vibrating plow, and stump grinding are NOT suitable means for root pruning.
- C. Roots greater than 1 in. diameter shall be pruned by means of a hand saw, or other approved means.
- D. Install root protection measures as prescribed by Certified Arborist and as listed in this section.

3.7 CROWN REDUCTION PRUNING

- A. Crown reduction pruning shall be performed in accordance with ANSI A300 Part 1 Pruning standards using the Reduce Method (7.4). A written description or field review that details the location and size of branches to be removed shall be approved by the Architect and Certified Arborist prior to the start of work.

3.8 FERTILIZATION AND INSECT SPRAYING

- A. Root pruned and construction pruned trees shall be treated with liquid fertilizer, dormant oil spray, and insecticide as prescribed by Certified Arborist.
- B. Liquid fertilizer shall be applied at a rate recommended by the manufacturer and as required by ANSI A300 Part 2 Soil Management standards.
- C. Dormant oil spray shall be applied in early spring before buds begin to swell at a rate recommended by the manufacturer.
- D. Insecticide spray shall be applied twice to root pruned trees following application of dormant oil spray. Spray insecticide at rates recommended by spray manufacturer at intervals appropriate for effective insect control.

3.9 REMOVAL OF PROTECTION

- A. All protection shall remain in place throughout the construction period. Remove protection devices only after written permission has been granted by the Architect.

END OF SECTION

Section 01 60 00
PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Definition of Terms
- B. Basic product requirements.
- C. General environmental requirements for products.
- D. Recycled content of materials.
- E. Regional materials.
- F. Sustainable wood, chain of custody.
- G. Owner furnished products.
- H. Product delivery and handling requirements.
- I. Product storage and protection requirements.
- J. Construction waste management.

1.2 RELATED SECTIONS

- A. Section 01 25 13 –PRODUCT SUBSTITUTION PROCEDURES:
 - 1. Product options.
 - 2. Product substitution procedures.
- B. Section 01 33 29 - SUSTAINABLE DESIGN REPORTING: Special administrative and procedure requirements related to the Owner's *LEED v4, LEED for Building Design and Construction, LEED BD+C: Schools* rating system certificate goals of energy conservation and efficiency, indoor air quality, and natural resource efficiency.
- C. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.

1.3 DEFINITION OF TERMS

- A. "Products" is defined as new material, machinery, components, equipment, fixtures, and systems used in the Work. Products do not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for re-use.
- B. "Materials" are products that are shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
- C. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

- D. Definitions in this article are not intended to negate the meaning of other terms used in Contract Documents, including "specialties", "systems", "structure", "finishes", "accessories", "furnishings", "special construction", and similar terms, which are self-explanatory and have recognized meanings in the construction industry.

1.4 BASIC PRODUCT REQUIREMENTS

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
 - 1. Where possible utilize materials harvested and manufactured regionally, within a 500-mile radius of the project site. Refer to Regional Materials Article herein this Section.
- B. To the fullest extent possible, provide products of the same kind, from a single source.
- C. Provide interchangeable components of the same manufacturer, for similar components.
- D. When the Construction Manager has the option of selecting two or more products, ensure that products selected shall be compatible with products previously installed or approved.
- E. Provide all products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.
- F. Galvanic Corrosion: Install materials in manner which will effectively isolate dissimilar metals which may potential for galvanic corrosion. Use non-absorptive dielectric material, isolation coatings, or other protective isolator approved by Architect.
- G. Fasteners, Anchors, and Connections: Provide all fasteners, anchors, and connections needed to safely, securely, and appropriately secure all Work permanently in place.
 - 1. General: The Contractor is solely responsible for the capacity, suitability, adequacy, and safety of all welded, fastened and anchored connections.
 - a. Comply with applicable code requirements regarding fastener selection and installation.
 - b. Provide at least two fasteners for each individual item being fastened.
 - c. Utilize fastener manufacturer's published load tables for working loads to assist in determining fastener size and space. Do not use ultimate load capacity in determining fastener selections.
 - d. Provide a minimum safety factor of 4.
 - e. Select and utilize fasteners having minimum galvanic corrosion factor.
 - f. Hydrogen embrittlement prevention:
 - 1) Do not use high-strength and low-alloy fasteners which have been subjected to an acid pre-treatment (because they can become brittle and fail), utilize instead equivalent capacity and size bi-metal,

stainless steel or high strength aluminum fasteners, as appropriate to the conditions and materials where being used.

- 2) Utilize low-hydrogen electrodes for welding high-strength steels to prevent hydrogen embrittlement.
2. To permit the Construction Manager control over means and methods, some fastener conditions may not be fully defined in the Contract Documents. In particular, individual specification sections that require delegated independent engineering. In such instances the Construction Manager is fully responsible to determine method of fastening appropriate for each condition. The Construction Manager shall take into consideration substrate material(s) and product(s) being fastened, live and dead loading, and both atmospheric and visual exposure considerations. Construction Manager is responsible to determine fastener type, material, finish, size, diameter, length and spacing.
3. Torque structural fasteners as recommended by fastener manufacturer, or as otherwise specified in the Contract Documents.
4. The Construction Manager is solely responsible for the capacity, suitability, adequacy, and safety of all welded, fastened and anchored connections.

H. Permanent Labels and Nameplates:

1. Restrictions:
 - a. Do not provide labels, nameplates, or trademarks which are not required by code, or regulations.
 - b. Do not provide labels, nameplates or trademarks when individual specification sections specifically exclude them.
 - c. Do not expose manufacturers, suppliers, or installer's name, logo, or trade names on normally visible surfaces.
2. Location for required labels: Required labels, approval plates and stamps shall be located on a concealed surface, or where required for observation after installation on accessible non-conspicuous surface.
3. Data Plates: Provide permanent data plate on each item of service-connected or power-operated equipment.
 - a. Data Plate Information: Include manufacturer, model, serial number, date of manufacture, capacity, ratings, power requirements, and all other similar essential data.
 - b. Locate data plates on easily accessible surface that is inconspicuous in occupied spaces.

1.5 GENERAL ENVIRONMENTAL REQUIREMENTS FOR PRODUCTS

- A. General: Comply with LEED Certification requirements and as specified herein. Prohibit the use of or incorporation into the work of materials which contain toxic, hazardous and harmful materials.
 1. Hazardous materials: Defined as pesticides, biocides, and carcinogens as listed by recognized authorities, such as the Environmental Protection Agency (EPA), the International Agency for Research on Cancer (IARC) or regulated under OSHA Hazard Communication Standard, 29 CFR 1910.1200.
 2. Harmful materials: Defined as materials which contain the presence of chemical, physical, or biological elements or agents which adversely affect

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- human health or welfare; unfavorably alter ecological balances; or degrade the utility of the environment for aesthetic, cultural, or historical purposes.
3. Owner restricted materials: Defined as all products to which the Owner has a reasonable objection because of its content, composition, properties, or characteristics.
- B. Vapors, Gases, Fumes, Odors:
1. General: Comply with all state and federal VOC requirements. Where ever possible use non-VOC materials.
 - a. Limit use of products to the greatest extent possible which have "off-gassing", fumes, flammability, and other harmful characteristics.
 - 1) Prohibit use of products which contain substances that contribute significantly to the production of photochemical smog, tropospheric ozone, or poor indoor-air quality.
 - b. Limit use of ozone-depleting compounds to the greatest extent possible. An ozone-depleting compound is any compound with an ozone-depletion potential greater than 0.01 (CFC 11 = 1).
 - c. Use organic and biodegradable cleaners to the greatest extent possible.
 2. Do not install, use for installation, and use for cleaning those materials which may produce objectionable (to Owner and public) vapors, gases, fumes, odors, or similar conditions.
 3. Do not install or use products which may have possible chemical or biological reactions with other on-site materials.
- C. Toxicity of prefabricated wood products (composite wood and agrifiber products): Products shall contain no added urea-formaldehyde resins.
1. Laminating adhesives used to fabricate on-site and shop-applied composite wood and agrifiber assemblies shall contain no added urea-formaldehyde resins.
- D. Adhesives: Provide adhesives approved by the manufacturer's of the products being adhered which are low-VOC or no-VOC, non-flammable, waterproof after cured, odor free and comply with LEED certification requirements.
1. All adhesives, sealants and sealant primers used on the interior of the building (defined as inside of the weatherproofing system and applied on-site) shall comply with the requirements of the South Coast Air Quality Management District (SCAQMD) Rule 1168 VOC limits, Less Water and Less Exempt Compounds and Green Seal GS-36 Aerosol Adhesives VOC Limits.
 - a. South Coast Air Quality Management District (SCAQMD) Rule 1168 VOC limits, Less Water and Less Exempt Compounds:
 - 1) Architectural Applications VOC Limit [g/L less water]
 - a) Indoor Carpet Adhesives 50
 - b) Carpet Pad Adhesives 50
 - c) Wood Flooring Adhesives 100
 - d) Rubber Floor Adhesives 60
 - e) Subfloor Adhesives 50
 - f) Ceramic Tile Adhesives 65
 - g) VCT & Asphalt Adhesives 50

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- | | | |
|----|-------------------------------------|-----|
| h) | Drywall & Panel Adhesives | 50 |
| i) | Cove Base Adhesives | 50 |
| j) | Multipurpose Construction Adhesives | 70 |
| k) | Structural Glazing Adhesives | 100 |
- 2) Specialty Applications VOC Limit [g/L less water]
- | | | |
|----|----------------------------------|-----|
| a) | PVC Welding | 510 |
| b) | CPVC Welding | 490 |
| c) | ABS Welding | 325 |
| d) | Plastic Cement Welding | 250 |
| e) | Adhesive Primer for Plastic | 550 |
| f) | Contact Adhesive | 80 |
| g) | Special Purpose Contact Adhesive | 250 |
| h) | Structural Wood Member Adhesive | 140 |
| i) | Sheet Applied Rubber Lining | 850 |
| j) | Top & Trim Adhesive | 250 |
- 3) Sealants VOC Limit [g/L less water]
- | | | |
|----|---------------|-----|
| a) | Architectural | 250 |
| b) | Other | 420 |
- 4) Substrate Specific Applications VOC Limit [g/L less water]
- | | | |
|----|-------------------------------|----|
| a) | Metal to Metal | 30 |
| b) | Plastic Foams | 50 |
| c) | Porous Material (except wood) | 50 |
| d) | Wood | 30 |
| e) | Fiberglass | 80 |
- 5) Sealant Primers VOC Limit [g/L less water]
- | | | |
|----|--------------------------|-----|
| a) | Architectural Non Porous | 250 |
| b) | Architectural Porous | 775 |
| c) | Other | 750 |
2. Green Seal GS-36 Aerosol Adhesives VOC Limits:
- a. Aerosol Adhesives VOC Limit [g/L less water]
by weight
- | | | |
|----|---|----------|
| 1) | General purpose mist spray | 65% VOCs |
| 2) | General purpose web spray | 55% VOCs |
| 3) | Special purpose aerosol adhesives (all types) | 70% VOCs |
- E. Carpet systems: Refer to Section 09 68 00 - Carpeting for VOC requirements.
- F. Interior Paints: Provide products that comply with specified VOC limits, refer to Section 09 91 00 – PAINTING for additional requirements.
1. For interior applications use paints and coatings that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA method 24) and the chemical restrictions (Restricted Components listed below) of Green Seal Standard GS-11, Paints, First Edition, May 20, 1993; Green Seal Standard GC-03, Anti-Corrosive Paints, Second Edition, January 7, 1997; and South Coast Air Quality Management District Rule 1113, Architectural Coatings, rules in effect on January 1, 2004, as follows:
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- a. Green Seal GS-11 Limits for Interior Paints:
 - 1) Flat Paints and Coatings: VOC not more than 50 g/L.
 - 2) Non-Flat Paints and Coatings: VOC not more than 150 g/L.
- b. Green Seal GS-03 Limits for Anti-Corrosive Coatings:
 - 1) Anti-Corrosive Coatings (Gloss, Semi-Gloss and Flat): VOC not more than 250 g/L.
- c. South Coast Rule #1133 VOC Limits for Architectural Coatings:
 - 1) Bond breakers: VOC not more than 350 g/L.
 - 2) Clear wood finishes:
 - a) Varnishes: VOC not more than 350 g/L.
 - b) Sanding sealers: VOC not more than 350 g/L.
 - c) Lacquer: VOC not more than 550 g/L.
 - 3) Clear brushing lacquers: VOC not more than 680 g/L.
 - 4) Concrete curing compounds: VOC not more than 350 g/L.
 - 5) Dry-fog coatings: VOC not more than 400 g/L.
 - 6) Fireproofing exterior coatings: VOC not more than 350 g/L.
 - 7) Fire retardant coatings:
 - a) Clear: VOC not more than 650 g/L.
 - b) Pigmented: VOC not more than 350 g/L.
 - 8) Graphic art (sign) coatings: VOC not more than 500 g/L.
 - 9) Industrial maintenance (IM) coatings: VOC not more than 250 g/L.
 - 10) High temperature (IM) coatings: VOC not more than 420 g/L.
 - 11) Zinc rich (IM) primers: VOC not more than 100 g/L.
 - 12) Japans/faux finishing coatings: VOC not more than 350 g/L.
 - 13) Magnesite cement coatings: VOC not more than 450 g/L.
 - 14) Mastic coatings: VOC not more than 300 g/L.
 - 15) Metallic pigmented coatings: VOC not more than 500 g/L.
 - 16) Multi-color coatings: VOC not more than 250 g/L.
 - 17) Pigmented lacquer: VOC not more than 550 g/L.
 - 18) Pre-treatment wash primers: VOC not more than 420 g/L.
 - 19) Primers, sealers and undercoaters: VOC not more than 200 g/L.
 - 20) Quick-dry enamels: VOC not more than 250 g/L.
 - 21) Quick-dry primers sealers and undercoats: VOC not more than 200 g/L.
 - 22) Recycled coatings: VOC not more than 250 g/L.
 - 23) Rust preventative coatings: VOC not more than 400 g/L.
 - 24) Shellac-Clear: VOC not more than 730 g/L.
 - 25) Shellac-Pigmented: VOC not more than 550 g/L.
 - 26) Specialty primers: VOC not more than 350 g/L.
 - 27) Stains: VOC not more than 250 g/L.
 - 28) Sealers:
 - a) Waterproofing sealers: VOC not more than 250 g/L.
 - b) Waterproofing concrete and masonry sealers: VOC not more than 400 g/L.
 - 29) Wood preservatives: VOC not more than 350 g/L.

- G. Sealants: Provide products that comply with specified VOC limits. Refer to Section 07 92 00 – JOINT SEALANTS for additional requirements.
 - 1. Only use sealant and primers that comply with the following limits for VOC content:
 - a. Architectural Sealants: 250 g/L.
 - b. Roofing Sealants: 450 g/L
 - c. Roadway Sealants: 250 g/L.
 - d. Sealant primer: 250 g/L
 - 2. Sealants containing aromatic solvents, fibrous talc, formaldehyde, halogenated solvents, mercury, lead, cadmium, chromium and their compounds, are not permitted.
 - 3. Avoid the use of the following products: Butyl Rubber; Solvent Acrylic; Neoprene; Styrene Butadiene Rubber; Nitril.
 - H. Material Safety Data Sheets (MSDS): Obtain and maintain on-site record data sheets for each product brought onto the Site.
 - 1. Maintain an organized file of Material Safety Data Sheets at the job-site for quick reference.
 - 2. Furnish MSDS for all finishes, paints, coatings, curing compounds, sealers, adhesives, mastics, waterproofing, dampproofing, sealants, cleaning chemicals, carpets, upholstery, fabrics and all similar products.
 - I. Cleaning and maintenance products:
 - 1. Provide data on manufacturers' recommended maintenance, cleaning, refinishing and disposal procedures for materials and products utilized. These procedures are for final Construction Manager cleaning of the project prior to substantial completion and for provided materials and products as required by the specific specification sections.
 - a. Where chemical products are recommended for these procedures, provide documentation to indicate that no component present in the cleaning product at more than 1% of the total mass of the cleaning product is a carcinogen or reproductive toxicant as defined in the lists in this specification section.
 - b. For purposes of reporting, identification of product VOC contents shall not be limited to those regulated.
 - 2. Avoid cleaning products containing alpha-pinene, d-limonene or other unsaturated carbon double bond alkenes due to chemical reactions with ozone to form aldehydes, acidic aerosols, and ultra fine particulate matter in indoor air.
 - J. Establish written Construction Manager's safety and emergency response procedures for safety precautions, accidents, emergency conditions, and clean-up methods.
- 1.6 OWNER'S PROPRIETARY PRODUCTS
- A. Owner's proprietary products: Under provisions of Massachusetts General Laws, Chapter 30, Section 39M(b) the Owner has determined that specific products shall be proprietary for 'sound reasons in the public interest'. This determination has

been made under vote of the Building Committee, and has been recorded in writing for public record.

- B. The following products are designated as proprietary:
1. Automatic temperature controls: Alerton/ABS.
 2. Condensing boilers: Lochinvar "Crest".
 3. Access control and video surveillance (with Axis camera): Genetec Unified Security System.
 4. Point of sale system at Cafeteria: Mosaic.
 5. Non-interchangeable core key cylinders: Corbin-Russwin.
 6. IP Telephone system: ShoreTel.
 7. Network switches: HP.
 8. Wireless access points: Cisco "Meraki".
 9. Document cameras: Epson.
 10. Interactive ultra-short-throw projectors with laser light source: Epson "Brightlink".

1.7 OWNER FURNISHED PRODUCTS

- A. Owner Furnished Products: As provided in the General Conditions, the Owner will provide products by others under a separate agreements.
1. Owner's responsibilities regarding Owner furnished products:
 - a. Arrange for and deliver Owner reviewed shop drawings, product data, and samples to Construction Manager.
 - b. Arrange and pay for product delivery to site.
 - c. On delivery, inspect products jointly with Construction Manager.
 - d. Submit claims for transportation damage, and replace damaged, defective, or deficient items.
 - e. Arrange for manufacturers' warranties, inspections, and service agreements.
 2. Construction Manager's responsibilities regarding Owner furnished products:
 - a. Review Owner reviewed shop drawings, product data, and samples to Construction Manager.
 - b. For Owner-Furnished, Construction Manager Installed (OFCl) Products: Receive and unload products at site, inspect for completeness or damage, jointly with Owner.
 - c. Handle, store, and provide temporary protection.
 - d. Repair or replace items damaged after receipt.
 - e. As required by this Contract, finish, install, and clean products.
 - f. Provide protection of installed work.
 - g. When not installed under this Contract, the Construction Manager shall coordinate Owner installed work with interfacing work of this Contract. The Construction Manager shall provide temporary protection and final cleaning of Owner installed products, except as directed otherwise.

3. Items noted in Drawings as "Not in Contract" or "NIC", identify work or products which are furnished by Owner; such work requires coordination with the Work of this Contract and may require installation by the Construction Manager.
- B. The Construction Manager has coordinating responsibility for Testing laboratory services as identified under Section 01 45 29 - TESTING LABORATORY SERVICES and as specified under individual specification sections.

1.8 PRODUCT DELIVERY AND HANDLING REQUIREMENTS

- A. Transport and handle products in accordance with manufacturer's instructions and as specified in individual specification sections.
 1. Packing: Arrange for the return of packing materials, such as wood pallets, where economically feasible.
 2. Ductwork: As a prerequisite requirement for Massachusetts CHPS, all ductwork shall be sealed from time of manufacturer, with seals intact upon delivery to construction site, and remain so, until ready for installation. Construction Manager is jointly responsible with Trade Contractor to ensure ducts are properly sealed and maintained.
 - a. Store ductwork in clean dry conditions and keep sealed while it is stored.
- B. Packaging: Deliver materials in recyclable or in reusable packaging such as cardboard, wood, paper, or reusable blankets, which will be reclaimed by supplier or manufacturer for recycling.
 1. General: Minimize packaging materials to maximum extent possible while still ensuring protection of materials during delivery, storage, and handling.
 - a. Unacceptable Packaging Materials: Polyurethane, polyisocyanurate, polystyrene, polyethylene, and similar plastic materials such as "foam" plastics and "shrink-fit" plastics.
 - b. Reusable Blankets: Deliver and store materials in reusable blankets and mats reclaimed by manufacturers or suppliers for reuse where program exists or where program can be developed for such reuse.
 - 1) Non-returnable containers should be donated to local and community organizations to the greatest extent possible to reduce quantity of disposed materials.
 - c. Pallets: Where pallets are used, suppliers shall be responsible to ensure pallets are removed from site for reuse or for recycling. Avoid use of virgin wood pallets whenever possible. It is preferable that pallets be manufactured from recycled wood and recycled plastic.
 - d. Corrugated Cardboard and Paper: Where paper products are used, recycle as part of construction waste management recycling program, or return to material's manufacturer for use by manufacturer or supplier.
 - e. Sealants, Paint, Primers, Adhesives, and Coating Containers: Return to supplier or manufacturer for reuse where such program is available.
 2. Purchase materials in bulk where possible. Take measures to avoid individual packaging for volume purchases.

- C. Labeling of plastics used for packaging: Plastic is marked by manufacturers for type of plastic material in accordance with the Society of Plastic resin codes. Maintain marks, or sort by manufacturer's resin codes for recycling purposes.
 - 1. Type 1: Polyethylene Terephthalate (PET, PETE).
 - 2. Type 2: High Density Polyethylene (HDPE).
 - 3. Type 3: Vinyl (Polyvinyl Chloride or PVC).
 - 4. Type 4: Low Density Polyethylene (LDPE).
 - 5. Type 5: Polypropylene (PP).
 - 6. Type 6: Polystyrene (PS).
 - 7. Type 7: Other. Use of this code indicates that the package in question is made with a resin other than the six listed above, or is made of more than one resin listed above, and used in a multi-layer combination.
- D. Schedule deliveries to avoid delays in installation of products, to minimize long-term storage, to prevent overcrowding of construction spaces and to limit potential damage to stored materials. Coordinate with installation to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.
- E. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.
- F. Provide equipment and personnel to handle and store products by methods to prevent soiling, disfigurement, or damage.

1.9 PRODUCT STORAGE AND PROTECTION REQUIREMENTS

- A. Store and protect products in accordance with manufacturer's instructions and as specified in individual specification sections.
 - 1. Provide all necessary equipment and personnel to store products by methods to prevent soiling, disfigurement and damage.
 - 2. Avoid excessive material handling and potential product damage, locate storage areas convenient to work areas.
 - 3. Store and protect products with seals and labels intact and legible.
 - 4. Store and handle materials in a manner as to prevent loss from weather and other damage.
- B. For exterior storage of fabricated products, place on sloped supports, above ground.
- C. Provide off-site storage and protection when site does not permit on-site storage or protection.
 - 1. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
 - 2. Store sensitive products in weather-tight, climate controlled enclosures.
 - 3. Prevent contact with material that may cause corrosion, discoloration, or staining.

- D. Store loose granular materials on solid flat surfaces in a well-drained area; prevent mixing with foreign matter.
- E. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.
- F. Store heavy materials in locations and in a manner that will not damage or disfigure existing, or new construction.

1.10 MOLD PROTECTION

- A. General:
 - 1. Keep building materials dry to prevent the growth of mold and bacteria, including, but not limited to: gypsum wallboard, wood, porous insulation, paper, and fabric.
 - 2. Cover materials to prevent rain damage, and if resting on the ground, use spacers to allow air to circulate between the ground and the materials.
 - 3. Thoroughly dry all water damaged materials within 24 hours from time of moisture damage. Materials that have been damp or wet for more than 24 hours shall be jointly reviewed by Construction Manager and Architect, or Owner's Project Manager to determine whether damp/wet materials need to be disposed.
 - a. Review moisture damaged materials for signs of mold and mildew, including any with moisture stains, from the site and properly dispose of them.
 - b. Replace water damaged and moldy materials with new, undamaged materials.

1.11 CONSTRUCTION WASTE MANAGEMENT

- A. Source separation: Separate, store, protect, and handle at the site identified recyclable and salvageable waste products in order to prevent contamination of materials and to maximize recyclability and salvageability of identified materials. Refer to the Waste Management Requirements Plan specified under Section 01 74 19 – CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
- B. Return: Set aside and protect incorrectly delivered and substandard products and materials and return to supplier for credit.
- C. Recycling: Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials. Refer to the Waste Management Requirements and Plan specified under Section 01 74 19 – CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

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Section 01 73 00
EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Examination of existing conditions and acceptance of conditions.
- B. Project preparation.
- C. Surveying and field engineering.
- D. Execution of the Work.
- E. Cutting and patching of in-place work
- F. Cleaning.
- G. Building flushout.
- H. Protecting installed work.

1.2 RELATED REQUIREMENTS

- A. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT: Procedural and administrative requirements for construction and demolition recycling.
- B. Section 01 81 19 – INDOOR AIR QUALITY REQUIREMENTS.
- C. Section 01 91 13 – GENERAL COMMISSIONING REQUIREMENTS.
- D. Section 01 91 19 – EXTERIOR ENCLOSURE COMMISSIONING REQUIREMENTS.

1.3 EXAMINATION OF AND ACCEPTANCE OF EXISTING CONDITIONS

- A. The Construction Manager, its subcontractors and Trade Contractors shall inform themselves of existing conditions before submitting his bid, and shall be fully responsible for carrying out all work required to completely and properly execute the work of the Contract, regardless of the conditions encountered in the actual work. No claim for extra compensation or extension of time will be allowed on account of actual conditions inconsistent with those assumed, except those conditions described in the General Conditions.
- B. Prior to commencement of selective demolition work, inspect areas in which work will be performed. Photograph existing damage to structure surfaces, equipment, or to surrounding properties which could be misconstrued as damage resulting from selective demolition work; file with Architect prior to starting work.

1.4 SURVEYING AND FIELD ENGINEERING

- A. Employ a Land Surveyor or Professional Engineer registered in the Commonwealth of Massachusetts and acceptable to the Architect.
 - 1. Submit evidence of Surveyor's Errors and Omissions (E&O) Insurance coverage in the form of an Insurance Certificate.

- B. Submittals.
 - 1. Submit name, address, and telephone number of at least three proposed Land Surveyors and obtain Architect's acceptance before starting survey work.
 - 2. On request, submit documentation verifying accuracy of survey work.
 - 3. Submit a copy of registered site drawing and certificate signed by the Land Surveyor, that the elevations and locations of the Work are in conformance with the Contract Documents.
- C. Examination.
 - 1. Verify locations of survey control points prior to starting work.
 - 2. Promptly notify Architect/Engineer of any discrepancies discovered.
- D. Survey Reference Points.
 - 1. Construction Manager shall locate and protect survey control and reference points.
 - 2. Control datum for survey is that indicated on Drawings.
 - 3. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
 - 4. Promptly report to Architect/Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
 - 5. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to the Architect.
- E. Survey Requirements.
 - 1. Provide field engineering services. Utilize recognized engineering survey practices.
 - 2. Prior to construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer and water service piping.
 - a. The existence and location of underground utilities and construction indicated on Drawings as existing are not guaranteed. Before beginning sitework, verify the existence and location of underground utilities and other construction.
 - 3. Establish a minimum of 2 permanent bench marks on site, referenced to established control points. Record locations, with horizontal and vertical data, on Project Record Documents.
 - 4. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
 - a. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
 - b. Grid or axis for structures.
 - c. Building foundation, column locations, and ground floor elevations.
 - 5. Periodically verify layouts by same means.
- F. Project Record Documents.

1. As-built survey, progress submissions: Surveyor shall develop an as-built survey for the work-in-place. Copies of survey shall be submitted along with request for payments for foundation work, site utilities and paving work.
2. Surveyor's log: Maintain a complete and accurate surveyor's log of control and other surveys, as required by Owner and authorities having jurisdiction. Make this log available for reference.
3. Submit Final Property Survey and log under the provisions of Section 01 78 00 - CLOSEOUT SUBMITTALS.

1.5 PROTECTION OF ADJACENT ELEMENTS

- A. Protect installed Work and provide special protection where called for in individual specification Sections.
- B. Protect existing facilities and adjacent properties from damage from construction and demolition operations. Provide temporary and removable protection for installed products and occupied areas.
- C. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials. Coordinate with requirements under individual specification sections.
- D. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- E. Protect all existing landscape areas not indicated to be cleared. Do not deface, injure, or destroy trees or other plant life. Do not remove or cut trees or other plant life, without authorization from the Owner. Do not attach any anchorages, ropes, cables or guys to any trees scheduled to remain.
 1. Prohibit traffic from landscaped areas.
- F. Protect non-owned vehicles, stored materials, site and structures from damage.
- G. Refer to respective Sections for other particular protection requirements.

1.6 PROTECTION OF INTERIOR CONCRETE SLABS

- A. No satisfactory chemical or cleaning procedure is available to remove petroleum stains from the concrete surface. Prevention is therefore essential for areas scheduled to receive concrete stains and sealers, specified under Division 3.
 1. All hydraulic powered equipment must be diapered to avoid staining of in-place concrete.
 2. No trade will park vehicles on the inside slab. If necessary to complete their scope of work, drop cloths will be placed under vehicles at all times.
 3. No pipe cutting machine will be used on the inside floor slabs.
 4. Steel will not be placed on interior slabs to avoid rust staining.

1.7 EXECUTION REQUIREMENTS FOR INSTALLATION, APPLICATION AND ERECTION

- A. Inspection of conditions: The Installer of each component shall inspect the substrate and conditions under which Work is performed. Do not proceed until unsatisfactory conditions have been corrected.
- B. Resource Efficiency of Materials:
 - 1. Use construction practices such as material reduction and dimensional planning that maximize efficient use of resources and materials.
 - a. Recheck measurements and dimensions, before starting installation.
 - 2. Provide materials that utilize recycled content to maximum degree possible without being detrimental to product performance or indoor air quality.
 - 3. Where possible and feasible, provide for non-destructive removal and re-use of materials after their service life in this building.
- C. Manufacturer's instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that they are more stringent than requirements in Contract Documents.
- D. Inspect material immediately upon delivery and again prior to installation Reject damaged and defective items.
- E. Install each component during weather conditions and project status that will ensure the best results. Isolate each part from incompatible material as necessary to prevent deterioration.
- F. Coordinate temporary enclosures with inspections and tests, to minimize uncovering completed construction for that purpose.
- G. Limiting exposures: Supervise operations to ensure that no part of construction, completed or in progress, is subject to harmful or deleterious exposure.
 - 1. Such exposures include, but are not limited to the following:
 - a. Excessive static or dynamic loading.
 - b. Excessive internal or external pressures.
 - c. Excessive weathering.
 - d. Excessively high or low temperatures or humidity.
 - e. Air contamination or pollution.
 - f. Water or ice.
 - g. Chemicals or solvents.
 - h. Heavy traffic, soiling, staining and corrosion.
 - i. Rodent and insect infestation.
 - j. Unusual wear or other misuse.
 - k. Contact between incompatible materials.
 - l. Theft or vandalism.
- H. Provide attachment and connection devices and methods necessary for securing each construction element. Secure each construction element true to line and level. Allow for expansion and building movement.

- I. Visual effects: Provide uniform joint widths in exposed Work. Arrange joints to obtain the best effect. Refer questionable choices to the Architect for decision.
- J. Mounting heights: Where mounting heights are not indicated, review heights with Architect, prior to commencement of Work.
- K. Cleaning and protection: During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- L. Clean and maintain completed construction as often as necessary through the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

1.8 CUTTING AND PATCHING OF IN-PLACE WORK

- A. Scope: Construction Manager is responsible for coordination and quality of all cutting and patching work. Cutting and patching of the Work includes, but is not limited to:
 - 1. All cutting, altering, patching, and fitting as necessary for the Work to comply with the Contract Documents.
 - a. Make all products and their components of the Work fit together properly.
 - b. Fully integrate all cutting and patching, to present the visual appearance of an entire, completed, and unified project in compliance with the Contract Documents.
 - 2. Provide openings in elements of the Work, and the patching of same, for penetrations required by all trades, including but not limited to mechanical, plumbing, fire protection and electrical work.
 - a. Individual Trade Contractors are responsible for designated types of coring and drilling penetrations for piping, conduit, ducts and other penetrations.
 - 3. Uncover work to provide for installing, inspecting, or both, of ill-timed work;
 - 4. Remove and replace work not conforming to requirements of the Contract Documents or as otherwise determined to be defective.
 - 5. Patch and match all surfaces and products disturbed or damaged.
 - 6. Remove samples of in-place construction as specified for testing.
- B. Structural elements: Do not cut and patch structural elements in a manner that would reduce the load-carrying capacity or load deflection ratio. Always obtain written approval of the cutting and patching proposal before cutting and patching structural elements.
 - 1. Do not drill through structural beams, slabs or columns. Core drilling through concrete block walls and stair platforms must be approved by the Architect.
 - 2. Where cutting and patching involves adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with the structure.

- C. Exposed elements: Employ appropriate tradesperson to perform cutting and patching for weather exposed and moisture resistant elements, and sight exposed surfaces.
- D. Penetrating elements: Fit work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces. At penetrations of fire rated walls, partitions, ceiling or floor construction, completely seal voids with fire rated materials in accordance to applicable codes and regulations, and compatible to surrounding construction.
- E. Visual requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.
- F. Operational and safety limitations: Do not cut and patch operating elements or safety components in a manner that would reduce their capacity to perform as intended, or would increase maintenance, or decrease operational life safety of the building when occupied.
- G. General requirements of cutting and patching:
 - 1. Submit written proposals to perform cutting and patching when cutting work affects the following:
 - a. Structural integrity of any element in the project.
 - b. Integrity of weather-exposed or moisture-resistant elements.
 - c. Aesthetic and visual qualities of exposed-to-view elements.
 - d. Work of Owner or work performed under separate Contract.
 - 2. Cutting: Cut in-place construction using methods least likely to damage elements of as-built construction.
 - 3. Coring and Drilling of holes incidental to work of individual sections shall be performed by the trade requiring the penetration, except as follows:
 - a. All Trade Contractors and subcontractors to identify all holes through steel beams, masonry walls, concrete walls, concrete decks, slabs and the like (and provide sleeves to be installed by the Masonry or Concrete subcontractor) as part of the coordination drawing process. Failure to provide this information in advance, the Trade Contractors and subcontractors shall pay for installation all holes.
 - b. Coordination of all coring and drilling and resultant patches necessary for the completion of this Contract and for the quality and appearance of all patch Work in exposed-to-view finished materials.
 - 4. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break; for assemblies, refinish entire unit.

1.9 PROGRESS CLEANING AND DISPOSAL OF WASTE MATERIALS

- A. General: Maintain site in a clean and orderly condition. Maintain work and surrounding areas free of waste materials, debris, and rubbish; remove from site on a on-going basis through-out the term of construction.
 - 1. Adjacent Areas: Keep adjacent areas, neighboring properties, public ways, and all nearby areas clean and free of construction debris and dirt including wind blown debris.

2. Trade Contractors and subcontractors are responsible for cleanup and removal of their own rubbish, debris, shipping materials and waste materials throughout the term of their work.
 - a. Trade Contractors and subcontractors are responsible to comply with requirements of Section 01 74 19 – CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
 3. Construction Manager shall furnish dumpsters and provide general site cleaning services, except as explicitly specified otherwise under individual Sections of the Specifications.
- B. Control accumulation of waste materials and rubbish; periodically dispose of off-site. The Construction Manager shall bear all costs, including fees resulting from such disposal.
- C. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws. Comply with the requirements of Section 01 74 19 – CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
1. Do not burn or bury rubbish and waste materials on site.
 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 3. Do not dispose of wastes into streams or waterways.
 4. Comply with requirements of authorities having jurisdiction including, without limitation, requirements related to fire prevention, rodents, pests, vermin, waste storage, waste trucking, waste removal, waste disposal, street cleaning, truck tire cleaning, and other requirements.
- D. Clean interior areas prior to start of finish work and maintain areas free of dust and other contaminants during finishing operations.
- E. Maintain project in accordance with all local, Commonwealth of Massachusetts, and Federal Regulatory Requirements.
- F. Store volatile wastes in covered metal containers, and remove from premises daily.
- G. Prevent accumulation of wastes which create hazardous conditions.
- H. Provide adequate ventilation during use of volatile or noxious substances.
1. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
 2. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- I. Use only those materials which will not create hazards to health or property and which will not damage surfaces.
- J. Use only those cleaning materials and methods recommended by manufacturer of surface material to be cleaned.
- K. Execute cleaning to ensure that the buildings, the sites, and adjacent properties are maintained free from accumulations of waste materials and rubbish and windblown debris, resulting from construction operations.

- L. Construction Manager shall provide on-site containers (dumpsters) for collection and containment of, waste materials, debris and rubbish.
 - 1. Trash Barrels and Containers: Use containers with tightly fitting lids. Use only steel containers and lids when there is any evidence of rodent or pest activity.
 - 2. Returnables: Provide special, labeled containers for deposit returnables such as soda cans.
- M. Remove waste materials, debris, and rubbish from site at least once weekly, and dispose off-site. Comply with NFPA 241 for removal of combustible waste.
- N. Handle material in a controlled manner with as few handlings as possible. Do not drop or throw materials from heights.
- O. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not damage surrounding surfaces.

1.10 SITE MAINTENANCE AND CLEANING

- A. Maintain traffic and parking areas in a sound condition, free of excavated material, construction equipment, products, mud, snow, and ice.
 - 1. Provide means of removing mud from vehicle wheels before entering public streets and Owner's parking areas and access.
- B. Maintain existing and permanent paved areas used for construction.
 - 1. If any street or private way shall be rendered unsafe by the Construction Managers operations, the Construction Manager shall make such repairs or provide such temporary ways or guards as shall be acceptable to the governing authority.
 - 2. Promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original, or specified, condition.

1.11 FINAL CLEANING

- A. Scheduling: Perform final cleaning immediately prior to the Architect's review of the project for issue of the Certificate of Substantial Completion.
 - 1. Re-clean all surfaces, materials and products of the Work immediately prior to Owner's occupancy of the Project.
 - a. Should the Owner occupy any portion of the Work prior to completion of the Contract, the responsibilities for interim and final cleaning shall be in accordance with the General Conditions.
- B. Qualifications: Commercial cleaning firm, with a minimum of 3 years experience specializing in the post-construction cleaning of facilities.
- C. Protection: During the operation of final cleaning, protect surrounding materials and finishes against undue damage by the exercise of reasonable care and precautions. Clean, or repair all products and surfaces which are soiled or otherwise damaged by Work of this Section, to match original profiles and finishes. Materials and finishes which cannot be cleaned, or repaired shall be removed and replaced with new work in conformance with the Contract Documents.

- D. General cleaning requirements:
1. Control accumulation of waste materials and trash. Recycle or dispose of off-site at intervals approved by the Owner and in compliance with waste management procedures specified in Section 01 74 19 – CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
 2. Remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste.
 3. Remove all advertising matter and temporary instructional material from exposed surfaces throughout.
 4. Use only methods and cleaning materials which are compatible with and as recommended by the manufacturer of the material being cleaned.
 5. Finished surfaces: Remove paint smears, spots, marks, dirt, mud and dust and similar disfigurement created by the Work, from all exposed to view existing or new interior and exterior finished surfaces.
 6. Polished surfaces: Apply the polish recommended by the manufacturer of the material being polished.
 7. Cleaning Materials: Only non-hazardous cleaning materials shall be used in the final cleanup.
- E. Waste Management and Recycling during Final Cleaning:
1. Recycle, salvage, and return construction and demolition waste from Project in accordance with requirements in Section 01 74 19 – CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
 2. Arrange for pick-up of salvageable materials in accordance with the Waste Management Plan.
 3. Disposal Operations: Promptly and legally transport and dispose of all trash. Do not burn, bury, or otherwise dispose of trash on the Project site.
- F. Exterior building surfaces:
1. Visually inspect exterior surfaces and remove all traces of soil, waste materials, smudges, and other foreign matter.
 2. Remove all traces of splashed materials from adjacent surfaces.
 3. If necessary to achieve a uniform degree of cleanliness, hose down the exterior of the structure.
 4. In the event of stubborn stains not removable with water, the Architect may require light sandblasting or other cleaning at no additional cost to the Owner.
 5. Concrete: Clean exposed concrete free of all foreign matter. If, in the opinion of the Architect, further cleaning of specific areas is required, they shall be scrubbed with water or other cleaning agents. Acid cleaners shall not be used, except as may otherwise specifically permitted in the trade sections.
- G. Bright metal: Clean metal surfaces, hardware, fixtures, appliances, equipment, and similar items free of all foreign matter. As required, lightly scrub specific stains with clean water, mild soap, and soft rags, thoroughly rinsed and wiped with clean, soft white rags. Do not use abrasive cleaners.

- H. Glass: Replace broken, chipped and defective glass. Remove from glass: stains, spots, marks, paint smears; dirt and foreign materials. Clean and polish both surfaces of all interior and exterior glass. Clean and polish mirrors.
- I. Carpet: Vacuum clean carpet and remove all spots and stains.
- J. Hardware: Clean and polish finished hardware, remove marks, stains, scratches and blemishes.
- K. Tile: Clean and polish floor and wall tile, remove grout film and excess grout.
- L. Woodwork: Dust and clean [architectural woodwork and] finish woodwork items, remove all stains, spots, and foreign matter using methods and cleaning agents which will not harm the various finishes.
- M. Site: Sweep exterior paved surfaces broom clean; rake clean unpaved surfaces.
- N. Equipment: Thoroughly clean all items of mechanical and electrical equipment; remove excess oils and grease from exposed surfaces.
 - 1. Clean permanent filters and replace disposable filters if ventilating units were operated during construction.
 - 2. Clean ducts, blowers and coils, if units were operated without filters during construction.

1.12 BUILDING FLUSH-OUT

- A. Sequencing: Complete all interior finish material installation no less than 14 calendar days prior to Substantial Completion to allow for building flush out. Construction Manager shall submit notification to the Architect when all interior finish material installation is complete, highlighting the date of completion.
- B. Building Flush-Out: Comply with Commissioning and LEED requirements.

1.13 PROTECTING INSTALLED WORK

- A. Protect all built, and in-place Work. In addition to requirements specified elsewhere, the Construction Manager shall protect all installed work from subsequent damage or deterioration from construction activities, and atmospheric damage until Owner's Substantial Completion and occupancy precludes the need for protection activities. No attempt is made in this Section to list all elements requiring protection or to describe how each element will be protected. It is the responsibility of the Construction Manager to determine for itself the scope and nature of protection required.
 - 1. Protection of some products/building elements may be required to remain in place for a large portion duration of the project. As such, materials should be installed to provide adequate protection throughout the full extent of construction activities. Repair or reinstall protection throughout the duration of construction as required.
- B. Finish Products: Some finishes may need to be physically isolated from construction operations by means of protective barriers and coverings.
 - 1. General: After installation, provide coverings to protect products from damage due to traffic and construction operations. Replace protective coverings which

- may become wet, torn, or ineffective. Remove coverings when no longer needed.
2. Doors, door frames and hardware: Protect from damage due to traffic and construction operations.
 3. Floor and Finished Surfaces Protection: Protect against construction traffic, rolling loads, static loads, damage from material movement and storage, or similar causes of damage.
 4. Walls: Protect from impact, dents, marks, water damage, and similar damage.
 5. Glass: Protect from damage including etching and staining. Keep glass clean.
 6. Protect products sensitive to water damage from becoming wet.
 7. Protect products sensitive to ultra-violet exposure and atmospheric exposure by limiting exposure to within limits recommended by respective product manufacturer.
 8. Protect products from biological growth, molds and mildew.
 9. Protect products from rodents and other animals, birds and insect damage.
- C. Roofing and waterproofing systems: Protect and isolate from traffic and construction operations. Protect from chemicals. Work and traffic directly upon roofing and waterproofing is prohibited, provide temporary walkways and platforms.
- D. General Protection from chemicals:
1. Cover adjacent surfaces with materials that are proven to resist chemical cleaners selected for Project unless chemicals being used will not damage adjacent surfaces. Use covering materials that contain only waterproof, UV-resistant adhesives. Apply masking agents to comply with manufacturer's written instructions. Do not apply liquid masking agent to painted or porous surfaces. When no longer needed, promptly remove masking to prevent adhesive staining.
 2. Do not clean surfaces during winds of sufficient force to spread cleaning solutions to unprotected surfaces.
 3. Neutralize and collect alkaline and acid wastes and dispose of off-site.
 4. Dispose of runoff from chemical operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
- E. Save plastic coverings. At completion of Project, reuse if practical; if not, then recycle if local market exists.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

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SECTION 017329

CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Attention is directed to the CONTRACT and GENERAL CONDITIONS and all Sections within DIVISION 1 – GENERAL REQUIREMENTS, which are hereby made a part of this Section.

1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
 - 1. Divisions 02 through 49 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
 - 2. Division 07 Section "Penetration Firestopping" for patching fire-rated construction.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.
 - 1. Cutting round holes six (6) inches in diameter or less, or square or rectangular holes 8 x 8 inches or less, in existing assemblies is the work of the trade proposing using the hole or opening.
 - 2. Larger openings or holes shall be coordinated with the installer of the assembly being cut who shall cut, and reinforce or frame the opening or hole so that an effective patch can be made.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
 - 1. Primary operational systems and equipment.
 - 2. Air or smoke barriers.

3. Fire-suppression systems.
 4. Mechanical systems piping and ducts.
 5. Control systems.
 6. Communication systems.
 7. Conveying systems.
 8. Electrical wiring systems.
 9. Operating systems of special construction in Division 13 Sections.
- C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
1. Water, moisture, or vapor barriers.
 2. Membranes and flashings.
 3. Exterior curtain-wall construction.
 4. Equipment supports.
 5. Piping, ductwork, vessels, and equipment.
 6. Noise- and vibration-control elements and systems.
- D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.

3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete & Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
 5. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish

restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

- a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 017329

SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The Conditions of the Contract and Division 1, General Requirements, apply to the work under this Section.
- B. Attention of the Contractor and this Subcontractor is drawn to provisions of the Contract Documents regarding the responsibility of all bidders to visit and inspect the site, including the existing building, and to base all bids on conclusions drawn from such inspections.

1.02 SCOPE OF WORK

- A. This Section specifies administrative and procedural requirements for the Contractor's implementation of waste management controls and systems for the duration of the Work.
 - 1. Masonry subcontractor is responsible for waste management of masonry work.
 - 2. Roofing and flashing subcontractor is to be responsible for waste management of roofing and flashing work.
- B. Develop and implement a waste management plan compliant with the requirements of LEED-S v4 MR prerequisite Construction and Demolition Waste Management Planning and MR credit Construction and Demolition Waste Management.

1.03 INTENT

- A. Sustainable Design Intent: Comply with project requirements intended to achieve certification, measured and documented according to the LEED v4 Green Building Rating System, of the US Green Building Council.
- B. The Owner and Architect have established that this Project shall generate the least amount of waste practical and that processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors shall be employed.
- C. Of the waste that is generated, as many of the waste materials as economically feasible shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized to the greatest extent practical.
- D. With regard to these goals the Contractor shall develop, for the Architect's review, a Waste Management Plan for this Project.
 - 1. Each Subcontractor shall be responsible for segregating his own waste into different dumpsters as directed by the Contractor. OR C + D waste materials will be collected on site in commingled containers and sorted off site.
 - 2. Contractor shall be responsible for ensuring that debris will be disposed of at appropriately designated licensed solid waste disposal facilities, as defined by MGL Chapter 111, Section 150A.

1.04 SUBMITTALS

- A. Waste Management Plan: Within 21 calendar days after receipt of Notice to Proceed, the Contractor shall provide a compliant Construction Waste Management Plan including:
- Identify a minimum of five materials target for diversion, (structural and non-structural).
 - Determine and document the estimated percentage of the overall waste that these materials represent. Divert 75% and Four Material Streams REQUIRED.
 - Document if these materials will be site separated or commingled and sorted off site.
 - Describe the diversion strategies.
 - Identify the locations as to where the materials will be taken include recycling facilities, sorting facilities and landfills. Include the following:
 - Landfill Options: The name of the landfills where the non-recyclable Construction and Demolition waste will be taken to be disposed of, applicable tipping fees and the projected cost of disposing of the Project waste in landfills
 - Off-Site Sorting: The name of off site sorting facilities to receive commingled demolition and construction debris collected in mixed materials containers on site.
 - If sorted off site identify the sorting facilities and how the materials will be processed

NOTE: Alternative daily cover (ADC) does not qualify as material diverted from disposal. Land-clearing debris is not considered construction, demolition, or renovation waste that can contribute to waste diversion.

- B. Landfill Certification: Provide a statement of verification that the landfills proposed for use are licensed for types of waste to be deposited and have sufficient capacity to receive the estimated waste from this project
- C. For co-mingled materials collected in mixed containers on site and sorted off-site the following documentation must be provided:
1. For each container: A detailed breakdown of the weight of each material after sorting, including materials diverted to landfills
 2. AND/OR Provide the sorting facilities annual average recycling rate for EACH facility where off-site sorting takes place. Additionally, provide documentation that the facility is State regulated.

NOTE: Co-mingled waste may be considered only one material stream unless the facility can provide diversion rates for specific materials.

- D. Recycled, and Salvaged Materials: Provide a list of each materials proposed to be recycled, salvaged or diverted from landfill during the course of the Project. Include anticipated volumes for a minimum of five of the following and any additional items:

1. Cardboard and paper
 2. Clean dimensional Wood (free from nails and screws, etc)
 3. Concrete and slurry wall materials
 4. Brick/Masonry
 5. Asphalt
 6. Metals including framing, banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.
 7. Gypsum Board
 8. Mechanical and Electrical equipment
 9. Building components that are removed intact during demolition
 10. Glass
 11. Packing materials
 12. Beverage Containers
- E. Meetings: A description of the regular meetings to be held to address waste management
- F. Procedures for Materials Handling: Provide a description of the means by which any waste materials and/or collection containers identified above will be protected from contamination, and a description of the means to be employed in recycling the above materials consistent with requirements for acceptance by designated facilities.
- G. Transportation: Provide a description of the means of transportation of the recyclable materials identify if materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site for off-site sorting
- H. Waste Management Progress Reports to be submitted concurrent with each monthly Application for Payment. Provide a written Waste Management Progress Report and updated tracking spreadsheet
- I. Waste Management Final Report: Prior to Substantial Completion, submit a written Waste Management Final Report summarizing the types and quantities of materials recycled and disposed of under the Waste Management Plan. Include the name and location of disposal facilities. Quantity may be measured by either weight or volume; be consistent in calculations. Include the following:
1. Material category.
 2. Generation point of waste.
 3. Total quantity of waste, by weight.
 4. Quantity of waste salvaged, both estimated and actual.
 5. Quantity of waste recycled, both estimated and actual.
 6. Total quantity of waste recovered (salvaged plus recycled).
 7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- J. Other Submittals:
1. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

2. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
3. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
4. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

1.05 CONTRACTORS

- A. Contractor may subcontract work of this Section to a sub-contractor specializing in recycling and salvaging of construction waste.
 1. Institution Recycling Network, 7 South State Street, Suite 2, Concord, NH 03301; tel. 866-229-1962
 2. Waste Solutions, Inc., 965 Plain Street, Marshfield, MA 02050; tel. 781-844-1476
 3. Eco-One Solutions, 18 Glenwood Street, Natick MA, 01760; tel. 978.270.8950
 4. Or equal as approved by the Architect.
- B. Gypsum Wallboard Recycling: New, paper-faced gypsum wallboard scrap (cuts from construction - not demolition waste) generated at project shall be recycled by Gypsum Recycling America, LLC. Keep scrap dry. Contact Gypsum Recycling America at 1.866.9.GYPSUM (1.866.949.7786) or jw@gypsumrecycling.us, to coordinate recycling efforts.
- C. Acoustical Ceiling Panel Recycling: Demolition and construction waste pulpable mineral fiber ceiling panels may be recycled by Armstrong World Industries. Contact Armstrong at 1-877-ARMSTRONG (1-877-276-7876) or visit www.armstrong.com to coordinate recycling efforts, apply for product approvals, and receive reclamation procedure requirements.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.01 RECYCLING

- A. Metal, including but not limited to aluminum stairs, structural beams and sections, and reinforcing steel shall be recycled.
- B. Wood that is not painted and does not contain preservatives (i.e. creosote, arsenic, and chromium-containing preservatives) shall be segregated and recycled.
- C. Refer to the Massachusetts Recycling Directory available at the Massachusetts State Bookstore (617-727-2834) in the State Capitol Building for recycling operations within the State.

3.02 WASTE MANAGEMENT PLAN IMPLEMENTATION

- A. Manager: The Contractor shall designate an on-site person responsible for instructing workers and overseeing and documenting results of the Waste Management Plan for the Project
- B. Distribution: The Contractor shall distribute copies of the Waste Management Plan to the Job Site Foreman, each Subcontractor, the Owner and the Architect.
- C. Instruction: The Contractor shall provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the Project
- D. Separation Facilities: The Contractor shall lay out and label a specific area to facilitate separation of materials for recycling, salvage, reuse, and return. Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid contamination of materials. Location shall be acceptable to the Architect.
- E. Hazardous Wastes: Any unforeseen hazardous wastes shall be separated, stored, and disposed of according to local regulations and as directed by the Owner.

END OF SECTION 01 74 19

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Section 01 75 00
STARTING AND ADJUSTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Testing, adjusting, and balancing.
- B. Operation, maintenance, and service.

1.2 RELATED REQUIREMENTS

- A. Section 01 91 13 – GENERAL COMMISSIONING REQUIREMENTS.

1.3 TESTING, ADJUSTING, AND BALANCING

- A. General: Adjust operating products and equipment to ensure smooth and unhindered operation.
 - 1. Construction Manager is advised that testing and balancing agents may be required during commissioning activities as specified in Section 01 91 13 – GENERAL COMMISSIONING REQUIREMENTS, or as may be additionally directed by Architect.
- B. Trade Contractors under Division 21 – Fire Suppression, Division 22 – Plumbing and Division 23 – Heating, Ventilating and Air Conditioning are all responsible for primary system testing and balancing as specified under their respective Sections. Construction Manager will be required to coordinate these services.
- C. Construction Manager and Trade Contractors (Division 21 – Fire Suppression, Division 22 – Plumbing and Division 23 – Heating, Ventilating and Air Conditioning) are jointly responsible and required to provide assistance to the Owner's independent Commissioning agent as specified under Section 01 91 00 – GENERAL COMMISSIONING.
- D. The independent firm will perform services specified under Division 21 - Fire Suppression, Division 22 - Plumbing, and Division 23 - Heating, Ventilating, and Air Conditioning.
- E. Reports will be submitted by the independent firm to the Architect indicating observations and results of tests and indicating compliance or non-compliance with specified requirements and with the requirements of the Contract Documents.

1.4 AIR QUALITY TESTING

- A. Air quality testing: The Owner reserves the right to employ the services of an independent testing agency to perform air quality testing. Testing will occur prior to Construction Manager's request for inspection for Substantial Completion. The intent of testing is to certify that the building is "Clear" of airborne contaminants.

1.5 OPERATION, MAINTENANCE, AND SERVICE

- A. Coordinate schedule for start-up of various equipment and systems.

- B. Notify Architect/Engineer and Owner 7 days prior to start-up of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other conditions which may cause damage.
- D. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of responsible Construction Managers' personnel in accordance with manufacturers' instructions.
- G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- H. Submit a written report in accordance with Section 01 77 00 - CLOSEOUT PROCEDURES that equipment or system has been properly installed and is functioning correctly.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

Section 01 77 00
CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Closeout of incomplete work (punch list) requirements.
- B. Closeout procedures.
- C. Conferences occurring after Substantial Completion.

1.2 RELATED REQUIREMENTS

- A. Section 01 60 00 - PRODUCT REQUIREMENTS: Listing of VOC requirements for adhesives, cleaning/maintenance materials, paints, coatings, and sealants.
- B. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT: Procedural and administrative requirements for construction and demolition recycling.
- C. Section 01 78 00 – CLOSEOUT SUBMITTALS: Requirements for project record documents.
- D. Section 01 78 36 – WARRANTIES: Administrative and procedural requirements for warranties, guarantees and bonds.
- E. Section 01 81 13 - SUSTAINABLE DESIGN REPORTING: Special administrative and procedure requirements related to the Owner's *LEED v4*, *LEED for Building Design and Construction*, *LEED BD+C: Schools* rating system certificate goals of energy conservation and efficiency, indoor air quality, and natural resource efficiency.

1.3 PUNCH LIST REQUIREMENTS AND PROCEDURES

- A. Definitions:
 - 1. Construction Manager's Punch List: Complete list of incomplete and incorrect Work prepared by the Construction Manager prior to request of Architect's inspection for Certification of Substantial Completion. As a minimum the List shall include the following information for each work item:
 - a. Location identification organized by Building, Area, Room Number, or combination thereof as appropriate to project.
 - b. Clear identification of each incomplete work item, including all Trade Contractor and subcontractor's work.
 - c. Estimated value of each incomplete work item.
 - d. A short statement of why work is not complete.
 - e. Identify subcontract responsibility, as appropriate to each item.
 - f. Provide Owner with one (1) week advance notice of scheduled punchlist inspections to facilitate Owner participation if preferred.
 - 2. Architect's Punch List: A list of incomplete and incorrect Work prepared by the Architect, which modifies the Construction Manager's Punch List, following review and acceptance of the Construction Manager's Punch List.

- B. Pre-Closeout requirements: Prior to requesting initial Architect's inspection for Certification of Substantial Completion, submit to the Architect a full and complete list of all incomplete work items (Construction Manager's Punch List).
- C. Punch list procedures at Substantial Completion:
 - 1. Architect will review submitted Construction Manager's Punch List and determine whether it is suitable to proceed with the Substantial Completion Process.
 - a. If the Architect determines that the amount of completed work is insufficient to be considered for Substantial Completion, the Architect will not proceed with the Punch lists process until sufficient completion of the Project is achieved.
 - b. The Architect will review the Construction Manager's Punch List and if the Architect determines that it does not reflect proper identification of the incomplete and incorrect work, he/she will request revision and resubmission of the Construction Manager's Punch List.
 - c. If the Architect determines that the amount of work indicated on the Construction Manager's Punch List is excessive, the Architect will suspend its review until the scope of Work identified in the Construction Manager's Punch is reduced to a level satisfactory to the Architect.
 - d. When the Architect reviews and accepts the Construction Manager's Punch List as being an accurate reflection of incomplete and incorrect work; the Architect will prepare and issue to the Construction Manager the "Architect's Punch List".
 - 1) The Architect's Punch List will be based on the Construction Manager's Punch List with modifications and additions as may be required.
 - 2) The Architect's Punch List includes Work which must be completed and corrected prior to Final Completion.
 - 2. Upon receipt of the Architect's Punch List, the Construction Manager shall immediately distribute the list to all Trade Contractors and subcontractors.
- D. Completion of Punch List Work: Make reasonable efforts to ensure that all "Architect's Punch List" items are completed or corrected within 14 calendar days from the date of the Architect's Punch List" or within the Contract Time, whichever is earlier.
- E. Architect's Final Inspection and review of Punch List Work:
 - 1. After Construction Manager certification that all punch list Work has been properly completed the Architect will then perform the Final Inspection.
 - a. Incomplete Items: If the Architect discovers any incomplete or incorrect "Architect's Punch List" items or any other deficiency in the work, the Architect will prepare a "Revised Punch List" which may also include other incomplete Contract requirements such as record documents, owner's operation and maintenance manuals, warranties, and other Contract requirements. Architect's site reviews of the Work for this "Revised Punch List" and any subsequent revised Punch Lists shall be performed as additional service to Owner, back-charged to the Construction Manager.

- b. The Architect will assign a dollar value for each item of incomplete or incorrect work remaining at 3 times the estimated value of the work to be withheld from any subsequent application for payment until such time as it is determine the work in question is complete.
- F. Additional Inspections and related additional services fee: The Architect and the Architect's consultants will provide two site inspections, one at Substantial Completion, and one to confirm that the "Architect's Punch List" has been completed.
 - 1. "Revised Punch List: If the Architect prepares and issues a "Revised Punch List: because of the Construction Manager's failure to complete the Work, then the Owner shall compensate the Architect and the Architect's consultants for their additional services and additional inspections. The payment for additional services and inspections will be back-charged to Construction Manager. The Owner will deduct the amount of the Architect's additional services fee from final payment to the Construction Manager by Change Order.

1.4 CLOSEOUT PROCEDURES - SUBSTANTIAL COMPLETION

- A. Prior to requesting inspection for certification of Substantial Completion, complete the following:
 - 1. On Application for Payment, show 100 percent completion for portions of work claimed as substantially complete.
 - a. Submit list of incomplete items (Punch List), value of incomplete work, and reasons work is not complete.
 - 2. Obtain evidence of compliance with requirements of governmental agencies having jurisdiction including, but not necessarily limited to:
 - a. Certificate of Final Inspections, "signed off" by authorities having jurisdiction.
 - b. Certificate of Occupancy.
 - 3. Submission of product and installation warranties, workmanship bonds, maintenance agreements, installer certifications and similar documents specified in individual sections.
 - 4. Submission of test/adjust/balance reports.
 - 5. Change-over permanent locks and transmit keys to the Owner.
 - 6. Remove temporary facilities and services that are no longer required.
 - 7. Remove mock-ups, field samples and similar items.
 - 8. Complete Final Cleaning, including repair and restoration, or replacement of damaged Work.
 - 9. Remove surplus materials, rubbish and similar elements.
 - 10. Documentation of completed flushout procedures.
 - 11. Application for reduction of retainage.
 - 12. Consent of Surety.
 - 13. Advise the Owner of the change-over in security provisions.
 - 14. Notification of shifting insurance coverage.
 - 15. Final progress photographs.

16. LEED Certification.

- B. Within 2 weeks after receipt of the notice of Substantial Completion from the Construction Manager, the Architect will inspect to determine status of completion.
 - 1. Should the Architect determine that the Work is not substantially complete:
 - a. The Architect will notify the Construction Manager in writing, stating the reasons therefore.
 - b. The Construction Manager shall remedy the deficiencies and send a second written notice of Substantial Completion to the Architect, requesting re-inspection.
- C. When the Architect concurs that the Work is substantially complete:
 - 1. The Architect will prepare AIA Document G 704 - CERTIFICATE OF SUBSTANTIAL COMPLETION, in accordance with the requirements of the GENERAL CONDITIONS and SUPPLEMENTARY CONDITIONS, accompanied by the Construction Manager's list of items to be completed or corrected, as verified by the Architect.
 - 2. The Architect will submit the Certificate to the Owner, and to the Construction Manager, for their written acceptance of the responsibilities assigned to them in the Certificate.

1.5 CLOSEOUT PROCEDURES - FINAL ACCEPTANCE

- A. Prior to requesting inspection for certification of Final Acceptance and final payment, perform the following:
 - 1. Complete incomplete Work. Submit a copy of the final inspection list stating that each item has been completed or otherwise resolved for acceptance.
 - 2. Prove that all taxes, fees and similar legal obligations have been paid.
 - 3. Submit final payment requests with release of all liens, and supporting documentation.
 - 4. Provide written assurances that all unsettled claims are in the process of and will be resolved.
 - 5. Submit updated final statement, including accounting for final additional changes to the Contract Sum. Show additional Contract Sum, additions and deductions, previous Change Orders, total adjusted Contract Sum, previous payments and Contract Sum due.
 - 6. Submit consent of surety to Final Payment.
 - 7. Submit evidence of continuing insurance coverage complying with insurance requirements.
 - 8. Transmit certified property survey.
 - 9. Remove remaining temporary facilities and services.
 - 10. Deliver to Owner and obtain receipts for:
 - a. Operation and Maintenance Manuals for items so listed in individual Sections of the Specifications, and for other items when so directed by the Architect. Provide evidence of review and acceptance of operation and maintenance manuals by the Commissioning agent.

- b. Project Record Documents (as-built drawings) including Autodesk Revit and Portable Document Format (PDF) format drawings on discs. Provide evidence of review and acceptance record documents by the Commissioning agent.
 - c. Warranties and bonds specified in individual Sections of the Specifications. Provide evidence of review and acceptance record documents by the Commissioning agent.
 - d. Keys and keying schedule.
 - e. Spare parts and materials extra stock.
 - f. Pest control inspection report.
 - g. List of Trade Contractors and subcontractors, service organizations, and principal vendors, including names, addresses, and telephone numbers where they can be reached for emergency service at all times including nights weekends, and holidays.
- 11. Submit Certification stating Work has been inspected for compliance with the Contract Documents.
- 12. Submit Certification stating equipment and systems have been tested in presence of Owner's representative and are fully operational.
- 13. Submit Certification stating that Work is 100 percent complete and ready for final inspection.
- B. Within 2 weeks after receipt of the request for Final Acceptance from the Construction Manager, the Architect will inspect to determine status of completion.
 - 1. Should the Architect determine that the Work is incomplete or defective:
 - a. The Architect will notify the Construction Manager in writing, stating the reasons listing the incomplete or defective work.
 - b. The Construction Manager shall take immediate steps to remedy the deficiencies and send a second written notice of request for Final Acceptance to the Architect.
 - c. Costs relative to the Architects re-inspection due to failure of Work to comply with claims made by the Construction Manager, will be compensated by the Owner, who will deduct the amount of such compensation from the Final Payment due to the Construction Manager.
- C. After the Architect finds the Work acceptable, the Architect will review the Final Close-out submittals.
- D. Application for Final Payment: Submit Application for Final Payment in accordance with procedures and requirements of the General Conditions and Supplementary Conditions.
 - 1. The Architect will prepare a Final Change Order, reflecting approved adjustments to the Contract Sum not previously made by other Change Orders.

1.6 CONFERENCES AFTER SUBSTANTIAL COMPLETION

- A. The Owner reserves the right to call for conferences commencing with the date of Substantial Completion and continuing for one year thereafter, for purposes of

inspecting the Work and to plan correction of any deficiencies or failures discovered during this period.

1. Attendance is required by Construction Manager's Project Manager, Architect, Owner's Project Manager and each applicator, installer, and supplier as the Owner may direct or the Construction Manager may wish to have present. All representatives attending such meetings shall be the same persons, or shall have the same powers and authority, as those attending progress meetings occurring prior to the Date of Substantial Completion.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

Section 01 78 00
CLOSEOUT SUBMITTALS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Project Record Documents.
- B. Record Project Manual.
- C. Project Record Drawings (As built drawings).
- D. Project Record Submittals.
- E. Final As-Built Site Survey.
- F. Operation and maintenance data, preventive maintenance instructions.
- G. Materials and finishes manual.
- H. Maintenance contracts.
- I. Spare parts and maintenance materials.
- J. Flat file storage cabinet with stand.

1.2 RELATED REQUIREMENTS

- A. Section 01 31 00 - PROJECT MANAGEMENT AND COORDINATION:
 - 1. Coordination Drawing Requirements.
 - 2. Electronic file requirements for base sheets to prepare Project Record Drawings (As-built drawings).
- B. Section 01 33 29 - SUSTAINABLE DESIGN REPORTING: Special administrative and procedure requirements related to the Owner's *LEED v4, LEED for Building Design and Construction, LEED BD+C: Schools* rating system certificate goals of energy conservation and efficiency, indoor air quality, and natural resource efficiency.
- C. Section 01 60 00 - PRODUCT REQUIREMENTS: Listing of VOC requirements for adhesives, cleaning/maintenance materials, paints, coatings, and sealants.
- D. Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL: Procedural and administrative requirements for construction and demolition recycling.
- E. Section 01 78 36 – WARRANTIES: Administrative and procedural requirements for warranties, guarantees and bonds.

1.3 PROJECT RECORD DOCUMENTS

- A. General: Record documents shall reflect actual "as-built" condition and the products installed. Include all changes and deviations from original Contract Documents, and incorporate information from:
 - 1. Original Contract Documents.

2. Addenda.
 3. Change orders.
 4. Construction change directives.
 5. Field directives, and instructions from the Owner, Architect or regulatory authorities having jurisdiction.
- B. Project Record Documents include, but are not limited to:
1. Record Project Manual.
 2. Project record drawings (as built drawings).
 3. Project record submittals.
 4. Final Site Survey.
 5. Operation and maintenance data, preventive maintenance instructions.
 6. Materials and finishes manual.
 7. Product warranties and bonds.
 8. Maintenance contracts.
 9. Record of all test reports and inspections.
 10. Wall charts and data such as valve diagrams, electrical panel board directories, and similar information.
 11. Organized, complete testing results for the entire project as submitted to the City of Worcester Building Department
- C. Labeling and identification of Record Documents
1. Clearly label all record documents with name of Project and the words "Record Document".
 2. Date progressive entries of information as appropriate.
 3. Date Record Documents with the final submission date.
 4. All electronic records shall be similarly organized.

1.4 SUBMITTAL QUANTITY REQUIREMENTS

- A. Furnish Architect with the following quantities of each submittal:
1. Record Project Manual: 2 bound copies and 2 electronic versions.
 2. Project Record Drawings (as-builts):
 - a. 2 sets of Drawings in Autodesk Revit®, Autodesk AutoCad®, Navisworks and Portable Document Format (PDF) format.
 - b. 2 full-size "blackline print" sets of Drawings.
 3. Project Record Submittals: Provide a portable media, including USB flash drive, with all submittals arranged into Divisions, specification sections, and submittal titles.
 4. Final Site Survey: 2 bound copies and 2 digital versions.
 5. Operation and maintenance data, preventive maintenance instructions: 2 electronic versions.
 6. Owner Training Video for operation of building systems and major equipment: 2 copies.

7. Materials and finishes manual: 2 electronic versions.
8. Product warranties and bonds: 2 electronic versions.
9. Maintenance contracts: 2 electronic versions.
10. Record of all test reports and inspections including code sign off drawings and permits: 2 electronic versions.

1.5 RECORD PROJECT MANUAL

- A. The Construction Manager is responsible to maintain a Project Manual reflecting revisions and changes to the Original Issue Project Manual.
 1. Clearly label the Record Project Manual as "Record Document Specifications, in a three ring binder.
 2. Do not use Record Project Manual for construction purposes; protect from loss in a secure location.
 3. Record all variations and deviations to the Contract Documents, including changes made by Addenda, Bulletin, Change Order, Change Directive and other modifications to the Contract..
 - a. Cut and paste revisions into their applicable specification section.
 - b. Identify all changes with cross-reference to appropriate Addendum Number, Modification Number, Change Order Number etc.
 4. In each individual Specification Section, under "*Part 2 – Products*", identify all manufacturers and products which are actually used as part of the Work.
 5. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
- B. Record Project Manual: Provide prior to request for Final Acceptance.
 1. Manuals shall be in 8-1/2 by 11 inch pages and bound in 3-ring (D-shape) binders with durable plastic covers. Internally subdivide the binder contents by Division with permanent page dividers.
 2. Label front cover and spine of each binder with laser printed titles, dates, and project information.
 3. All information from "in-progress" manual shall be clearly and completely transferred.
 4. Pages shall be undamaged.
 5. Provide 3 bound copies and 5 electronic versions on media acceptable to the City of Worcester.

1.6 ELECTRONIC WEB-BASED SERVICE DOCUMENTS

- A. The Construction Manager shall furnish to the Owner, with a portable storage device, containing ALL files that were stores on the web-based program. Such media device shall be usable through a USB port with capacity to store all files. Such files shall include, but not limited to, submittals, RFI's, CO's, CCD's, ASI's, PCO's, as-built drawings, field reports, test reports and meeting minutes.
 1. Organize all submittals into folders by division.
 2. Quantity: 2.

1.7 PROJECT RECORD DRAWINGS

- A. The Construction Manager is responsible to maintain a clean, undamaged set of blue or black line prints of Contract Drawings and shop drawings for preparing the record drawings.
 - 1. Where shop drawings are used, record a cross-reference at the corresponding location on the Contract Documents.
 - 2. Site Drawings maintained by the Construction Manager and all trades, the coordination drawings file, and other field documents shall be used in preparing the electronic as-built drawings and documents.
 - 3. Construction Manager to compile all trade sets to one organized final file/submission.
- B. Do not use Record Documents for construction purposes; protect from loss in a secure location. Mark-up these drawings to show clearly and completely the actual installation reflecting all changes made in the Work during construction.
 - 1. Mark whichever drawing is most capable of showing conditions accurately.
 - 2. Record all variations and deviations to the Contract Documents, including changes made to schedules, details, and all architectural changes to structure, exterior enclosure, interior partitions and ceilings.
 - 3. Record new information that is important to the Owner, but was not shown on the Contract Drawings or shop drawings.
 - 4. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
- C. The food service, fire protection, plumbing, mechanical and electrical trades shall be responsible to the Construction Manager to keep the record documents for their portions of the work marked currently to record all changes in the mechanical and electrical work made during construction.
- D. The Architect may periodically inspect these record drawings, and their proper maintenance may be a condition precedent to approval of applications for periodic payments.
- E. Deliver all Project Record Documents, shop drawings, product data, and samples to the Architect for the Owner's use, upon completion of the Work and prior to request for Final Acceptance of the Work.
- F. In addition, at the completion of the work, the Construction Manager is responsible for the preparation and submittal of neat, clean well drafted, and complete record drawings, at no additional costs to the Owner. These reproducible Project Record Documents shall be transmitted to the Architect as a condition precedent to final payment, and include documents prepared by the food service, fire protection, plumbing, mechanical and electrical trades. All files must be "e-transmitted" to ensure that all associated CAD external references, plot styles, and fonts are included in one file for ease of use by the Owner. All as-built drawing sheets are to be numbered and oriented the same as the contract drawings.

1.8 FINAL AS-BUILT SITE SURVEY

- A. Under provisions of Section 01 73 00 - EXECUTION, Surveyor shall provide final corrected submission of Final Site Survey (As-built property survey) after work has been completed.
 - 1. Final site survey shall show significant features for the Project. Include a certification, signed by the surveyor, to the effect that metes, bounds, lines and levels of the Project are accurately positioned as shown on the survey.
 - 2. Final site survey drawings shall graphically indicate all items in a similar manner as the original site survey drawings.
 - 3. Final site survey drawings shall maintain original sheet numbering.
- B. Survey format shall be in accordance with requirements of the authorities having jurisdiction, and show the following as a minimum:
 - 1. Property boundaries.
 - 2. All required legal descriptions.
 - 3. Bench marks.
 - 4. Completed foundation work.
 - 5. Building extremities.
 - 6. Pad mounted equipment.
 - 7. All paving work.
 - 8. Revisions to wetland areas.
 - 9. Easements and modifications to easements.
 - 10. Underground utilities and all changes in existing utilities.
- C. Record deviations from required lines and levels. Advise the Architect when deviations that exceed indicated or recognized tolerances are detected. On Final Site Survey, record deviations that are accepted and not corrected.
- D. Submit signed, sealed and certified copies shall be provided to the architect's office for review prior to filing with authorities having jurisdiction. Ensure information is complete, accurate submitted in a timely fashion.
 - 1. Recording: At Substantial Completion, have the final survey recorded by or with local authorities as the official "Property Survey".

1.9 OPERATION AND MAINTENANCE MANUALS

- A. General: Coordinate content and submission requirements of operation and maintenance manuals with Owner's Commissioning Agent.
- B. Prepare data in the form of an instructional manual. Furnish separate manuals for each of the following groups of equipment:
 - 1. Food service equipment.
 - 2. Elevators.
 - 3. Special equipment and systems.
 - 4. Fire protection system.
 - 5. Utilities and plumbing systems.

6. Heating, ventilation and air conditioning system.
 7. Electrical systems.
- C. Furnish digital and properly identified Manuals prior to request for Final Acceptance.
1. Manuals shall be in electronic PDF format that is clearly and concisely bookmarked or organized into folders by discipline.
 - a. Keep as currently written.
 - b. Reference drawings shall be in electronic PDF format and inserted in relevant locations to corresponding manual item. Preference is to keep drawings to 11 by 17 inch maximum size.
 - c. Provide warranty spreadsheet/table of contents with PDF hyperlinks to all the warranties throughout the manual files.
 2. Each manual shall include the same following minimum information:
 - a. Table of Contents.
 - b. Directory of Construction Manager, Trade Contractors, subcontractors, and major equipment supplies listing addresses, phone numbers and appropriate emergency phone numbers.
 - 1) Include local sources of supplies and replacement parts.
 - c. Directory of Architect and consultants listing addresses and phone numbers.
 - d. Operation and maintenance instructions. Provide schematic diagrams of control systems, circuit directories for each electric panel and charts showing the tagging of all valves.
 - e. Air and water test and balancing reports.
 - f. Maintenance and cleaning instructions for finishes.
 - g. Product and manufacturer's Certificates.
 - h. Photocopies of all extended warranties and bonds.
 3. Submit one digital copy of completed volume in final form 21 days prior to Final Inspection. This copy will be returned after final inspection with Architect's comments; Revise and submit all volumes to Owner.
- D. For each item of equipment, include description of equipment, component parts and accessories. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts. Additionally provide the following for each item:
1. Panelboard circuit directories: Provide electrical service characteristics, controls and communications.
 2. Include color coded wiring diagrams as installed.
 3. Operating procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

4. Maintenance requirements: Include routine procedures and guide for trouble-shooting; disassembly, repair, and re-assembly instructions; alignment, adjusting, balancing, and checking instructions.
 - a. Maintenance drawings: Supplement product data to illustrate relation of component parts of equipment and systems, to show control and flow diagrams. Do not use project Record Documents as maintenance drawings.
5. Provide servicing and lubrication schedule, and list of lubricants required.
6. Include manufacturer's printed operation and maintenance instructions.
7. Include sequence of operation by controls manufacturer.
8. Provide control diagrams by controls manufacturer as installed.
9. Provide Construction Manager's coordination drawings, with color coded piping diagrams as installed.
10. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
11. Provide original manufacturer's parts (OEM) list, illustrations assembly drawings, and diagrams required for maintenance.
 - a. Provide list of original manufacturer's spare parts (OEM), current prices, and recommended quantities to be maintained in storage.
 - b. Include local source of supplies and replacement parts, and any other data pertinent for procurement procedures.
12. Additional requirements: As specified in individual specification Sections.

E. Standards:

1. Measurements: Provide all measurements in U.S. standard units such as feet and inches, pounds, and cfm; provide additional measurements in the "International System of Units" (SI).
2. Abbreviations: Provide complete nomenclature of all parts of all equipment; include part numbers of all replaceable parts.

1.10 MATERIALS AND FINISHES MANUAL

- A. Furnish digital properly identified manuals for all materials and finishes prior to request for Substantial Completion review.
 1. Manuals shall be in electronic PDF format that is clearly and concisely bookmarked or organized into folders by discipline.
 - a. Keep as currently written.
 - b. Reference drawings shall be in electronic PDF format and inserted in relevant locations to corresponding manual item. Preference is to keep drawings to 11 by 17 inch maximum size.
 - c. Provide warranty spreadsheet/table of contents with PDF hyperlinks to all the warranties throughout the manual files.
- B. Manuals shall include the following:
 1. Product data, with catalog number, size, composition, and color and texture designations for all building products, applied materials, and finishes. Provide information for re-ordering custom manufactured products.

2. Instructions for care and maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
3. Moisture protection and weather exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
4. Additional requirements: As specified in individual specification Sections.

1.11 PEST CONTROL INSPECTION AND REPORT

- A. Engage an experienced, licensed exterminator to make a final inspection and fully rid Project of rodents, insects, and other pests.
 1. Prepare and submit report, identify:
 - a. Area or areas which were treated.
 - b. Rodenticides used.
 - c. Manufacturer's data including MSDS, special precautions and applications instructions.
 - d. Pollution preventive measures employed.

1.12 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification Sections.
- B. Deliver materials to on-site location designated by the Owner; obtain receipt.

PART 2 – PRODUCTS

2.1 FLAT FILE STORAGE CABINET AND BASE

- A. Description: Provide lockable, steel, 5-drawer flat file storage cabinet by Safco Products Company or approved equal meeting the following requirements:
 1. Size: minimum 48 inch by 36 inch; capable of storing full-size project drawings.
 2. Color: Black.
 3. Drawer operation: Ball-bearing slides.
 4. Base: Provide optional high base in matching color as storage cabinet. Base shall be minimum 20 inches high with enclosed back and sides and open front for storage.

PART 3 - EXECUTION (Not Used)

End of Section

Section 01 78 36
WARRANTIES

PART 1 - GENERAL

1.1 SUMMARY

- A. General: This Section specifies general administrative and procedural requirements for warranties, guarantees and bonds required by the Contract Documents, including manufacturers standard warranties on products and special warranties. Warranty, Guarantee and Bond requirements of this Section are applicable to all trades, all Divisions of the Specifications, and applies to all Work performed under this Contract.
 - 1. Warranties required under the Contract are in addition to and not in lieu of any remedy or warranty to which the Owner is entitled under law.
 - 2. Warranties required under the Contract are not a waiver of Owner's legal rights.
- B. Construction Manager's Procurement Obligations: Do not purchase, subcontract for, or allow others to purchase or sub-subcontract for material or units of work for project where a special project warranty, certification or similar commitment is required, until it has been determined that entities required to countersign such commitments are willing to do so.

1.2 RELATED REQUIREMENTS

- A. General provisions of the Contract, including General and Supplementary Conditions apply to this Section.
- B. Individual Specification Sections contain additional specific requirements for warranties and bonds.
- C. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.

1.3 DISCLAIMERS AND LIMITATIONS

- A. General Limitations: It is recognized that specific warranties are intended primarily to protect Owner against failure of the work to perform as required, and against deficient, defective, and faulty materials and workmanship, regardless of sources.
- B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Construction Manager of the warranty on the work that incorporates the products, nor does it relieve suppliers, manufacturers, Trade Contractors and subcontractors required to countersign special warranties with the Construction Manager.
 - 1. Pro-rating of warranties: Except where explicitly specified otherwise, each warranty issued shall cover the full cost of warranty-related repairs throughout the full term of the warranty.

1.4 DEFINITIONS

- A. Categories of Specific Warranties: Warranties on the work are in several categories, including those of General Conditions, and including (but not necessarily limited to) the following specific categories related to individual units of work specified in sections of Divisions 2 through 50 of these Specifications:
1. Construction Manager's Comprehensive Warranty: The Construction Manager shall provide a comprehensive one-year warranty covering all labor, materials, equipment and work related to the entire Contract, and shall promptly repair or replace defective and deficient work.
 2. Special Project Warranty (Guaranty): A warranty specifically written and signed by Construction Manager for a defined portion of the work; and, where required, countersigned by Trade Contractor or subcontractor, installer, manufacturer or other entity engaged by Construction Manager. Special Warranties extend time limits provided by standard warranties or to provide greater rights for the Owner.
 3. Specified Product Warranty: A warranty which is required by Contract Documents, to be provided for a manufactured product incorporated into the work; regardless of whether manufacturer has published a similar warranty without regard for specific incorporation of product into the work, or has written and executed a special project warranty as a direct result of Contract Document requirements.
 - a. Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
 4. Coincidental Product Warranty: A warranty not specifically required by Contract Documents (other than as specified in this Section), but which is available on a product incorporated into the work, by virtue of the fact that manufacturer or product has published warranty in connection with purchases and use of product without regard for specific applications except as otherwise limited by terms of warranty.

1.5 WARRANTY REQUIREMENTS

- A. Warranty Period Commencement Date: Effective stating date for Warranty periods is the Date of Substantial Completion for Project.
1. Equipment and systems start-up, operation and use, occurring prior to Project Substantial Completion, will not be considered commencement of warranty period under any terms of this Contract.
 2. Exceptions: Starting dates for warranties prior to the Project Date of Substantial Completion are not permitted, except for the two conditions below:
 - a. Warranty requirements specified in individual specification sections explicitly specify that a required warranty or guarantee shall be effective on date of shipment, date of manufacturer, or date of installation.
 - b. Warranties for Incomplete work: The effective date for warranty of work which has not been completed prior to the Date of Substantial Completion, shall be effective on the date of Final Completion and Owner's acceptance of the Work.

- B. Related Damages and Losses: In connection with Construction Manager's correction of warranted work which has failed, remove and replace other work of project which has been damaged as a result of such failure, or must be removed and replaced to provide access for correction of warranted work.
 - 1. Consequential Damages: Except as otherwise indicated or required by governing regulations, special project warranties and product warranties are not extended to cover damage to building contents (other than work of Contract) which occurs as a result of failure of warranted work.
- C. Reinstatement of Warranty Period: Except as otherwise indicated, when work covered by a special project warranty or product warranty has failed and has been corrected by replacement or restoration, reinstate warranty by written endorsement starting on date of acceptance of replaced or restored work.
 - 1. Reinstated warranty value: The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
 - 2. Reinstated warranty period: A period of time ending upon date original warranty would have expired, if there had been no failure, but not less than half of original warranty period of time.
- D. Warranties are Irrevocable: Warranties issued to the Owner are irrevocable.
 - 1. Non-Payment: If warrantor refuses to issue warranty, or attempts to revoke warranty due to lack of payment by any party other than the Owner, the Construction Manager shall resolve the payment conflict, and cause the warranty to be issued or reinstated.
 - 2. Incomplete or incorrect Installation: If warrantor refuses to issue warranty, or attempts to revoke warranty due to improper installation or other deficiency, the Construction Manager shall correct the deficiency and cause the warranty to be issued or reinstated.
- E. Transferable Warranties: All warranties shall permit Owner to transfer or assign warranties to future owners or other assignors at no additional cost to the Owner for the full warranty period.
- F. Replacement Cost: Upon determination that work covered by a warranty has failed, replace or rebuild the work to an acceptable condition complying with requirements of Contract Documents. The Construction Manager is responsible for the cost of replacing or rebuilding defective work regardless of whether the Owner has benefited from use of the work through a portion of its anticipated useful service life.
 - 1. Work repairs or replaced under warranty shall be warranted for the full duration of the original warranty.
- G. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.
- H. Rejection of Warranties:
 - 1. Owner reserves the right, at time of substantial completion or thereafter, to reject coincidental product warranties submitted by Construction Manager,

which in opinion of Owner tend to detract from or confuse interpretation of requirements of Contract Documents.

2. Owner reserves the right to reject warranties and to limit selection to products with warranties which are not in conflict with the requirements of the Contract Documents.

- I. Owner's right to refuse Work: The Owner reserves the right to refuse to accept work for the project where a special warranty, certification, or similar commitment is required on such work or part of the work, until evidence is presented that entities required to countersign such commitments are willing to do so.

1.6 COMPREHENSIVE WARRANTY

- A. Comprehensive Warranty: In addition to all other warranties, the Construction Manager shall issue a Comprehensive Total Contract Warranty which shall include all work of this Contract, without limitation including consequential damages.
 1. Duration of Comprehensive Warranty: One full year from date of Substantial Completion.
 2. Consequential damages: Warranty includes consequential damages which relate to a warranty claim, these include without limitation:
 - a. All costs required to uncover and repair all work related to warranty claim.
 - b. All costs relating to repair and restoration of damaged property, resulting from warranty claim.
 - c. All costs resulting from failure to conform to the Contract Documents, and for required rebuilding, construction or reconstruction to correct work.
 - d. Perform to the satisfaction of the Owner all repairs, reconstruction, and restoration to original condition of adjacent and related work affected by damage under a warranty claim.
- B. Warranty Claims: Owner will notify Construction Manager in writing of each warranty claim. Warranty repairs shall be completed within 30 days of written notice, except as pre-approved by Owner.
 1. In the event of an emergency condition, where in the reasonable opinion of the Owner an immediate repair under warranty is necessary, warranty repairs shall be completed within 14 calendar days from date of notice.
 2. Owner's right to correct: In the event the Construction Manager fails to respond to a warranty claim within the specified time limits, the Owner reserves the right to make the necessary corrections or repairs and recover all costs and expenses from the Construction Manager.
- C. Construction Manager's responsibilities under Comprehensive Warranty:
 1. Notify in writing each affected warrantor and original Trade Contractor, subcontractor, installer, vendor as appropriate to the warranty claim.
 2. Manage the warranty claim for the Owner.
 3. Assist the Owner in obtaining warranty satisfaction.
 4. Arrange and manage all warranty related work including work relating to consequential damages.

1.7 SUBMITTALS

- A. Submit written warranties to the Owner prior to the date certified for Substantial Completion. In compliance with requirements specified under Section 01 77 00 – CLOSEOUT PROCEDURES and Section 01 78 00 – CLOSEOUT SUBMITTALS.
 - 1. When a designated portion of the Work is completed and occupied, or used by the Owner by separate agreement with the Construction Manager during the construction period, submit properly executed warranties to the Owner within 14 calendar days of completion of the designated portion of Work.
 - 2. Refer to individual section of Divisions 2 through 50 for the determination of units of work which are required to be specifically or individually warranted, and for the specific requirements and terms of those warranties (or guarantees).
 - 3. Specific Warranty Forms: Where a special project warranty (guaranty) or specified product warranty is required to be executed, prepare a written document to contain terms and appropriate identification, ready for execution by all required parties (including manufacturers, vendors, Trade Contractors and subcontractors). Submit draft to Owner (through Architect) for approval prior to final executions.
- B. Form of Submittal: At Final Completion, compile three (3) copies of each required warranty and bond properly executed by the Construction Manager, or by the Construction Manager, Trade Contractors, subcontractor, supplier or manufacturer. Organize the warranty documents into an orderly sequence based on the Table of Contents of the Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2" by 11" paper.
 - 2. Provide heavy paper dividers with celluloid-covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address and telephone number of the installer.
 - 3. Identify each binder on the front and the spine with the typed or printed title "WARRANTIES AND BONDS", the project title or name, and the name of the Construction Manager.
 - 4. When operating and manuals are required for warranted construction, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 SCHEDULE

- A. Provide warranties on products and installations as specified in individual specification Sections in Divisions 2 through 50 of the Project Manual.

End of Section

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Section 01 79 00
DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 SUMMARY

- A. Demonstrating equipment.
- B. Instruction and training of owner's personnel.

1.2 RELATED REQUIREMENTS

- A. Section 01 91 13 – GENERAL COMMISSIONING REQUIREMENTS.

1.3 DEMONSTRATING EQUIPMENT

- A. Demonstrate operation and maintenance of Products to Owner's personnel 2 weeks prior to date of Substantial Completion.
- B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- C. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owners' personnel in detail to explain all aspects of operation and maintenance.
- D. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed-upon times, at equipment location.
- E. Prepare and insert additional data in operations and maintenance manuals specified under Section 01 78 00 - CLOSEOUT SUBMITTALS when need for additional data becomes apparent during instruction.

1.4 INSTRUCTION AND TRAINING OF OWNER'S PERSONNEL

- A. Before final inspection, instruct Owner's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems, at agreed upon times.
- B. For equipment requiring seasonal operation, perform instructions for other seasons within six months.
- C. Use operation and maintenance manuals as basis for instruction. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.
- D. Prepare and insert additional data in Operation and Maintenance Manual when need for such data becomes apparent during instruction.
- E. Provide sufficient formal instructional time for training Owner's personnel, so that the Owner's personnel will fully comprehend operation and maintenance of the facility's equipment and systems. Construction Manager's personnel designated for

owner training shall be competent and knowledgeable and have good communication skills.

1. Training sessions shall be pre-arranged directly with the Owner.
 - a. Instructors shall arrive at pre-scheduled training sessions on time and be fully prepared to teach using a preplanned training program.
 - b. All instructors are subject to the Owner's approval. Replace unacceptable instructors and reschedule training as directed by the Owner at no increase cost to the Owner.
2. Training shall include the following:
 - a. General overview of Record Documents:
 - 1) Record Drawings.
 - 2) Record Project Manual.
 - 3) Operation and Maintenance Manuals.
 - 4) Finishes.
 - 5) Warranty and maintenance agreements.
 - 6) Test reports and inspections.
 - b. Fire suppression systems and equipment.
 - c. Fire alarm systems and equipment.
 - d. HVAC systems and equipment.
 - e. Plumbing systems and equipment.
 - f. Electrical systems and equipment.

F. Video Training Record: Video record the instruction and training of the Owner's personnel.

1. Submit 2 DVD copies to Owner upon completion of training sessions.

G. Final payment is condition precedent on completion of Owner training (instruction). Construction Manager is required to submit affidavit that training and instruction of Owner's personnel is completed.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

SECTION 01 81 13
SUSTAINABLE DESIGN REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section includes general requirements and procedures for compliance with certain prerequisites and credits needed for Project to obtain "LEED Version 4 for Building Design and Construction: Schools" (LEED v4 BD+C: Schools) Silver certification based on USGBC's LEED v4 BD+C: Schools.

1. Specific requirements for LEED are also included in other Sections.
2. Some LEED prerequisites and credits needed to obtain LEED certification depend on product selections and may not be specifically identified as LEED requirements. Compliance with requirements needed to obtain LEED prerequisites and credits may be used as one criterion to evaluate substitution requests and comparable product requests.
3. A copy of the LEED Project checklist is attached at the end of this Section for information only.
 - a. Some LEED prerequisites and credits needed to obtain the indicated LEED certification depend on aspects of Project that are not part of the Work of the Contract.
4. A copy of the LEED Materials Reporting Form is included at the end of this section.
5. Definitions included in the "LEED Version 4 for Building Design and Construction" (LEED v4 BD+C) Reference Guide and online amendments apply to this Section.

- B. Related Requirements:

1. Section 01 33 00, Submittal Procedures.
2. Section 01 50 00, Temporary Facilities and Controls for temporary heating and cooling requirements.
3. Section 01 74 19, Construction Waste Management
4. Section 01 81 19, Indoor Air Quality Requirements.
5. Section 01 91 13, General Commissioning Requirements
6. Section 01 91 19 Exterior Enclosure Commissioning Requirements
7. Divisions 02 through 49 Sections for LEED requirements specific to the work of each of these Sections. Requirements may or may not include reference to LEED.

1.03 DEFINITIONS

- A. Bio-Based Materials: Materials that meet the Sustainable Agriculture Network's Sustainable Agriculture Standard. Bio-based raw materials shall be tested using ASTM D 6866 and be legally harvested, as defined by the exporting and receiving country.

- B. CDPH Standard Method v1.1: California Department of Public Health (CDPH) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, v. 1.1–2010, for the emissions testing and requirements of products and materials.
- C. Chain-of-Custody (COC): A procedure that tracks a product from the point of harvest or extraction to its end use, including all successive stage of processing, transformation, manufacturing, a distribution.
- D. Chain-of-Custody Certificates: Certificates signed by manufacturers and fabricators certifying that wood used to make products was obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001.
- E. Composite Wood and Agrifiber: Products made of wood particles and/or plant material pressed and bonded with adhesive or resin such as particleboard, medium density fiberboard (MDF), plywood, wheatboard, strawboard, panel substrates, and door cores.
- F. Corporate Sustainability Report: A third-party verified report that outlines the environmental impacts of extraction operations and activities associated with the manufacturer's product and the product's supply chain.
- G. Environmental Product Declaration (EPD): An independently verified report based on life-cycle assessment studies that have been conducted according to a set of common rules for each product category and peer-reviewed.
 - 1. Product-Specific Declaration: A product with a publicly available, critically reviewed life-cycle assessment conforming to ISO 14044 that has at least a cradle to gate scope.
 - 2. Industry-Wide (Generic) EPD: Provide products with third-party certification (Type III), including external verification, in which the manufacturer is explicitly recognized as a participant by the program operator. EPD must conform to ISO 14025, 14040, 14044, and EN 15804 or ISO 21930 and have at least a cradle to gate scope.
 - 3. Product-Specific Type III EPD: A product with a third-party certification, including external verification, in which the manufacturer is explicitly recognized by the program operator. EPD must conform to ISO 14025, 14040, 14044, and EN 15804 or ISO 21930 and have at least a cradle to gate scope.
- H. Extended Producer Responsibility (EPR): Measures undertaken by the maker of a product to accept its own and sometimes other manufacturers' products as postconsumer waste at the end of the products' useful life.
- I. Health Product Declaration Open Standard (HPD): A standard format for reporting product content and associated health information for building products and materials.
- J. Indoor Air Quality (IAQ) Management Plan: Plan developed by the Contractor to provide a healthy indoor environment for workers and building occupants during construction. Plan must meet or exceed the recommendations of the Sheet Metal and Air Conditioning Contractors National Association (SMACNA) "IAQ Guidelines for Occupied Buildings Under Construction."
- K. Leadership Extraction Practices: Products that meet at least one of the responsible extraction criteria, which include: extended producer responsibility; bio-based materials; FSC wood products; materials reuse; recycled content; and other USGBC approved programs.

- L. Material Cost: The dollar value of materials being provided to the site, after Contractor mark-ups, including transportation costs, taxes, fees, and shop labor, but excluding field equipment and field labor costs.
- M. Materials Reuse: Reuse includes salvaged, refurbished, or reused products.
- N. Multi-Attribute Optimization: Third party certified products that demonstrate impact reduction below industry average in at least three of the following six categories: global warming potential; stratospheric ozone depletion; acidification; eutrophication; tropospheric ozone creation; nonrenewable resource depletion.
- O. Recycled Content: Recycled content is the sum of postconsumer recycled content plus one-half the preconsumer recycled content, based on cost.
 - 1. "Postconsumer" material is defined as waste material generated by households or by commercial, industrial, and institutional facilities in their role as end users of the product, which can no longer be used for its intended purpose.
 - 2. "Preconsumer" material is defined as material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials, such as rework, regrind, or scrap, generated in a process and capable of being reclaimed within the same process that generated it.
- P. Regional Materials: Materials that are extracted, harvested, recovered, and manufactured within a radius of 100 miles from the Project site.
- Q. Volatile Organic Compounds (VOC) Emissions Test: Refer to CDPH Standard Method v1.1 definition.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Work of this project includes completed building and application for LEED certification. Work is not complete until Owner has accepted USGBC's final review of LEED certification.
 - 1. Provide documentation required by LEED and LEED review.
- B. Provide materials and procedures necessary to obtain LEED prerequisites and credits required in this Section. Other Sections may specify requirements that contribute to LEED prerequisites and credits. Refer to other sections for additional materials and procedures necessary to obtain LEED prerequisites and credits.
- C. Respond to questions and requests for additional information from Architect and the USGBC regarding LEED credits until the USGBC has made its determination on the project's LEED certification application.
- D. LEED Online Submittals: Upload LEED documentation submittal data directly to USGBC project "LEED Online" website. Complete online forms at least monthly and as necessary to document LEED credits for submittals required in this Section.
- E. LEED Conference: Schedule and conduct a conference at a time convenient to Owner and Architect within 21 days prior to commencement of the work. Advise Architect, Owner's Commissioning Authority, and Owner's Project Manager of scheduled meeting dates.

1. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, Owner's Project Manager, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: LEED goals for the project, Contractor's action plans, and discussion of targeted LEED Prerequisites and Credits.
3. Minutes: Record and distribute minutes to attendees and other entities with responsibilities for obtaining LEED Credits.

1.05 ACTION SUBMITTALS

- A. General: Submit additional LEED submittals required by other Specification Sections.

1. Submit each LEED submittal simultaneously with applicable product submittal.

- B. LEED Documentation Submittals:

1. General, LEED Materials Reporting Form: Project submittals must be accompanied by a completed LEED Materials Reporting Form. Submittal packages must also include highlighted documentation supporting the sustainability claims made on the LEED Materials Reporting Form.
2. SSc5, Heat Island Reduction: Product data for roof and non-roof hardscape products indicating compliance with solar reflectance index (SRI) and solar reflectance (SR) requirements.
3. EAp3, Building-Level Energy Metering: Product data for meters, sensors, and data collection system used to provide continuous metering of building energy-consumption performance.
4. EAc3, Advanced Energy Metering: Product data for meters, sensors, and data collection system used to provide continuous metering of individual energy-consumption performance of any individual energy end uses that represent 10% or more of the total annual consumption of the building.
5. MRp2/MRc5, Construction and Demolition Waste Management: Comply with submittal requirements of Section 01 74 19 "Construction Waste Management and Disposal."
6. MRc2, Building Product Disclosure and Optimization: Environmental Product Declarations complying with LEED requirements.
7. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials: Option 2, Leadership Extraction Practices.
 - a. Extended Producer Responsibility: Product data and certification letter from product manufacturers, indicating participation in an extended producer responsibility program and statement of costs.
 - b. Bio-Based Materials: Product data and certification for bio-based materials, indicating that they comply with requirements. Include statement of costs.
 - c. Certified Wood: Product data and chain-of-custody certificates for products containing certified wood. Include statement indicating cost for each certified wood product.
 - d. Materials Reuse: Receipts for salvaged and refurbished materials used for Project, indicating sources and costs.
 - e. Recycled Content: Product data and certification letter from product manufacturers, indicating percentages by weight of postconsumer and

- preconsumer recycled content for products having recycled content. Include statement of costs.
- f. Regional Content: Product data and certification letter from product manufacturers, indicating extraction, harvest, recovery, and manufacturer location and distance (miles) from the Project site.
8. MRc4, Building Product Disclosure and Optimization, Material Ingredients: Option 1, Material Ingredient Reporting.
- a. Material ingredient reports for products that comply with LEED requirements for material ingredient reporting, including but not limited to the following:
- 1) Manufacturer Inventory.
 - 2) Health Product Declaration.
 - 3) Cradle to Cradle certifications.
 - 4) Declare product labels.
9. EQp2/EQc3/EQc4, Indoor Air Quality: Comply with submittal requirements of 01 81 19, Indoor Air Quality Requirements.
10. EQc2, Low-Emitting Materials: Product data, indicating VOC content, volume of product used, emissions testing documents, and/or other required product category evaluation criteria, showing compliance with requirements for low-emitting materials for the following products:

Product Category	VOC Conte nt	Volum e Used (budg et metho d only)	General Emissions Complianc e	Category Evaluation Compliance
a. Paints and coatings	X	X	X	
b. Adhesives and sealants	X	X	X	
c. Flooring			X	
d. Products containing composite wood or agrifiber products or wood glues				X (ULEF, NAF)
e. Ceilings, walls, thermal, and acoustic insulation			X	X (Batt Insulation)
f. Exterior applied materials. (Healthcare and Schools projects only)	X	X		

1.06 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For LEED coordinator.
- B. Project Materials Cost Data: Provide statement indicating total cost for materials used for Project. Costs exclude labor, overhead, and profit. Include breakout of costs for the following categories of items:
1. Mechanical.

2. Electrical.
 3. Plumbing.
 4. Wood construction materials.
 5. Furniture.
 6. Earthwork and exterior improvements, hard costs.
- C. LEED Action Plan Components: Provide preliminary submittals within 30 days of date established for the Notice to Proceed indicating how the following requirements will be met:
1. MRp2/MRc5, Waste management plan, complying with Section 01 74 19 Construction Waste Management
 2. EQp2/EQ3/EQ4, Indoor air quality plan, complying with Section 01 81 19, Indoor Air Quality Requirements.
- D. LEED Progress Reports: Concurrent with each Application for Payment, submit reports comparing actual construction and purchasing activities with LEED action plans for the following:
1. MRp2/MRc5, Waste reduction progress reports complying with Section 01 74 19 Construction Waste Management
 2. MRc2, Building product disclosure and optimization – environmental product declarations.
 - a. LEEDv4 MR BPDO Calculator or equivalent MR Tracking Sheet monitoring the project's progress towards targeted LEED MR Credits. To be presented at construction meetings.
 3. MRc3, Building product disclosure and optimization – sourcing of raw materials.
 - a. Option 2:
 - 1) Extended producer responsibility.
 - 2) Bio-based materials.
 - 3) Certified wood products.
 - 4) Materials reuse.
 - 5) Recycled content.AND additionally for any product meeting at least one of attributes 1-5 above:
 - 6) Regional content.
 - b. LEEDv4 MR BPDO Calculator or equivalent MR Tracking Sheet monitoring the project's progress towards targeted LEED MR Credits. To be presented at construction meetings.
 4. MRc4, Building product disclosure and optimization – material ingredients.
 - a. LEEDv4 MR BPDO Calculator or equivalent MR Tracking Sheet monitoring the project's progress towards targeted LEED MR Credits. To be presented at construction meetings.
 5. EQc2, Low emitting materials.
 - a. LEEDv4 Low Emitting Materials Calculator or equivalent Low Emitting Materials Tracking Sheet monitoring the project's progress towards targeted LEED Indoor Environmental Quality Credits. To be presented at construction meetings.
 6. EQc3, Indoor air quality, during construction, complying with Section 01 81 19, Indoor Air Quality Requirements.

7. EQc4, Indoor air quality assessment, complying with Section 01 81 19, Indoor Air Quality Requirements.

1.07 QUALITY ASSURANCE

- A. LEED Coordinator: Engage an experienced LEED-Accredited Professional to coordinate LEED requirements. LEED coordinator may also serve as waste management coordinator.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

- A. Provide products and procedures necessary to obtain LEED credits required in this Section. Although other Sections may specify some requirements that contribute to LEED credits, the Contractor shall determine additional materials and procedures necessary to obtain LEED credits indicated. Contractor to determine a combination of credit options best suited for achieving credits required.

1. Exclusions: Special equipment, such as elevators, escalators, process equipment, and fire suppression systems, is excluded from the credit calculations. Also excluded are products purchased for temporary use on the project, like formwork for concrete.

- B. Unauthorized Products: Materials and products required for work of this section shall not contain asbestos, lead, mercury, polychlorinated biphenyls (PCBs), or other hazardous materials identified by the Owner.

2.02 BUILDING PRODUCT DISCLOSURE AND OPTIMIZATION

- A. MRc2, Building Product Disclosure and Optimization, Environmental Product Declarations (EPD): Option 1. Provide at least 20 permanently installed products (sourced from at least 5 different manufacturers) which meet one of the disclosure criteria:

1. Product-Specific Declaration: Valued as one quarter (1/4) of a product.
2. Industry-Wide (Generic) EPD: Valued as one half (1/2) of a product.
3. Product-Specific Type III EPD: Valued as one whole product.

- B. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials: Option 2, Leadership Extraction Practices. Provide products that meet at least one of the responsible extraction criteria below for at least 25%, by cost, of the total value of permanently installed building products in the project:

1. Extended producer responsibility program.
2. Bio-based materials.
3. Certified Wood: Wood-based materials include, but are not limited to, the following materials when made from wood, engineered wood products, or wood-based panel products:
 - a. Rough carpentry.
 - b. Miscellaneous carpentry.
 - c. Heavy timber construction.
 - d. Wood decking.

- e. Metal-plate-connected wood trusses.
 - f. Structural glued-laminated timber.
 - g. Finish carpentry.
 - h. Architectural woodwork.
 - i. Wood paneling.
 - j. Wood veneer wall covering.
 - k. Wood flooring.
 - l. Wood lockers.
 - m. Wood cabinets.
- 4. Recycled content.
 - a. Exceptions: Do not include furniture, fire protection, operational plumbing, operational mechanical, and operational electrical components, and specialty items, such as elevators and equipment, in the calculation.
- 5. AND Regional content, only for a product that meets at least one of the attributes 1-4 listed above.
- 6. Note: Structure and enclosure materials may not constitute more than 30% of the value of MRc3 compliant building products.
- C. MRc4, Building Product Disclosure and Optimization, Material Ingredients: Option 1, Material Ingredient Reporting.
 - 1. Use at least 20 different permanently installed products from at least five different manufacturers that use any of the following programs to demonstrate the chemical inventory of the product to at least 0.1% (1000 ppm), which meet one of the following disclosure criteria:
 - a. Manufacturer Inventory.
 - b. Health Product Declarations (HPDs).
 - c. Cradle to Cradle (C2C) certifications.
 - d. Declare product labels.

2.03 LOW-EMITTING MATERIALS

- A. EQc2, Low-Emitting Materials, General Emissions Requirements: Products must demonstrate they have been tested and determined compliant in accordance with California Department of Public Health, (CDHP), Standard Method v1.1-2010, using the applicable exposure scenario. Manufacturer's documentation demonstrating compliance must state the range of total VOCs (tVOC) after 14 days measured as specified in the CDPH Standard Method v1.1 as follows:
 - 1. 0.5mg/m³ or less,
 - 2. between 0.5 and 5.0 mg/m³ or,
 - 3. 0.50 mg/m³ or more.
- B. EQc2, Low-Emitting Materials, Paints and Coatings, VOC content: For field applications that are inside the weatherproofing system, 100 percent of paints and coatings shall comply with the limits for VOC content when calculated according to the California Air Resources Board (CARB) 2007, Suggested Control Measure (SCM) for Architectural Coatings, OR the South Coast Air Quality Management District (SCAQMD) Rule 1113, effective June 3, 2011.

Product Type:	Allowable VOC Content (g/L):
Bond Breaker	350
Clear wood finishes - Varnish	275
Clear wood finishes – Sanding Sealer	275
Clear wood finishes - Lacquer	275
Colorant – Architectural Coatings, excluding IM coatings	50
Colorant – Solvent Based IM	600
Colorant - Waterborne IM	50
Concrete – Curing compounds	100
Concrete – Curing compounds for roadways & bridges	350
Concrete surface retarder	50
Driveway Sealer	50
Dry-fog coatings	50
Faux finishing coatings - Clear topcoat	100
Faux finishing coatings – Decorative Coatings	350
Faux finishing coatings - Glazes	350
Faux finishing coatings - Japan	350
Faux finishing coatings – Trowel applied coatings	50
Fire-proof coatings	150
Flats	50
Floor coatings	50
Form release compounds	100
Graphic arts (sign) coatings	150
Industrial maintenance coatings	100
Industrial maintenance coatings – High temperature IM coatings	420
Industrial maintenance coatings – Non-sacrificial anti-graffiti coatings	100
Industrial maintenance coatings – Zinc rich IM primers	100
Magnesite cement coatings	450
Mastic coatings	100
Metallic pigmented coatings	150
Multi-color coatings	250
Non-flat coatings	50
Pre-treatment wash primers	420
Primers, sealers and undercoaters	100
Reactive penetrating sealers	350
Recycled coatings	250
Roof coatings	50
Roof coatings, aluminum	100
Roof primers, bituminous	350
Rust preventative coatings	100

Stone consolidant	450
Sacrificial anti-graffiti coatings	50
Shellac- Clear	730
Shellac – Pigmented	550
Specialty primers	100
Stains	100
Stains, interior	250
Swimming pool coatings – repair	340
Swimming pool coatings – other	340
Traffic Coatings	100
Waterproofing sealers	100
Waterproofing concrete/masonry sealers	100
Wood preservatives	350
Low solids coatings	120

- C. EQc2, Low-Emitting Materials, Paints and Coatings, General Emissions Requirement: For field applications that are inside the weatherproofing system, at least 90 percent of paints and coatings, measured by volume, shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
1. To comply with the General Emissions Requirement, products shall meet one of the following:
 - a. UL Greenguard Gold Certified
 - b. SCS Indoor Advantage Gold Certified
 - c. MAS Certified Green
 - d. Meet California Department of Public Health (CDHP), Standard Method v1.1-2010, using the applicable exposure scenario.
- D. EQc2, Low-Emitting Materials, Adhesives and Sealants, VOC content: For field applications that are inside the weatherproofing system, 100 percent of adhesives and sealants shall comply with the limits for VOC content when calculated according to South Coast Air Quality Management District (SCAQMD) Rule #1168, requirements in effect on July 1, 2005, and rule amendment date January 7, 2005:

Architectural Applications:	Allowable VOC Content (g/L):
Indoor carpet adhesives	50
Carpet pad adhesives	50
Outdoor carpet adhesives	150
Wood flooring adhesives	100
Rubber floor adhesives	60
Subfloor adhesives	50
Ceramic tile adhesives	65
VCT and asphalt tile adhesives	50
Dry wall and panel adhesives	50
Cove base adhesives	50
Multipurpose construction adhesives	70

Structural glazing adhesives	100
Single ply roof membrane adhesives	250
Specialty Applications:	
PVC welding	510
CPVC welding	490
ABS welding	325
Plastic cement welding	250
Adhesive primer for plastic	550
Computer diskette manufacturing	350
Contact adhesive	80
Special purpose contact adhesive	250
Tire retread	100
Adhesive primer for traffic marking tape	150
Structural wood member adhesive	140
Sheet applied rubber lining operations specialty	850
Top and Trim adhesive	250
Substrate Specific Applications:	
Metal to metal substrate specific adhesives	30
Plastic foam substrate specific adhesives	50
Porous material (except wood) substrate specific adhesives	50
Wood substrate specific adhesives	30
Fiberglass substrate specific adhesives	80
Sealants:	
Architectural sealant	250
Marine deck sealant	760
Nonmember roof sealant	300
Roadway sealant	250
Single-ply roof membrane sealant	450
Other sealant	420
Sealant Primers:	
Architectural non-porous sealant primer	250
Architectural porous sealant primer	775
Modified bituminous sealant primer	500
Marine deck sealant primer	760
Other sealant primer	750
Other	
Other adhesives, adhesive bonding primers, adhesive primers or any other primers	250

- Exception: The provisions of SCAQMD Rule 1168 do not apply to adhesives and sealants subject to state or federal consumer product VOC regulations.

- E. EQc2, Low-Emitting Materials, Adhesives and Sealants, General Emissions Requirement: For field applications that are inside the weatherproofing system, at least 90 percent of adhesives

and sealants, measured by volume, shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

1. To comply with the General Emissions Requirement, products shall meet one of the following:
 - a. UL Greenguard Gold Certified
 - b. SCS Indoor Advantage Gold Certified
 - c. MAS Certified Green
 - d. Meet California Department of Public Health (CDHP), Standard Method v1.1-2010, using the applicable exposure scenario.
- F. EQc2, Low-Emitting Materials, Flooring, General Emissions Requirement: 100 percent of flooring shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
1. To comply with the General Emissions Requirement, products shall meet one of the following:
 - a. FloorScore Certified (hard surface flooring and flooring adhesives)
 - b. Green Label Plus certified (carpet, adhesive, and cushion)
 - c. NSF/ANSI 332 certified (resilient flooring)
 - d. Meet California Department of Public Health (CDHP), Standard Method v1.1-2010, using the applicable exposure scenario.
- G. EQc2, Low-Emitting Materials, Composite Wood: 100 percent of composite wood, agrifiber products, and adhesives shall be made using ultra-low-emitting formaldehyde (ULEF) resins as defined in the California Air Resources Board's "Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products" or shall be made with no added formaldehyde (NAF).
- H. EQc2, Low-Emitting Materials, Ceilings, Walls, Thermal, and Acoustic Insulation, General Emissions Requirement: 100 percent of ceilings, walls, and thermal insulation shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- I. EQc2, Low-Emitting Materials, Ceilings, Walls, Thermal, and Acoustic Insulation, Batt Insulation Requirement: 100 percent of batt insulation products may contain no added formaldehyde, including urea formaldehyde, phenol formaldehyde, and urea-extended phenol formaldehyde.
- J. EQc2, Low-Emitting Materials, Exterior Applied Materials, VOC content: For field applications that are exterior applied, at least 90 percent of adhesives, sealants, coatings, roofing, and waterproofing, measured by volume, shall comply with the limits for VOC content when calculated according to the California Air Resources Board (CARB) 2007, Suggested Control Measure (SCM) for Architectural Coatings, AND the South Coast Air Quality Management District (SCAQMD) Rule 1168, effective June 3, 2011 for adhesives and sealants.
1. Refer to Table under 2.01, B and D above for allowable VOC content (limits are also applicable to exterior materials). Refer to CARB 2007 SCM and SCAQMD Rule 1168 for any products not listed.
 2. The following materials are prohibited and do not count toward total percentage compliance:

- a. Hot-mopped asphalt for roofing.
- b. Coal tar sealants for parking lots and other paved surfaces.

K. Additional Low-Emitting Requirements:

- 1. If the applicable regulation requires subtraction of exempt compounds, any content of intentionally added exempt compounds larger than 1% weight by mass (total exempt compounds) must be disclosed.
- 2. If a product cannot reasonably be tested as specified above, testing of VOC content must comply with ASTM D2369-10; ISO 11890, part 1; ASTM D6886-03; or ISO 11890-2.
- 3. Methylene chloride and perchloroethylene may not be intentionally added in paints, coatings, adhesives, or sealants.

2.04 INDOOR WATER USE REDUCTION

- A. WEp2, Indoor Water Use Reduction, Appliances: Provide ENERGY STAR or performance equivalent appliances.
- B. WEp2/WEc2, Indoor Water Use Reduction, Plumbing Fixtures: Do not exceed water flow requirements indicated in Division 22 - PLUMBING. All newly installed toilets, urinals, private lavatory faucets, and showerheads that are eligible for labeling must be WaterSense labeled.

PART 3 - EXECUTION

3.01 NONSMOKING BUILDING

- A. EQp2, Environmental Tobacco Smoke Control: Smoking is not permitted on the property.
 - 1. Refer to Section 01 81 19, Indoor Air Quality Requirements.

3.02 CONSTRUCTION WASTE MANAGEMENT

- A. MRp2 MRc5, Construction and Demolition Waste Management: Comply with Section 01 74 19 Construction Waste Management

3.03 CONSTRUCTION INDOOR-AIR-QUALITY MANAGEMENT

- A. EQc3/EQc4, Construction Indoor Air Quality Management Plan: Comply with Section 01 81 19, Indoor Air Quality Requirements.

END OF SECTION 01 81 13

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South High Community
Worcester, MA

LEED® V4 MATERIALS REPORTING FORM

MATERIAL OR PRODUCT:	
MATERIAL COST (LESS LABOR AND EQUIPMENT):	
Contractor/Installer:	Manufacturer:
Address:	Manufacturer Address:
Contact:	

Signed by: _____ Date: _____

Company: _____

Instructions to Contractor/Installer: Please complete the following information in all appropriate categories. Use one documentation sheet for each product or material (e.g. tile and grout each get their own sheet). Attach any supporting information to this sheet (e.g. cut sheets, letters from manufacturers, etc.).

REGIONAL MATERIALS

(For Division 3-10 & 31.60.00, 32.10.00, 32.30.00, 32.90.00 products and materials)

Product Manufacturer:	Product Name:

*Does the product contain **regionally¹ extracted, harvested, or recovered² materials?***

Raw Materials:	Miles to Project

*Was the material/product **manufactured³ and purchased regionally?***

Location of Manufacturer (City/State):	
Distance from Manufacturer to Project Site (Miles)	
Location of Distributor (City/State)	
Distance from Distributor to Project Site (Miles)	

LEED MR Credit 2 – BPDO: Environmental Product Declarations

*Does the product have a manufacturer's **Environmental Product Declaration (EPD)⁴?***

Product Manufacturer:	Product Name:	EPD Provided? (Y/N)

1. Regional: within 100 miles of project site as-the-crow-flies.
2. Extraction, harvest, or recovery location: Location of origin for virgin or recycled resources from which the building product's components are made. (i.e. before processing or manufacturing.)
3. Manufactured Location: Final assembly of components into the building product that is furnished or installed.
4. Environmental Product Declaration (EPD): a statement that the item meets the environmental requirements of ISO 14021-1999, ISO 14025-2006 and EN 15804, or ISO 21930-2007.

LEED MR Credit 3 – BPDO: Sourcing of Raw Materials

(For Division 3-10 & 31.60.00, 32.10.00, 32.30.00, 32.90.00 products and materials)

*Does the manufacturer participate in an **extended producer responsibility**⁵ program?*

Product Manufacturer:	Product Name:	Extended Producer Responsibility Program? (Y/N)

*Is the product **bio-based**⁶? If so, does it meet the Sustainable Agriculture Network's (SAN) Sustainable Agriculture Standard?*

Product Manufacturer:	Product Name:	Meets SAN Sustainable Agriculture Standard? (Y/N)

*Does the material/product contain **FSC Certified wood**?*

Component:	Vendor Chain-of-Custody #	% Wood of Materials	% FSC Wood of Materials	Vendor invoice provided? (Y/N)

*Is the material/product **reused, salvaged or refurbished**?*

Component:	Reused, Salvaged or Refurbished Product? (Y/N)	Actual Cost Paid or Replacement Value (whichever is higher):

*Does the material/product contain **post-consumer**⁷ and/or **pre-consumer**⁸ recycled content?*

Percentage of post-consumer content:	
Percentage of pre-consumer content:	

*If only part of **the assembly contains recycled content**, fill in the chart below:*

Assembly Components:	Weight:	% Post-Con	% Pre-Con
Totals by weight (should equal 100% of assembly)			

LEED MR Credit 4 – BPDO: Material Ingredients

*Does the product have a manufacturer's **Health Product Declaration (HPD)**⁹?*

Product Manufacturer:	Product Name:	HPD Provided? (Y/N)

5. Extended producer responsibility: measures undertaken by the maker of a product to accept its own and sometimes other manufacturer's products as postconsumer waste at the end of the product's useful life.
6. Bio-based Material: commercial or industrial products that are composed in whole, or in significant part, of biological products, renewable agricultural materials (including plant, animal, and marine materials), or forestry materials. Bio-based raw materials must be tested using ATSM Test Method D6866 and be legally harvested, as defined by the exporting and receiving country. Leather and other animal hides are excluded.
7. Post-Consumer Recycled Content: Portion of material or product which derives from discarded consumer waste that has been recovered for use as a raw material (e.g. plastic water bottles, newspaper)
8. Pre-Consumer Recycled Content: Portion of material or product which derives from recovered industrial materials that are diverted from municipal solid waste for use in a different mfg. process, prior to use by a consumer.
9. Health Product Declaration (HPD): a report of the materials or ingredients content of a building product and the associated health effects. Defining the content of this report is the Health Product Declaration Open Standard™

LEED EQ Credit 2 – Low-Emitting Materials

(100% compliance, regardless of Division)

ADHESIVES, SEALANTS, PAINTS, COATINGS

Product Manufacturer:	Product Name:

Does the material/product comply with the **VOC content¹¹** and **General Emissions testing requirement?**
(Volume tracked for budget method ONLY.)

Product Name: (as listed above)	VOC Content ¹⁰ (g/l)	Volume Used (L)	CDPH Emissions testing compliant? ¹¹	TVOC Emissions Range	Source Provided? (Y/N)

FLOORING

Does the material/product comply with the **General Emissions testing requirement?**

Product Manufacturer:	Product Name:	CDPH Emissions testing compliant?	TVOC Emissions Range	Source Provided? (Y/N)

COMPOSITE WOOD

Is the **composite wood material/product ULEF or NAF¹²**?

Product Manufacturer:	Product Name:	ULEF or NAF? ¹²	Source Provided? (Y/N)

CEILINGS, WALLS, THERMAL AND ACOUSTIC INSULATION

Does the material/product comply with the **General Emissions testing requirement?** If product is a **batt insulation product**, does it contain added formaldehyde, including urea formaldehyde, phenol formaldehyde, and urea-extended phenol formaldehyde?

Product Manufacturer:	Product Name:	CDPH Emissions testing compliant?	TVOC Emissions Range	Source Provided ? (Y/N)	Contains added formaldehyde ?

10. All adhesives and sealants wet-applied on site must meet the applicable chemical content requirements of SCAQMD Rule 1168, July 1, 2005. All paints and coatings wet-applied on site must meet applicable VOC limits of the California Air Resources Board (CARB) 2007, Suggested Control Measure (SCM) for Architectural Coatings, or the South Coast Air Quality Management District (SCAQMD) Rule 1113, effective June 3, 2011.

11. TVOC Emissions for Building products must be tested and determined compliant in accordance with California Department of Public Health (CDPH) Standard Method v1.1-2010.

12. Composite Wood Evaluation as defined by the California Air Resources Board (CARB), Airborne Toxic Measure to Reduce Formaldehyde Emissions from Composite Wood Products Regulation, must be documented to have low formaldehyde emissions that meet the CARB ATCM for formaldehyde requirements for ultra-low-emitting formaldehyde (ULEF) resins or no added formaldehyde (NAF) resins.

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LEED v4 for Schools Project Scorecard

Project Name: **South High Community School**

Address: 170 Apricot St, Worcester, MA

Date Updated: 1.31.19

PROJECT TOTALS

55 **7** **48**

Phase	Yes	M	No		
	0	0	1	INTEGRATIVE PROCESS	
D			1	Credit 1	Integrative Process

Yes M No

2 **0** **13** LOCATION & TRANSPORTATION

D			N	Credit 1	LEED for Neighborhood Development Location
D			1	Credit 2	Sensitive Land Protection
D			2	Credit 3	High Priority Site
D			5	Credit 4	Surrounding Density and Diverse Uses
D			4	Credit 5	Access to Quality Transit
D			1	Credit 6	Bicycle Facilities
D	1			Credit 7	Reduced Parking Footprint
D	1			Credit 8	Green Vehicles

Yes M No

4 **0** **8** SUSTAINABLE SITES

C	Y			Prereq 1	Construction Activity Pollution Prevention
D	Y			Prereq 2	Environmental Site Assessment
D	1			Credit 1	Site Assessment
D			2	Credit 2	Site Development - Protect or Restore Habitat
D			1	Credit 3	Open Space
D			3	Credit 4	Rainwater Management
D	2			Credit 5	Heat Island Reduction
D			1	Credit 6	Light Pollution Reduction
D			1	Credit 7	Site Master Plan
D	1			Credit 8	Joint Use of Facilities

Yes M No

7 **0** **5** WATER EFFICIENCY

D	Y			Prereq 1	Outdoor Water Use Reduction
D	Y			Prereq 2	Indoor Water Use Reduction
D	Y			Prereq 3	Building-level Water Metering
D	1		1	Credit 1	Outdoor Water Use Reduction
D	3		4	Credit 2	Indoor Water Use Reduction
D	2			Credit 3	Cooling Tower Water Use
D	1			Credit 4	Water Metering

Yes M No

24 **3** **4** ENERGY & ATMOSPHERE

C	Y			Prereq 1	Fundamental Commissioning and Verification
D	Y			Prereq 2	Minimum Energy Performance
D	Y			Prereq 3	Building-level Energy Metering
D	Y			Prereq 4	Fundamental Refrigerant Management
C	5		1	Credit 1	Enhanced Commissioning
D	16			Credit 2	Optimize Energy Performance
D		1		Credit 3	Advanced Energy Metering
C			2	Credit 4	Demand Response
D	3			Credit 5	Renewable Energy Production

D			1	Credit 6	Enhanced Refrigerant Management
C		2		Credit 7	Green Power and Carbon Offsets

Yes M No

4 1 8 MATERIALS & RESOURCES

D	Y			Prereq 1	Storage & Collection of Recyclables
C	Y			Prereq 2	Construction and Demolition Waste Management Plan
C			5	Credit 1	Building Life-Cycle Impact Reduction
C	1		1	Credit 2	Building Product Disclosure & Optimization-EPD's
C		1	1	Credit 3	Building Product Disclosure & Optimization-Raw Materials
C	1		1	Credit 4	Building Product Disclosure & Optimization-Material Ingredients
C	2			Credit 5	Construction and Demolition Waste Management

Yes M No

6 3 7 INDOOR ENVIRONMENTAL QUALITY

D	Y			Prereq 1	Minimum IAQ Performance
D	Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control
D	Y			Prereq 3	Minimum Acoustical Performance
D	2			Credit 1	Enhanced IAQ Strategies
C	1	1	1	Credit 2	Low-Emitting Materials
C	1			Credit 3	Construction IAQ Management Plan
C		2		Credit 4	IAQ Assessment
D	1			Credit 5	Thermal Comfort
D	1		1	Credit 6	Interior Lighting
D			3	Credit 7	Daylight
D			1	Credit 8	Quality Views
D			1	Credit 9	Acoustic Performance

Yes M No

6 0 0 INNOVATION IN DESIGN

D	1			Credit 1	Exemplary Performance: Renewable Energy Production
D	1			Credit 2	Innovation: Building as an Educational Tool
D	1			Credit 3	Exemplary Performance: Reduced Parking Footprint
C	1			Credit 4	Innovation Credit: Purchasing - Lamps
C	1			Credit 5	Pilot Credit: Integrative Analysis of Building Materials
C	1			Credit 6	LEED Accredited Professional

Yes M No

2 0 2 REGIONAL PRIORITY

01603 - Worcester, MA: SSc4 (2 pts), WEc2 (4 pts), WEc3 (2pts), MRc1 (2 pts), EAc2 (8 pts), EAc5 (2 pts)

D	1			Credit 1	EAc2 Optimize Energy Performance (20%/8 pts)
D	1			Credit 2	EAc5 Renewable Energy Production (5%/2 pts)
D			1	Credit 3	SSc4 Rainwater Management (2 pts)
D			1	Credit 4	MRc1 Building Life-Cycle Impact Reduction (2pts)

Yes M No

55 7 48 PROJECT TOTALS (Certification Estimates)

Certified: 40-49 points Silver: 50-59 points Gold: 60-79 points Platinum: 80+ points

SECTION 01 81 19
INDOOR AIR QUALITY REQUIREMENTS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. All of the Contract Documents, including General and Supplementary Conditions and Division 1 General Requirements, apply to the work of this section.

1.02 SUMMARY

- A. Requirements for minimum indoor air quality (IAQ) performance standards during the period of construction.
- B. The Contractor shall develop, for Owner and Architect review, a Construction Indoor Air Quality Management Plan for this Project.
- C. Sustainable Design Intent: Comply with project requirements intended to achieve certification, measured and documented according to the LEED-S v4 Rating System, of the US Green Building Council.

1.03 RELATED REQUIREMENTS

- A. Examine Contract Documents for requirements that affect work of this Section. Other Specification Sections that directly relate to work of this Section include, but are not limited to:
 - 1. Section 01 11 00, Summary of Work.
 - 2. Section 01 33 00, Submittal procedures.
 - 2. Section 01 50 00, Temporary facilities and controls.
 - 3. Section 01 74 19, Construction Waste Management.
 - 4. Section 01 81 13, Sustainable Design Requirements.
 - 6. Section 01 91 13, Commissioning.
 - 7. Division 22, 23, 26
 - 8. Divisions 3 through 16 Specification Sections; Specific requirements relating to indoor air quality for each Section.

1.04 PERFORMANCE REQUIREMENTS

- A. Comply with minimum requirements of Sections 4 through 7 of ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality and approved Addenda.
 - 1. Coordinate with requirements of Section 01 91 13, Commissioning, and Division 23 – MECHANICAL.
- B. Prevent exposure of building systems to environmental tobacco smoke during construction. At a minimum, take the following measures:
 - 1. Do not allow smoking on/in the project site.
 - 2. Locate exterior designated smoking areas at least 25 feet away from entries, outdoor air intakes and operable windows.
- C. During construction meet or exceed the minimum requirements of the recommended Control Measures of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction, 2nd edition, 2007, ANSI/SMACNA 008–2008, Chapter 3.
- D. Protect occupied portions of the building from transfer of dust and particulate matter, noise and odor emissions generated during construction in compliance with the minimum requirements of the recommended Control Measures of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction, 2nd edition 2007, ANSI/SMACNA 008-2008 Chapter 3.
- E. Protect absorptive materials from moisture damage when stored on-site and after installation.
- F. Use materials and products in compliance with the VOC content limits as established in LEED credit IEQ credit Low-Emitting Materials.
- G. During construction, comply with the following requirements, per LEED IEQ Construction Indoor Air Quality Management Plan:
 - 1. Develop and implement a moisture control plan to ensure dry conditions will be maintained to protect absorptive materials stored on site. Include criteria for protecting the building from moisture intrusion and occupant exposure to mold spores.
 - 2. If permanently installed air handlers are used during construction, filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 shall be used at each return air grille, as determined by ASHRAE 52.2-2007. Protect active outdoor air intakes and return air grilles with applicable filtration media. Periodically inspect temporary media and replace as necessary. Replace filtration media immediately prior to occupancy with MERV 13 or higher.

3. Develop and implement a plan to reduce noise and emissions on the construction site; address the following:

Surrounding community noise and vibration impacts. Determine which areas on and adjacent to the site will require special protection from noise.

Construction Worker training and protective equipment. Determine construction activities that may require the use of protective gear or specialty equipment and properly train workers in their use and/or operation.

Source Reduction. Develop and implement policies to limit truck and equipment idling on site and to limit vibration and noise from demolition and construction activities.

- H. After construction ends but before occupancy, comply with one of the following requirements, per LEED IEQc credit Indoor Air Quality Assessment:

1. Perform a Building Flush-out with outside air. After construction ends, prior to occupancy and with all interior finishes and furniture installed, install new filtration media and perform a building flush-out by supplying a total air volume of 14,000 cubic feet of outdoor air per square foot of floor area while maintaining an internal temperature of at least 60°F and no higher than 80°F and relative humidity no higher than 60%.
 - a. If occupancy is desired before the flush-out is completed, the following must be met:
 - i. The space may be occupied only after delivery of a minimum of 3,500 cubic feet of outdoor air per square foot.
 - ii. Once the space is occupied, it must be ventilated at a minimum rate of 0.30 cubic foot per minute (cfm) per square foot of outdoor air or the design minimum outdoor air rate determined in EQ Prerequisite Minimum Indoor Air Quality Performance, whichever is greater.
 - iii. During each day of the flush-out period, ventilation must begin at least three hours before occupancy and continue during occupancy.
 - iv. These conditions must be maintained until a total of 14,000 cubic feet per square foot of outdoor air has been delivered to the space.
2. Conduct IAQ Testing for air contaminant levels in the building. Use testing protocols consistent with the EPA Compendium of Methods for the Determination of Air Pollutants in Indoor Air and as additionally detailed in the LEED v4 Reference Guide for Building Design and Construction.
 - a. Conduct all measurements before occupancy but during normal occupied hours, with the building ventilation system started at the normal daily start time and operated at the minimum outdoor airflow rate for the occupied mode throughout the test.
 - b. Test at least one location per ventilation system for each occupied space type; there must be a minimum of one test per floor. Locations selected for testing must represent worst-case zones where highest concentrations of contaminants

of concern are likely to occur. Test areas shall be no larger than 5,000 square feet.

- i. Projects that include identical spaces in their construction, finishes, configuration, square footage, and HVAC systems may test one in seven. If the sampled space fails the test, all seven must be tested.
- c. Laboratories that conduct the tests for chemical analysis of formaldehyde and volatile organic compounds must be accredited under ISO/IEC 17025 for the test methods they use.

1.05 SUBMITTALS

- A. Construction Indoor Air Quality (IAQ) Management Plan: the Contractor shall submit a preliminary Construction IAQ Management Plan for review.
 - 1. Within 21 calendar days after receipt of Notice to Proceed, the Contractor shall submit to the Owner a finalized Construction IAQ Management Plan.
 - 2. The proposed Plan shall comply with Division 23 – MECHANICAL requirements.
 - 3. The proposed Plan shall include, but not be limited to, the following:
 - a. Protection of ventilation system components during construction.
 - b. Cleaning and replacing contaminated ventilation system components after construction, including filtration media.
 - c. Temporary ventilation.
 - d. Protection of absorptive materials from moisture damage when stored on-site and after installation, including exterior wall rain protection.
 - f. Noise reduction and emissions
 - g. Sequence of finish installation plan.
 - h. Selection of cleaning products and procedures to be used during construction and final cleaning.
 - i. Other items as required by SMACNA IAQ Guidelines for Occupied Buildings under Construction, 2nd edition 2007, ANSI/SMACNA 008-2008 Chapter 3.
 - 4. Coordinate Construction IAQ Management Plan with Owner's current IAQ management plans and procedures.
 - 5. Comply with the requirements of LEED IEQ Construction Indoor Air Quality Management Plan.
- B. Material Safety Data Sheets (MSDS): Submit for materials as required, with date clearly identified. MSDS must contain specific chemical content data identifying the percent of the total product mass represented by each listed chemical.
- C. Product Data: Submit for each type of filtration media used during construction and installed immediately prior to occupancy, include and highlight MERV values the documentation provided.
- D. Flush-out or IAQ Testing Documentation:

1. Submit a flush-out report that includes duration calculations and a description of flush-out procedure. Include a log of dates, hours, and recorded temperature and humidity. Also include the capacity of all HVAC units used and indicate which are permanent and which are temporary.
2. Submit an IAQ testing reports that includes a narrative describing procedures and how locations were determined, dates, and results of each test.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Take special care to prevent accumulation of moisture on materials and within packaging during delivery, storage, and handling to prevent development of mold and mildew inside packaging and on products.
- B. Immediately remove from site and properly dispose of materials showing signs of mold and mildew, including materials with moisture stains.
- C. When not in use, store products in original sealed containers, in a designated location

PART 2 - PRODUCTS

2.01 FILTRATION MEDIA

- A. Filtration Media: Comply with ASHRAE 52.2-2007 and provide filtration media with compliant MERV ratings as required.

PART 3 - EXECUTION

3.01 CONSTRUCTION IAQ MANAGEMENT PLAN IMPLEMENTATION

- A. IAQ Manager: The Contractor shall designate an on-site person responsible for instructing workers and overseeing and documenting results of the Construction IAQ Management Plan for the Project.
- B. Distribution: The Contractor shall distribute copies of the Construction IAQ Management Plan to the Job Site Foreman, each subcontractor, the Owner, and the Architect.
- C. Instruction: The Contractor shall provide on-site instruction of appropriate procedures and methods to be used by all parties at the appropriate stages of the Project.

- D. Preconditioning: Allow products, which have odors and significant VOC emissions, to off-gas in specified dry, well-ventilated space for sufficient period to dissipate odors and emissions prior to delivery to Project.
 - 1. Remove containers and packaging from materials prior to conditioning to maximize off-gassing of VOCs.
 - 2. Condition products in ventilated warehouse or other building.
- E. Coordinate Construction IAQ Management Plan with final cleaning as indicated in 017700 - CLOSEOUT PROCEDURES.

END OF SECTION

SECTION 01 91 13

COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The role of the Commissioning Agent will be to coordinate and administer the commissioning process, as defined herein. The commissioning process will be implemented in accordance with the Massachusetts School Building Authority Standard Scope of Commissioning Services documents dated September 10, 2009. The project incorporates a Building Envelope commissioning process as well as requirements for mechanical, electrical, plumbing, and technology systems commissioning.
- B. The General Contractor and his subcontractors (mechanical, plumbing, electrical, technology, building envelope, and associated trade subcontractors) shall be the prime contractor responsible for the installation and placing in service of all mechanical, electrical, plumbing, technology, and building envelope equipment and systems in the building. The Owner's Project Manager and the General Contractor shall assist the Commissioning Agent in implementation of the commissioning plan and in maintaining the schedule of commissioning events. The commissioning process will not be a substitute for any work by the General Contractor, or any Sub-Contractor of the General Contractor, to install or place in service any equipment or system in the building.
- C. The Mechanical, Electrical, Plumbing, Technology, and Building Envelope Contractors, including all associated subcontractors and equipment manufacturers, shall be fully responsible for installation, start-up, testing, adjusting, and balancing, and verification and performance testing of all MEP, technology, and building envelope equipment and systems as required by the project specifications. The Mechanical, Electrical, Plumbing, Technology, and Building Envelope Contractors, including all associated subcontractors and equipment manufacturers, shall be an active participant in the commissioning process as specified herein, as required, and as directed by the Owner's Project Manager, the Commissioning Agent, and the General Contractor.
- D. The commissioning process shall be a team effort to ensure that all mechanical, electrical, plumbing, technology, and building envelope equipment and systems have been completely and properly installed and function together correctly to meet the design intent. The commissioning process shall also document system performance parameters for fine tuning of control sequences and operational procedures. The commissioning process shall coordinate system documentation and installation; equipment start-up; building automation system calibration; testing, adjusting, and balancing; and verification and performance testing.

1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary General Conditions and other Division 01 specification sections, apply to work of this Section.
- B. Divisions: 04 (Masonry), 07 (Thermal and Moisture Protection), 08 (Openings), 21 (Fire Protection), 22 (Plumbing), 23 (HVAC), 26 (Electrical), 27 (Communications), 28 (Electronic Safety and Security) and specification.
- C. Specification sections: 01 91 12 Building Enclosure Commissioning, 21 08 00 Fire Suppression Commissioning, 22 08 00 Plumbing Commissioning, 23 08 00 HVAC Commissioning, 26 08 00 Electrical Commissioning, 27 08 00 Communications Commissioning, 28 08 00 Electronic Safety & Security Commissioning.

- D. All related specification sections shall be used in conjunction with this section.

1.03 COMMISSIONING TEAM

- A. A representative of each of the following parties shall be designated as a member of the Commissioning Team:
1. Owner or Owner's Representative.
 2. Commissioning Agent (CxA).
 3. Owner's Project Manager.
 4. General Contractor.
 5. Mechanical (HVAC) Subcontractor.
 6. Building Automation System (BAS) Subcontractor.
 7. Testing, Adjusting and Balancing (TAB) Subcontractor.
 8. Plumbing Contractor (if different than HVAC Subcontractor).
 9. Fire Protection Subcontractor.
 10. Electrical Subcontractor.
 11. Building Envelope Contractors.
 12. Other subcontractors and equipment manufacturers as required.
- B. Each representative must attend scheduled meetings, in accordance with the Commissioning Agent's schedule.

1.04 SCOPE OF WORK

- A. The work included in the commissioning process shall involve a complete and thorough evaluation of the operation and performance of all equipment and systems installed under this project. Equipment and systems that shall be evaluated include, but are not limited to, the following:
1. Mechanical systems:
 - a. Boilers
 - b. Piping
 - c. Pumps and drives
 - d. Air handler systems
 - e. Rooftop units
 - f. Heating and ventilating units
 - g. Terminal Units
 - h. Cabinet Unit Heaters
 - i. Fan Coil Units
 - j. Unit Heaters
 - k. Finned tube radiation
 - l. Convectors
 - m. Exhaust fans
 - n. Split system air conditioning
 - o. Make-up Air units
 - p. Heat recovery systems
 - q. Automated temperature controls
 - r. Testing, adjusting and balancing spot check verification
 2. Plumbing systems:
 - a. Natural Gas Systems
 - b. Backflow preventers
 - c. Water Heaters, re-circulating pumps, mixing valves and storage
 - d. Water closets and sinks
 - e. Laboratory Waste and Neutralization Tank

- f. Safety shower/eyewash stations
 - 3. Life Safety systems;
 - a. Security
 - b. Fire Suppression/Fire Alarm systems
 - c. Egress lighting
 - 4. Electrical systems;
 - a. Electrical service and switchgear
 - b. Transformers
 - c. Motor control centers
 - d. Electrical distribution systems
 - e. Emergency and standby power systems
 - f. Lighting controls & occupancy sensors
 - g. Low voltage systems
 - h. Grounding and bonding systems
 - 5. Building Envelope Systems:
 - a. Roofing systems, including parapet, skylights and openings
 - b. Exterior Walls
 - c. Windows, doors, grilles, sunscreens, louvers, and vents
 - d. Infrared scan of envelope and roof by Commissioning Agent
- B. Documentation required from the Mechanical, Electrical, Plumbing, Technology, and Building Envelope Contractors, as part of the commissioning process shall include as appropriate and applicable:
 - 1. Equipment submittals and shop drawings for CxA review.
 - 2. Progress and status reports, including deficiencies noted.
 - 3. Manufacturers' suggested pre-functional checklists for CxA's use in developing pre-functional procedures.
 - 4. Start-up and testing documentation associated with systems being commissioned including but not limited to the following: duct leakage, pipe pressure, electrical testing, flushing / cleaning, etc.
 - 5. Performance (sign-off) of pre-functional checklists documentation. Including completed manufacturer start-up reports.
 - 6. Training agenda and material for CxA's review.
 - 7. Operation and maintenance (O&M) manuals.
- C. Pre-functional Checklists, Tests, and Startup:
 - 1. Pre-functional checklists (PC) are important to ensure that the equipment and systems are hooked up and operational and that functional performance testing may proceed without unnecessary delays. Each piece of equipment receives full pre-functional checkout by the Mechanical, Electrical, Plumbing, Technology, and Building Envelope Subcontractor. In general, the pre-functional testing for a given system must be successfully completed prior to formal functional performance testing or equipment or subsystems of the given system.
 - 2. Pre-functional checklists are primarily static inspections and procedures to prepare the equipment or system for initial operation (e.g., oil levels OK, fan belt tension, labels affixed, gages in place, sensor calibration, etc.). However, some pre-functional checklist items entail simple testing of the function of a component, a piece of equipment or system (such as measuring the voltage imbalance on a three-phase pump motor of a chiller system). The word "pre-functional" refers to before functional testing. Pre-functional checklists augment and may be combined with the manufacturer's start-up checklist.

3. Mechanical, Electrical, Plumbing, Technology, and Building Envelope Subcontractors typically already perform some, if not many, of the pre-functional checklist items the commissioning authority will recommend. This project requires that the procedures be documented in writing by the installing technician where detailed in the project specifications. The CxA does not witness most of the pre-functional check listing, except for testing of larger or more critical pieces of equipment and some spot-checking. It is noted that the checklists generated by the CxA do not take the place of manufacturer or Trade Contractor required checklists. The CxA, with assistance as required from the installing Mechanical, Electrical, Plumbing, Technology, and Building Envelope Subcontractor, will complete checklists that are generated by the CxA.
 - D. Commissioning Tests: Detailed testing shall be performed on all installed equipment and systems to ensure that operation and performance conform to contract documents and the design intent. All functional tests shall be witnessed by The Commissioning Agent. The following testing is required as part of the commissioning process:
 1. Verification Functional Tests:
 - a. Verification tests shall be comprised of a full range of checks and tests to determine that all components, equipment, systems, and interfaces between systems operate in accordance with contract documents and the design intent. This shall include all operating modes, interlocks, control responses, and specific responses to abnormal or emergency conditions.
 2. Functional Performance Tests:
 - a. Functional performance tests shall determine that the commissioned systems are operating in accordance with the Contract Documents and the design intent.
- 1.05 ROLES AND RESPONSIBILITIES
- A. All Commissioning Team members shall be involved in the commissioning process. Following is a description of the responsibilities of each party:
 1. Owner or Owner's Representative:
 - a. Assign maintenance personnel and schedule them to participate in meetings, training sessions, and inspections.
 2. Commissioning Agent:
 - a. Develop the commissioning plan.
 - b. Review submittals for major equipment being commissioned.
 - c. Coordinate and administer the commissioning effort, through organization of all meetings, commissioning tests, demonstrations, and assisting with training events, described in the Contract Documents and in the commissioning plan.
 - d. Verify and spot check that pre-functional checklists and initial start-up has been performed and documented by the responsible mechanical, Electrical Subcontractors and their subcontractors.
 - e. Observe equipment and system start-up and testing. Ensure the results are documented (including a summary of deficiencies), and manufacturer / HVAC Subcontractor start-up forms are incorporated in the O&M manuals.
 - f. Attend the training sessions.
 - g. Prepare detailed verification and functional performance testing procedure data sheets.
 - h. Conduct verification testing.
 - i. Conduct functional performance testing.

- j. Re-test if performance deficiencies are found, corrected, and additional testing is requested. Only one retest will be performed. If the issue still remains after the re-test the additional cost to re-test will be incurred by the responsible HVAC Subcontractor. See section 3.3 below for further details.
 - k. Review O&M manuals.
 - l. Perform functional performance testing to accommodate seasonal tests and incorporate the results into the commissioning report.
 - m. Prepare the final commissioning report.
 - n. Assemble the final project documentation which shall include the Commissioning report.
 - o. Perform 10 month warranty walkthrough
3. Project Manager:
- a. Assist the Commissioning Agent in establishing the commissioning plan and in maintaining the schedule of commissioning events.
 - b. Attend all commissioning coordination meetings scheduled by the Commissioning Agent.
 - c. Keep the Commissioning Agent apprised of the schedule of work so that the Commissioning Agent can update the commissioning plan as the project progresses.
 - d. Direct General, Mechanical, Electrical, Plumbing, Technology, and Building Envelope Contractors, as required to satisfactorily complete the commissioning process.
4. General Contractor:
- a. Attend all commissioning coordination meetings scheduled by the Commissioning Agent.
 - b. Direct the Mechanical, Electrical, Plumbing, Technology, and Building Envelope Subcontractors, as required to satisfactorily complete the commissioning process.
 - c. Oversee the installation and placing in service of all building equipment and systems.
 - d. Oversee the performance and documentation of the pre-functional checklists by mechanical, electrical, plumbing, technology, and building envelope contractors, and their subcontractors prior to the beginning of commissioning verification and functional testing of the equipment.
 - e. Respond to issues noted in the Commissioning Agent field and summary reports.
5. Mechanical, Electrical, Plumbing, Technology, and Building Envelope Contractors:
- a. Include cost to complete commissioning requirements for mechanical systems in the contract price.
 - b. Attend commissioning coordination meetings at the discretion of the Commissioning Agent.
 - c. Arrange for various subcontractors and equipment manufacturers to attend commissioning coordination meetings scheduled by the Commissioning Agent, as indicated herein and as required.
 - d. Furnish or arrange for all labor, materials, and special tools and equipment required for execution of the commissioning process.
 - e. Include requirements for submittal data, O&M data, training, and commissioning in each purchase order or sub-contract written.
 - f. Ensure cooperation and participation of specialty subcontractors such as sheet-metal, piping, refrigeration, water treatment, BAS/ATC, TAB, etc.
 - g. Ensure participation of major equipment manufacturers in appropriate training and testing activities.
 - h. Coordinate and provide pre-functional checklist documentation per Section 01 91 13 and the Commissioning Plan as developed by the Commissioning Agent.

- i. Assist the Commissioning Agent in performing all verification and functional performance tests.
 - j. Respond to issues noted in the Commissioning Agent field and summary reports.
 - k. Prepare a preliminary schedule for mechanical system orientation and inspections, O&M manual submission, training sessions, pipe and duct system testing, flushing and cleaning, equipment start-up, etc., and task completion for use by the Commissioning Agent. Update schedule as appropriate throughout the construction period.
 - l. Gather O&M data on all equipment, and assemble in binders as required by the specifications. Submit to Commissioning Agent prior to the completion of construction. O & M manuals are to be issued to the project team within 60 days of the submittals being approved.
 - m. Notify the Project Manager a minimum of 10 working days prior to start-up of each specific piece of equipment and system start-up, so that observation and testing can occur.
 - n. Participate in, and schedule subcontractors and manufacturers to participate in all training sessions as set up by the Commissioning Agent.
6. Testing, Adjusting, and Balancing (TAB) Subcontractor:
- a. Include cost for commissioning requirements in the contract price.
 - b. Attend initial commissioning coordination meeting scheduled by the Commissioning Agent, and other commissioning coordination meetings, as requested.
 - c. Submit the TAB procedures to the Commissioning Agent for review and acceptance.
 - d. Attend a TAB review meeting scheduled by the Commissioning Agent. Be prepared to discuss the procedures that shall be followed in testing, adjusting and balancing the HVAC system.
 - e. At the completion of the TAB work, and submittal of final TAB report, notify the HVAC Subcontractor and Project Manager.
 - f. Participate in verification of the TAB report, which will consist of repeating any selected measurement contained in the TAB report where required by the Commissioning Agent for verification or diagnostic purposes.
7. Building Automation System (BAS) Subcontractor:
- a. Include cost for commissioning requirements in the contract price.
 - b. Attend initial Commissioning coordination meeting scheduled by the Commissioning Agent, and other commissioning coordination meetings as requested.
 - c. Review design for controllability with respect to selected manufacturers equipment;
 - 1) Verify proper hardware specification exists for functional performance required by specification and sequence of operation.
 - 2) Verify proper safeties and interlocks are included in design.
 - 3) Verify proper sizing of control valves and actuators based on design pressure drops. Verify control valve ability to control coil properly.
 - 4) Verify proper sizing of control dampers.
 - 5) Verify proper selection of sensor ranges.
 - 6) Clarify all questions of operation.
 - d. Provide the following information to the Commissioning Agent:
 - 1) Narrative description of each control sequence for each piece of equipment controlled.
 - 2) Diagrams showing all control points, sensor locations, point names, actuators, controllers, etc.

- 3) A list of all control points, including analog inputs, analog outputs, digital inputs, and digital outputs. Include the values of all parameters for each system point. Provide a separate list for each standalone control unit.
 - 4) Hardware operation and maintenance manuals.
 - 5) Integrate installation and programming schedule with construction and commissioning schedules.
 - 6) Provide thorough training to operating personnel on hardware operations and programming, and the application program for the system.
 - 7) Perform pre-functional checklist of controls on equipment requiring control pre-functional checks.
 - 8) Demonstrate system performance to Commissioning Agent including all modes of system operation (e.g., normal occupied, normal unoccupied, abnormal, emergency).
 - 9) Provide control system technician and instrumentation for use during all system verification and functional performance testing.
 - 10) Provide system modifications as required.
 - 11) Provide support and coordination with TAB Trade on all interfaces between the ATC and TAB scopes of work. Provide all devices, such as portable operator's terminals, for TAB use in completing TAB procedures.
 - 12) Additional trend logs may be required to facilitate the commissioning process.
8. Equipment Suppliers and Miscellaneous Subcontractors:
- a. Include cost for commissioning requirements in the contract price.
 - b. Attend initial Commissioning coordination meeting scheduled by the Commissioning Agent, and commissioning coordination meetings as requested.
 - c. Provide appropriate O&M manual section(s).
 - d. Participate in appropriate training sessions as scheduled by the Commissioning Agent.
 - e. Demonstrate performance of equipment as applicable.

1.06 DOCUMENTATION

- A. The Commissioning Agent shall oversee and maintain the development of commissioning documentation. The commissioning documentation shall be kept in three ring binders, and organized by system and sub-system where practical. All pages shall be numbered, and a table of contents page(s) shall be provided. The Commissioning documentation shall include, but not be limited to, the following:
1. A detailed description of the design intent for the project, listing operating parameters, control sequences, occupancy conditions, etc. (provided by the design engineer).
 2. A complete description of how the HVAC, electrical, plumbing, and fire protection systems are intended to operate (provided by the design engineer).
 3. Approved test and balance report for the building being commissioned.
 4. All verification and functional performance test checklists/results, organized by system and sub-system.

PART 2 - PRODUCTS

2.01 SPECIAL TOOLS AND/OR PROPRIETARY TEST EQUIPMENT

- A. Special tools, proprietary test equipment, and software required by any equipment manufacturer for programming and/or start-up, whether specified or not, shall be provided by the manufacturer of the equipment. Manufacturer shall provide the test equipment, demonstrate its use, and assist in the commissioning process as needed.

PART 3 - EXECUTION

3.01 GENERAL

- A. A pre-construction meeting of all Commissioning team members shall be held at a time and place designated by the Owner's Project Manager. The purpose shall be to familiarize all parties with the commissioning process, and to ensure that the responsibilities of each party are clearly understood.
 - 1. Two additional "kick-off" meetings will also be held prior to the commissioning functional testing. The second meeting will "kick-off" the pre-functional checklists, initial start-up, and scheduling. The third "kick-off" meeting will be held to discuss and schedule the functional testing, acceptance, training, and turnover.
 - 2. Additional meetings will be scheduled by the Commissioning Agent as needed to facilitate the commissioning process.
- B. The Mechanical, Electrical, Plumbing, Technology, and Building Envelope Subcontractors shall complete all phases of work so the systems can be started, tested, balanced, and commissioning procedures undertaken. This includes the complete installation of all equipment, materials, pipe, duct, wire, insulation, controls, etc., per the contract documents and related directives, clarifications, and change orders.
- C. Commissioning procedures may begin prior to completion of a system and/or sub-systems, and shall be coordinated with the Commissioning Agent. Start of commissioning procedures before system completion does not relieve the Mechanical, Electrical, Plumbing, Technology, and Building Envelope Contractors, from completing those systems as per the contract requirements.

3.02 PARTICIPATION IN ACCEPTANCE PROCEDURES

- A. The Mechanical, Electrical, Plumbing, Technology, and Building Envelope Contractors, shall provide skilled technicians to support startup, testing, and debugging all systems within their respective specification sections and divisions. These same technicians shall be made available as necessary to assist the Commissioning Agent in executing the commissioning program. Work schedules, time required for testing, etc., shall be requested by the Commissioning Agent and coordinated by the Mechanical, Electrical, Plumbing, Technology, and Building Envelope Contractors,
- B. System performance problems and discrepancies may require additional technician time, Commissioning Agent time, reconstruction of systems, and/or replacement of system components. The additional technician time shall be made available for subsequent commissioning periods until the required system performance is obtained.

3.03 DEFICIENCY RESOLUTION

- A. In some systems, maladjustments, misapplied equipment, and deficient performance under varying loads will result in additional work being required to re-commission the systems. This work will be completed under the direction of the Project Manager, with input from the Commissioning Agent and Design Engineer. All Commissioning Team members will have input and the opportunity to discuss the work and resolve problems.

- B. Corrective work shall be completed in a timely fashion to permit timely completion of the commissioning process. Experimentation to render system performance will be permitted. If the Commissioning Agent deems the experimentation work to be ineffective or untimely as it relates to the commissioning process, the Commissioning Agent will notify the Project Manager indicating the nature of the problem and expected steps to be taken.
- C. The cost for the Trade contractors to retest a prefunctional or functional test, if they are responsible for the deficiency, shall be theirs. If they are not responsible, any cost recovery for retesting costs shall be negotiated with the CM/GC.
- D. For a deficiency identified, not related to any prefunctional checklist or start-up fault, the following shall apply: The CxA will direct the retesting of the equipment once at no "charge" to the CM/GC for their time. However, the CxA's and owner's time for a second retest will be charged to the CM/GC, who may choose to recover costs from the responsible contractor or subcontractor. Before retesting occurs, the CM/GC will inspect the deficiency and respond to the CxA that the issue has been addressed.
- E. The time for the CxA and owner to direct any retesting required because a specific prefunctional checklist or start-up test item, reported to have been successfully completed, but determined during functional testing to be faulty, will be back charged to the CM/GC, who may choose to recover costs from the party responsible for misinformation or deficiency.
- F. The Trade Contractors shall respond in writing to the CxA and owner at least as often as commissioning meetings are being scheduled concerning the status of each apparent outstanding discrepancy identified during commissioning. Discussion shall cover explanations of any disagreements and proposals for their resolution.
- G. Any required retesting by any Trade contractor shall not be considered a justified reason for a claim of delay or for a time extension by the CM/GC, contractors or subcontractors.

3.04 SEASONAL COMMISSIONING

- A. Seasonal commissioning pertains to testing close to full load conditions during peak heating and peak cooling seasons, as well as part load conditions in the spring and fall. Initial commissioning shall be done as soon as contract work is completed, regardless of season.
- B. Heating equipment shall be tested during heating season. Cooling equipment shall be tested during cooling season with a normal level of building occupancy. Each HVAC Subcontractor and supplier shall be responsible to participate in the initial and the alternate peak season tests of the systems as required in order to demonstrate performance.

3.05 OPERATING AND MAINTENANCE (O&M) TRAINING

- A. Training: Comprehensive training of Owner's maintenance personnel shall be performed by the Mechanical, Electrical, Plumbing, Technology, and Building Envelope Contractors, with assistance and input from the Commissioning Agent, and where appropriate, by subcontractors, and equipment manufacturers.
 - 1. Training shall be on-site and/or at other mutually agreed to places. Training shall begin prior to turnover of building to the Owner, and shall continue for a reasonable period of time after turnover.
 - 2. It is anticipated that training will be provided in multiple sessions as noted in the project specifications. The quantity of sessions will be clarified in various equipment/systems project specifications.
 - 3. The training shall include hands-on O & M instruction on the installed equipment and systems to be provided by the various MEP and Building Enclosure Subcontractors or their representatives. The training shall emphasize operating instructions, and preventive

- maintenance as described in the operation and maintenance (O&M) manuals. The O & M manuals can be reviewed during the training sessions with the training representative in greater detail as desired by the Owner. The training period shall include an onsite inspection, explanation, and review of the systems encompassed by the commissioning process and is to be delivered by the Trade Subcontractors.
4. Training requirements are partially specified in this specification section, and further specified in other specification sections.
- B. The Mechanical, Electrical, Plumbing, Technology, and Building Envelope Contractors, shall be responsible for organizing, arranging, and delivering this instruction in an efficient and effective manner on a schedule agreeable to the Commissioning Agent and the Owner.
 - C. The Mechanical, Electrical, Plumbing, Technology, and Building Envelope Contractors, shall provide, well before substantial completion, a proposed agenda and schedule for training for approval by the Commissioning Agent and the Owner.
 - D. Training shall include:
 1. Use of the printed installation, operation, and maintenance instruction material included in the O&M Manuals.
 2. Include a review of the written O&M instructions emphasizing safe and proper operating requirements, preventative maintenance, special tools needed and spare parts inventory suggestions. The training shall include review of start-up, operation in all modes possible, shutdown, seasonal changeover and any emergency procedures.
 3. Discuss relevant health and safety issues and concerns.
 4. Discuss warranties and guarantees.
 5. Cover common troubleshooting problems and solutions.
 6. Explain information included in the O&M manuals and the location of all plans and manuals in the facility.
 7. Discuss any peculiarities of equipment installation or operation.
 8. Any classroom sessions provided may include the use of overhead projections, slides, video and audio taped material as required by specifications.
- 3.06 START-UP, PRE-FUNCTIONAL CHECKLISTS AND INITIAL CHECKOUT
- A. The following procedures apply to all equipment to be commissioned, according to Section 1.4, Scope of Work. Some systems that are not comprised so much of actual dynamic machinery may have very simplified PCs and startup.
 1. General:
 - a. Pre-functional checklists are important to ensure that the equipment and systems are hooked up and operational. It ensures that functional performance testing (in depth system checkout) may proceed without unnecessary delays. Each piece of equipment receives full pre-functional checkout. The pre- functional testing for a given system must be successfully completed prior to formal functional performance testing of equipment or subsystems of the given system.
 2. Start-up and Initial Checkout Plan:
 - a. The CxA shall assist the commissioning team members responsible for startup of any equipment in developing detailed start up plans as required for all equipment. The primary role of the CxA in this process is to ensure that there is written documentation that each of the manufacturer recommended procedures have been completed. Parties responsible for pre-functional checklists and startup are identified in the commissioning scoping meeting and the commissioning plan.

- b. Checklists generated by the CxA are provided to the applicable Trade contractor for informational purposes.
- c. The Trade Contractor responsible for the purchase of the equipment develops the full start up plan by combining (or adding to) the CxA's checklists with the manufacturer's detailed start up and checkout procedures from the O&M manual and the normally used field checkout sheets.
 - 1) The full start up plan could consist of something as simple as:
 - a) The CxA's pre-functional checklists.
 - b) The manufacturer's standard written start-up procedures copied from the installation manuals with check boxes by each procedure and a signature block added by hand at the end.
 - c) The manufacturer's normally used field checkout sheets.
- d. The Trade contractor submits the full startup plan to the CxA for review and approval as required in the project specifications.
- e. The CxA reviews and approves the procedures and the format for documenting them, noting any procedures that need to be added.

3.07 DOCUMENTATION, FUNCTIONAL PERFORMANCE TESTING

- A. Documentation: The CxA shall witness and document the results of all functional performance tests using the specific procedural forms developed for that purpose. Prior to testing, these forms are provided to the Project Manager and to the Subs for informational purposes. The CxA will include the filled out forms in the final commissioning report.

B. Non-Conformance:

1. The CxA will record the results of the functional test on the procedure or test form. All deficiencies or non-conformance issues shall be noted and reported to the Project Manager on a standard noncompliance form.
2. Corrections of minor deficiencies identified may be made during the tests at the discretion of the CxA. In such cases the deficiency and resolution will be documented on the procedure form.
3. Every effort will be made to expedite the testing process and minimize unnecessary delays, while not compromising the integrity of the procedures. However, the CxA will not be pressured into overlooking deficient work or loosening acceptance criteria to satisfy scheduling or cost issues, unless there is an overriding reason to do so at the request of the Owner.
4. As tests progress and a deficiency is identified, the CxA will discuss the issue with the executing contractor.
 - a. When there is no dispute on the deficiency and the Sub accepts responsibility to correct it:
 - 1) The CxA documents the deficiency and the Subcontractor's response and intentions and they go on to another test or sequence. Subsequently, the Sub corrects the deficiency, notifies the Project Manager and Commissioning Agent that the equipment is ready to be retested. The Commissioning Agent then retests the deficient system/component and documents the results.
 - 2) This process is repeated until the discrepancy is appropriately resolved. See section 3.3 above with regards to re-testing more than one time and potential cost overruns.
 - b. If there is a dispute about a deficiency, regarding whether it is a deficiency or who is responsible:
 - 1) The deficiency shall be documented with the Sub's response and a copy given to the Project Manager.
 - 2) Resolutions are made at the lowest management level possible. Other parties are brought into the discussions as needed. Final interpretive authority is with the A/E. Final acceptance authority is with the Owner.
 - 3) The CxA documents the resolution process.
 - 4) Once the interpretation and resolution have been decided, the appropriate party corrects the deficiency, and notifies the Project Manager and the Commissioning Agent. The Commissioning Agent reschedules the test and the test is repeated until satisfactory performance is achieved.
5. The Trade Contractors shall respond in writing to the Commissioning Agent and Project Manager at least as often as commissioning meetings are being scheduled concerning the status of each apparent outstanding discrepancy identified during commissioning. Discussion shall cover explanations of any disagreements, proposals for their resolution, and current status of completion.
6. The Commissioning Agent retains the original discrepancy documentation until the end of the project.

END OF SECTION

Section 01 91 15
COMMISSIONING OF BUILDING ENCLOSURE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Owner's Project Requirements and basis of Design documentation are included for information only.
- C. Section "General Commissioning Requirements" for general requirements for commissioning including definition, commissioning team membership and responsibilities.
- D. Division 03 through 9 sections for building exterior enclosure commissioning requirements specific to the work of each section.
- E. Division 01 section 'LEED Requirements' for additional LEED requirements.

1.2 SUMMARY

- A. This section includes exterior enclosure commissioning procedures, including windows, doors, exterior enclosure, and roofing construction that protects climate-controlled interior spaces from unconditioned spaces and the exterior environment, as follows:
 - 1. Superstructure floor and roof construction that functions as part of the exterior enclosure system.
 - 2. Exterior component enclosure construction, above grade including: a) air barriers, thermal barriers, vapor barriers and moisture barriers integral to the exterior envelope; b) roofing systems with associated flashing and trims; c) below grade and above grade waterproofing system, including any slab on grade conditions with associated flashings and trims; d) fenestration systems including curtain walls, windows storefronts and glazed openings; e) exterior wall cladding systems inclusive of precast cladding panels and formed metal rainscreen cladding systems, etc. with associated insulation support systems, and air and vapor barriers; f) exterior louvers; g) stone, brick and other cladding materials; h) sealant joints, expansion joints and control joints related to the exterior; i) roofing, including roofing system, roofing insulation, and skylights, hatches and other roof openings.
 - 3. Above-grade system construction, including: exterior wall systems and assemblies; steep-slope and low-slope roofing; outdoor plazas, planters and plaza paving systems and assemblies over occupied space, and glazed window, curtain wall and sloped glazing (skylight) systems.

4. Interface conditions (flashing, expansion joints, and sealant) between each of the materials, components and systems that comprise the above and below-grade building enclosure.
- B. The materials, components, systems, and assemblies that comprise the above and below-grade building exterior enclosure will be evaluated and tested as outlined in this section, as well as in accordance with each of the technical sections associated with the design and construction of the building exterior enclosure. The purpose of Building Exterior Enclosure Commissioning is to provide a process for independent, third-party verification that the installed performance of the building exterior enclosure meets or exceeds the minimum performance requirements set forth by the contract documents for this project.

1.3 DEFINITIONS

- A. Refer to Division 17 Section "General Commissioning Requirements" for definitions.

1.4 SUBMITTALS

- A. The Contractor is to provide the following submittals to the Commissioning Authority, including the building exterior enclosure-commissioning sub-consultant, in addition to submitting them to the Architect-of-Record. These submittals are in addition to those specified in Division 17 Section 17100 "General Commissioning Requirements".
 1. Coordination Drawings: Provide cross references on any and all shop drawings indicating that drawings have been checked and cross-referenced by the Contractor to ensure that adjacent elements (i.e. wall elements and fenestration elements) and the dimensions and construction tolerances indicated will allow all work at interfaces to be constructible.
 2. Qualification Data: For fabricators, installers, and testing agencies, submit to the Commissioning Authority for review of all qualifications required in Division 2 through 9 for review.
 3. Preconstruction Test Reports: All preconstruction air and water leakage performance test results, including all failed tests, recoding the noted deficiency and the required repair and provide a copy of all remediation processes and QC/QA processes that will be put in place to address the deficiency on future work product.
 4. Source Quality Control Reports: retain a copy for field review by the commissioning authority and include in the closeout submittal a copy of all manufacturer QA/QC reports submitted for products supplied for the project.
 5. Field Quality Control Reports: Provide a copy of the test reports for all field water and air penetration and other appropriate building enclosure tests completed.
 6. Special Inspections: Reports for all special inspections indicated by the Architect/Engineer-of Record in the specifications.

1.5 PRE-CONSTRUCTION TESTING

A. The following tests are to be performed for compliance with specified requirements:

1. Exterior joint sealants:

- i. Adhesion test (ASTM C1522)
- ii. Compatibility (ASTM C1087)
- iii. Stainability on porous substrate (ASTM D2203)

1.6 FIELD QUALITY CONTROL

A. The following functional tests are to be performed by the General Contractor during construction:

1. Exterior joint sealants:

- i. Adhesion (ASTM C1193), Appendix X1, Method A. Perform five (5) tests for the first 1000 feet of joint length for each type.
- ii. Adhesion-in-peel (ASTM C794), perform five (5) tests for the first 1000 feet of joint length for each type.

2. Aluminum Curtain Wall, Sunshades, louvers:

- i. Structural sealant adhesion test (ASTM C1401), Method A, Appendix X2. Test minimum of six areas on each building façade.
- ii. Air infiltration (ASTM E283), perform test at three areas.
- iii. Water penetration (ASTM E331), perform test at three areas.

3. Aluminum Windows & Storefronts:

- i. Water penetration (AAMA 501.2 nozzle test) as designated by architect.

4. Aluminum Panels:

- ii. Anchor strength (ASTM E488), as designated by structural engineer of record.

5. Roof system:

- i. Electronic leak detection (Electric Field Vector Mapping (EFVM), or ASTM C1153 (infrared scanning). To be performed at 100% of all roof areas.

1.7 QUALITY ASSURANCE

A. Quality Assurance and Control: Specific commissioning quality assurance and quality control requirements for individual construction activities are specified in the Sections that specify those activities. Specified commissioning tests, inspections, and related actions do not limit Contractor's other quality-assurance and control procedures that facilitate compliance with the Contract Document requirements.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 CONTRACTOR'S RESPONSIBILITIES

- A. Attend Commissioning meetings.
- B. Provide schedule of field quality control tests and inspections required by the Contract Documents to Commissioning Authority.
 - 1. Update schedule, as it pertains to the Building Exterior Enclosure, weekly throughout the construction period.
- C. Participate in final review at acceptance meeting.
- D. Provide input for final commissioning documentation.
- E. Furnish copies of all shop drawings, manufacturer's literature, installation instructions, maintenance information, schedules, warranties or other information as requested.
- F. Provide qualified personnel for assistance to complete the commissioning tests, including seasonal testing and all required air and water leakage testing for elements of the building exterior enclosure.
- G. Submit a copy of the General Contractor's project and site specific Quality Assurance program to be implemented for construction for review by the Architect of Record, the Owner, Owner representatives and the Commissioning Authority, prior to beginning construction and prior to the kick-off meeting of the Building Exterior Enclosure Commissioning process.
- H. Participate and ensure all subcontractors utilized for work on this contract participate in meetings prior to beginning construction with the various members of the design and construction teams, including, but not limited to, the Owner, Owner's representatives, Architect of Record, Commissioning Authority including the building exterior enclosure commissioning sub-consultant, Mechanical Engineer, LEED consultant, suppliers, and manufacturer technical representatives. The subcontractors that must attend this meeting include all subcontractors that will be involved in the construction of the building exterior enclosure, including but not limited to, the roofing, wall system (including installers for the façade system, including but not limited to, the masonry, stone, metal panel, siding, EIFS, etc. and installers for the air barrier system and drainage plane and flashing and water management system), flashing, sealant, fenestration, concrete and steel. This meeting will be to discuss construction sequencing and the coordination of trades and the General Contractor's project and site-specified Quality Assurance program to be implemented that will be completed during construction of the building exterior enclosure.
- I. Have a representative present during laboratory or on-site structural and air and water leakage performance testing of building exterior enclosure materials or systems, as required in the individual specification sections in Division 2 through 9.

- J. Chair Building Exterior Enclosure Quality Assurance Meetings with the appropriate subcontractors in attendance, to review and discuss issues and concerns related to the building exterior enclosure noted by the Architect of Record, the Commissioning Authority, the building exterior enclosure commissioning sub-consultant, and the Owner or Owner's representative, during the previous week and what action will be taken to address the noted non-conformances. Maintain a summary of non-conformances and current status.
- K. Provide a representative to be present, and have a representative present from each trade and/or subcontractor associated with installing the system during random building exterior enclosure air and water leakage performance testing, as indicated within the individual sections within Division 2 through 9. Provide a written protocol and a timeline for repair of any deficiencies noted during the performance testing and/or a written report from the third-party agency performing the tests indicating what repairs were required. If a systemic problem is identified during testing, please see the following requirement.
- L. Provide a repair and remediation protocol for any systemic failures identified by the Commissioning Authority, including a timeline for repair of all affected elements. Repaired elements shall not be covered up without review and documentation by the Commissioning Authority.
- M. Provide copies of all test and inspection reports for inclusion in the Systems Manual to be submitted as part of the project closeout documentation.
- N. Provide a Systems Manual as part of the project record closeout documentation that includes, but is not limited to, closeout requirements listed in these specifications and more specifically:
 - 1. As-built drawings, including a copy of all details and drawings that were installed as part of any addendums or change order directives. All deviations shall be clearly marked in red pen.
 - 2. Specifications for the project, including all accepted product substitutions and any additional specifications as part of any addendums or change order directives. All accepted product substitutions and all deviations shall be clearly marked in red pen.
 - 3. A copy of all accepted change orders.
 - 4. A copy of all final shop drawings for each product, requiring shop drawings, with the A/E markups and comments, showing final as built conditions.
 - 5. A copy of all warranties, organized by product, and any and all product manufacturer letters indicating the product as appropriate to use for the application intended on the project as well as any installation guidance.
 - 6. A master product list summarizing all products used on the project for construction of the building, exterior enclosure, organized by tabs in a binder, including the following information:
 - a. Product name
 - b. Product manufacturer

- c. Catalog or other applicable number of ordering
 - d. Manufacturer's contact information, including the contact information for the technical representatives, including one national contact and one regional technical representative contact
 - e. Product color
 - f. Supplier contact information
 - g. Product installation instructions, including installation instructions supplied with any of the shop drawings that indicated field installed items
 - h. Manufacturer's product maintenance guide
 - i. Manufacturer's checklist for periodic review of the product indicating how often the product should be checked and the process for implementing repair
- O. A Systems Manual is to be developed for each major building exterior enclosure systems; including, but not limited to:
- 1. Roof/Garden Roof (penetrations, curbs, etc.)
 - 2. Skylights/Sloped glazing
 - 3. Exterior walls (masonry, stone, EIFS, concrete, precast, metal panels, insulation, framing, vapor retarder, air barrier, sheathing, etc).
 - 4. Windows
 - 5. Doors, louvers
 - 6. Sealants and expansion joints
 - 7. Control joints
 - 8. Flashings (end dams, drip edges, flexible flashing and metal flashings)
 - 9. Shading devices
 - 10. Curtain walls or window walls, storefronts
 - 11. Below-grade construction, waterproofing, drainage
 - 12. Floors, slab-on-grade
 - 13. Other special building exterior enclosure systems, equipment and controls
- P. Participate in maintenance orientation and inspection and in one maintenance and training session with the building operations and maintenance staff and other participants identified by the Owner and Architect-of-Record, with the assistance of the Commissioning Authority.

- Q. Cooperate with testing agencies and Commissioning Agency and provide reasonable auxiliary services. Notify agency sufficiently in advance of operations to permit assignment of personnel.
- R. Provide access to the Work to allow the commissioning authority to inspect building envelope components and transitions from the exterior. Provide the following:
 - 1. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 2. Provide access via suspended scaffold or boom lift at each façade at the beginning, middle, and end of project.
 - 3. Provide access to roofs, including tie-off lines if necessary.

3.2 COMMISSIONING AUTHORITY'S RESPONSIBILITIES

- A. Provide Project-specific construction checklists and commissioning process test procedures.
- B. Review the building enclosure mockups required in Division 2 through 9.
- C. Witness installation of representative areas of building enclosure components, systems, and assemblies during representative phases of the project.
- D. Witness the performance testing of building enclosure systems required in Division 2 through 9.
- E. Facilitate the coordination of the commissioning work between the CxA, the Contractor and the Architect and Engineers to ensure that the commissioning activities are incorporated into the master schedule.
- F. Promptly notify Architect and Contractor of irregularities of deficiencies in work that are observed during performance of services and approve the commissioning plan.

3.3 VERIFICATION

- A. Certify that building exterior enclosure systems, subsystems, and construction have been completed according to the Contract Documents.
- B. Commissioning Authority will witness and document field quality-control tests and inspections.
 - 1. Verify that field quality-control testing of building exterior enclosure has been completed and approved, that discrepancies have been corrected, and corrective work approved.
- C. Prepare a preliminary test report. Deficiencies will be evaluated by the Architect and the Commissioning Authority building exterior enclosure commissioning sub-consultant to determine corrective action. Deficiencies shall be corrected and test repeated. All repairs are to be documented by the Commissioning Authority.
- D. Annotate checklist or data sheet when a deficiency is observed.
- E. Deferred Testing:

1. If tests cannot be completed because of a deficiency outside the scope of Building Exterior Enclosure, the deficiency shall be documented and reported to Owner. Deficiencies shall be resolved and corrected by Contractor and tests rescheduled.
 2. If the testing plan indicates specific seasonal testing, appropriate initial performance tests shall be completed and documented and additional tests scheduled.
- F. If it is determined that the system is not constructed according to the Contract Documents, the Owner will decide whether modifications are required to bring the performance of the system to a level where the failure or deficiency is eliminated and shall be implemented or if the test results will be accepted as submitted. If corrective work is performed, the Owner will decide if tests shall be repeated and a revised report is to be submitted.
- G. Testing Reports:
1. Reports shall include measured data, data sheets, and a comprehensive summary describing the building exterior enclosure systems at the time of testing.

3.4 SYSTEMS TO BE COMMISSIONED

- A. Refer to Divisions 2 through 9 of the Specification Sections for each building exterior enclosure elements and system that will be commissioned include but are not limited to:
1. Air, thermal, vapor and moisture barrier integral to the exterior envelope
 2. Roofing systems with associated flashings and trims
 3. Below and above grade waterproofing systems, including any slab on grade conditions with associated flashings and trims
 4. Fenestration systems including curtain walls, windows, storefronts and glazed openings
 5. Exterior wall cladding systems, inclusive of precast cladding panels and formed metal rain-screen cladding systems, etc. with associated insulation, support systems and air and vapor barriers
 6. Exterior louvers
 7. Stone or other cladding materials
 8. Sealant, expansion and control joints related to the exterior envelope.

End of Section