Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

100% CONSTRUCTION DOCUMENTS, FINAL BID PACKAGE #4



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Set No: 3 OF 4

Date: JANUARY 20 2022

Worcester Public Schools

Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

LPA

Equipment Utility Schedule 1-70

No.	Qty.	Description	HVAC Utilities						Plumbing Utilities						Electrical Utilities									No.	Comment
			ECFM	Collar Size	SP	Make Up CFM	Make Up Collar	Make-Up Air	HW	CW	DW	IW	MBTUS	Gas Size	Voltage	Phase	HP	Amperage	KW	Hard Connection	Plug	NEMA Config	Electrical Height		
1	4	Mobile Walk-In Shelving																						1	
1A	9	Mobile Walk-In Shelving																						1A	
1B	2	Mobile Walk-In Shelving																						1B	
1C	10	Mobile Walk-In Shelving																						1C	
1D	2	Walk-In Shelving																						1D	
1E	5	Mobile Walk-In Shelving																						1E	
2	13	Corner Guard																						2	
3	1	Spare Number																						3	
4	1	Spare Number																						4	
5	1	Walk-In Cooler/Freezer/Blast Chiller													(4)120	1		15.0		X			VFY	5	EC - Coordinate interconnection with Building Emergency Power System.
6	2	Cooler Coil										3/4"			208/230	1		2.0		X			VFY	6	EC - Interconnect to Emergency Power System.
7	1	Cooler Condensing Unit													208/230	3	2.5	15.375		X			VFY	7	EC - Interconnect to Emergency Power System.
8	2	Freezer Coil										3/4"			208/230	1		21.8		X			VFY	8	EC - Interconnect to Emergency Power System.
9	1	Freezer Condensing Unit													208/230	3	4.5	14.875		X			VFY	9	EC - Interconnect to Emergency Power System
10	1	Cooler Coil										3/4"			208-230	1		1.0		X			VFY	10	EC - Interconnect to Emergency Power System.
11	6	Dunnage Rack																						11	
12	1	Cooler Condensing Unit													208/230	3	0.75	5.875		X			VFY	12	EC - Interconnect to Emergency Power System.
13	1	Blast Chiller Condensing Unit													208/230	3		48.6		X			VFY	13	EC - Interconnect to Emergency Power System
14	1	Blast Chiller Coil Assembly										(2) 1"			208	1		15.5		X			VFY	14	
15	6	Roll-In Pan Rack																						15	
16	1	Hand Sink							1/2"	1/2"	1-1/2"				120	1		2.0			X	5-15P	18"	16	PC - Provide 110 Degree hot water to faucet.
16A	1	Soap Dispenser																						16A	
16B	1	Touchless Paper Towel Dispenser																						16B	
16C	1	Waste Bin																						16C	
17	1	Ice Maker w/ Bin								3/8"		1/2" & 3/4"			115	1		12.2		X			68.5	17	PC - Coordinate interconnection with water filter specified with unit.
17A	1	Ice Machine Filter								3/8"														17A	PC – Filtered water to feed Item No. 17 - Ice Maker w/ Bin
18	3	Mobile Dry Storage Shelving																						18	
18A	11	Mobile Dry Storage Shelving																						18A	
18B	2	Mobile Dry Storage Shelving																						18B	
18C	6	Mobile Dry Storage Shelving																						18C	
19	1	Walk-In Cooler													(2)120	1		15.0		X			VFY	19	EC - Coordinate interconnection with Building Emergency Power System.
20	1	Flammable Safety Cabinet																						20	
21	2	Mobile Work Table													120	1		20.0			X	5-20P	DFA	21	EC - Provide Retractable duplex outlet
22	1	Mobile Work Table													120	1		20.0			X	5-20P	DFA	22	EC - Provide Retractable duplex outlet
23	1	Hand Sink							1/2"	1/2"	1-1/2"				120	1		2.0			X	5-15P	18"	23	PC - Provide 110 Degree hot water to faucet.
23A	1	Soap Dispenser																						23A	
23B	1	Touchless Paper Towel Dispenser																						23B	
23C	1	Waste Bin																						23C	
24	1	80 Qt. Mixer													200-240	3	3.0	12.0		X			36.7"	24	
25	1	Prep Table w/ Sinks & Overshelf							1/2"	1/2"		2"			(2) 120	1		20.0			X	5-20R	36"	25	EC - Provide unit with two (2) duplex outlets. Outlet housing provided by table manufacturer.
25A	1	Disposer/Controls								1/2"	2"				208	3	2	3.6		X			13"	25A	
26	1	Work Table													(2) 120	1		20.0			X	5-20R	36"	26	EC - Provide unit with two (2) duplex outlets. Outlet housing provided by table manufacturer.
27	1	Prep Table w/ Sinks & Overshelf							1/2"	1/2"		2"			(2) 120	1		20.0			X	5-20R	36"	27	EC - Provide unit with two (2) duplex outlets. Outlet housing provided by table manufacturer.
27A	1	Spare Number																						27A	
28	1	Work Table w/ Sinks							1/2"	1/2"		2"			(2) 120	1		20.0			X	5-20P	36"	28	EC - Provide unit with one (1) duplex outlets. Outlet housing provided by table manufacturer.
29	1	Hand Sink							1/2"	1/2"	1-1/2"				120	1		2.0			X	5-15P	18"	29	PC - Provide 110 Degree hot water to faucet.
29A	1	Soap Dispenser																						29A	
29B	1	Touchless Paper Towel Dispenser																						29B	
29C	1	Waste Bin																						29C	
30	1	Pass-Thru Refrigerator													115	1	1/4	3.8			X	5-15P	92"	30	
31	1	Pass-Thru Heated Cabinet													208-230	1		7.2	1.5		X	6-15P	92"	31	
32	1	Food Processor													120	1	3	15.0			X	5-20P	32"	32	
33	1	Manual Clipper																						33	
34	1	Slicer													120	1	1/2	5.6			X	5-15P	18"	34	
35	1	Pass-Thru Refrigerator													115	1	1/4	3.8			X	5-15P	92"	35	
36	1	Pass-Thru Heated Cabinet													208-230	1		7.2	1.5		X	6-15P	92"	36	
37	1	Mobile Work Table													120	1		20.0			X	5-20R	DFA	37	EC - Provide Retractable duplex outlet
38	1	Mobile Work Table													120	1		20.0			X	5-20R	DFA	38	EC - Provide Retractable duplex outlet
39	1	Roll-In Combi-Oven								(2) 3/4"		1-1/2"			480	3		79.4	66.0	X			12"	39	
39A	1	Reverse Osmosis System								3/8"					120	1		5.0			X	5-15P	18"	39A	PC - Coordinate interconnection with Item No. 39 - Roll-In Combi Oven.
40	1	Roll-In Combi-Oven								(2) 3/4"		1-1/2"			480	3		79.4	66.0	X			12"	40	
40A	1	Reverse Osmosis System								3/8"					120	1		5.0			X	5-15P	18"	40A	PC - Coordinate interconnection with Item No. 40 - Roll-In Combi Oven.
41	1	Roll-In Combi-Oven								(2) 3/4"		1-1/2"			480	3		79.4	66.0	X			12"	41	
41A	1	Reverse Osmosis System								3/8"					120	1		5.0			X	5-15P	18"	41A	PC - Coordinate interconnection with Item No. 41 - Roll-In Combi Oven.
42	1	Roll-In Combi-Oven								(2) 3/4"		1-1/2"			480	3		79.4	66.0	X			12"	42	
42A	1	Reverse Osmosis System								3/8"					120	1		5.0			X	5-15P	18"	42A	PC - Coordinate interconnection with Item No. 42 - Roll-In Combi Oven.
43	1	Exhaust Hood	2308	12x16	0.35	1512	12x18	0.27							120	1		15.0		X			VFY	43	EC - Interconnect Lights with Power & Switch
44	1	Exhaust Hood	2308	12x16	0.35	1512	12x18	0.27							120	1		15.0		X			VFY	44	EC - Interconnect Lights with Power & Switch
45	1	Utility Distribution System							3/4"	1-1/4"					208/120 & 460	3 & 3		20.0 & 700.0		(2)X			VFY	45	EC - See Halton Shop Drawings.
46	1	Hand Sink							1/2"	1/2"	1-1/2"				120	1		2.0			X	5-15P	18"	46	PC - Provide 110 Degree hot water to faucet.
46A	1	Soap Dispenser																						46A	
46B	1	Touchless Paper Towel Dispenser																						46B	
46C	1	Waste Bin																						46C	
47	2	Trash Bin																						47	
48	2	Mobile Dry Storage Shelving																						48	
49	1	Roll-In Combi-Oven								(2) 3/4"		1-1/2"			480	3		79.4	66.0	X			12"	49	
49A	1	Reverse Osmosis System								3/8"					120	1		5.0			X	5-15P	18"	49A	PC - Coordinate interconnection with Item No. 49 - Roll-In Combi Oven.
50	1	60 Gal. Tilting Kettle							1/2"	1/2"					480	3		21.7	18.0	X			30.8"	50	
51	1	Floor Trough								1"	4"													51	
52	1	Spare Number																						52	
53	1	40 Gallon Tilting Skillet							3/8"	3/8"					480	3		21.7	18.0	X			18"	53	
54	1	40 Gallon Tilting Skillet							3/8"	3/8"				3/4"	480	3		21.7	18.0	X			18"	54	
55	1	Floor Trough								1"	4"													55	
56	1	Exhaust Hood	1854	12x13	0.30	1437	12x12	0.24							120	1		15.0		X			VFY	56	EC - Interconnect Lights with Power & Switch
57	1	Exhaust Hood	2204	12x15	0.43	1483	12x16	0.27							120	1		15.0		X			VFY	57	EC - Interconnect Lights with Power & Switch
58	1	Quick Switch Hot-Cold Food Wells										3/4"			120/208	1		7.2			X	14-20P	18"	58	
59	1	Drop-In Frost Top										1"			115	1	0.25	3.5			X	5-15P	18"	59	
60	1	Soiled Dishtable & Pot sink							(2) 3/4"	(2) 3/4"	(3) 2"													60	PC to cap and tap 1/4" line of of the 1/2" HW line for future use by the soap/sanitizer subcontractor.
61	1	Wall Shelf w/ Pot Hooks																						61	
62	1	Disposer/Controls								1/2"	3"				208	3	3.0	8.6		X				62	
63	1	Pre-Rinse Assembly							1/2"	1/2"														63	
64	1	Dishmachine	200&400	(2) 4"x16"					1/2"	1/2"		1-1/2"			480	3		47.0	21.0	X				64	PC - Provide 110 Degree incoming water temp.
64A	2	Ventilation Riser																						64A	
65	1	Clean Dishtable																						65	
66	1	Wall Shelf w/ Pot Hooks																						66	
67	1	Mobile Work Table													120	1		20.0			X	5-20R	DFA	67	EC - Provide Retractable duplex outlet
68	1	Prep Table w/ Sinks							1/2"	1/2"		(2) 2"			(2) 120	1		20.0			X	5-20P	32"	68	EC - Provide unit with two (2) duplex outlets. Outlet housing provided by table manufacturer.
69	1	Quick Switch Hot-Cold Food Wells										3/4"			120/208	1		12.0			X	14-20P		69	
70	1	Quick Switch Hot-Cold Food Wells										3/4"			120/208	1		12.0			X	14-20P		70	

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CONSULTANT'S STAMP

OWNER

WORCESTER PUBLIC SCHOOLS

PROJECT

100% CONSTRUCTION DOCUMENTS, FINAL BID PACKAGE #4

Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

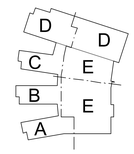
DRAWING TITLE

Foodservice Utility Schedule

Locus Map

True North

Key Plan



REVISIONS

No.	Description	Date

FILE:
JOB NO: #1904
SCALE:
DWN. BY: JJL
CKD. BY: EKA/PJM
DATE: JANUARY 20, 2022

K1.1

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Equipment Utility Schedule 71-150

No.	Qty.	Description	HVAC Utilities			Plumbing Utilities						Electrical Utilities									No.	Comment
			ECFM	Collar Size	SP	HW	CW	DW	IW	MBTUS	Gas Size	Voltage	Phase	HP	Amperage	KW	Hard Connection	Plug	NEMA Config	Electrical Height		
71	1	Hand Sink				1/2"	1/2"	1-1/2"				120	1		2.0			X	5-15P	18"	71	PC - Provide 110 Degree hot water to faucet.
71A	1	Soap Dispenser																			71A	
71B	1	Touchless Paper Towel Dispenser																			71B	
71C	1	Waste Bin																			71C	
72	4	Mobile Pot Shelving																			72	
73	1	Mop Sink				1/2"	1/2"	2"													73	
74	2	Janitor Shelving																			74	
75	1	Mobile Scale Stand																			75	
76	1	Scale										120	1		15.0			X	5-15P	18"	76	
77	1	Fire Suppression System										120	1		15.0		X			108"	77	Connect to Building Alarm System.
78	1	Spare Number																			78	
79	1	Demand Controls Marvel										120	1		15.0		X			VFY	79	
80	1	Vertical Sneeze Guard																			80	
81	1	Vertical Sneeze Guard																			81	
82	1	Pizza Back Work Counter										120	1		20.0			X	5-20R	48"	82	EC - Provide unit with one (1) wall mounted convenience outlet.
83	1	Quick Switch Hot-Cold Food Wells							3/4"			120/208	1	1/3	9.6			X	14-20P	18"	83	
84	1	Sneeze Guard w/ Heat & Light										120	1		12.03	1.4	X			12"	84	
85	1	Pizza Back Work Counter										(2)120	1		20.0			X	5-20R	48"	85	EC - Provide two (2) wall mounted convenience outlets.
86	1	Back Work Counter w/ Sink & Hand Sink				1/2"	1/2"	1-1/2"				120	1		2.0			X	5-15P	18"	86	EC - Provide one (1) wall mounted convenience outlet. PC - Provide 110 degree incoming water to hand sink.
87	1	Heated Slide Display										120	1		6.6			X	5-15P	18"	87	
88	1	Pizza Oven	150	8" DIA.	0.01							208	3		50.0	18.1	X			33"	88	
89	1	Vertical Sneeze Guard																			89	
89A	1	Soap Dispenser																			89A	
89B	1	Touchless Paper Towel Dispenser																			89B	
89C	1	Waste Bin																			89C	
90	1	Vertical Sneeze Guard																			90	
91	1	Sneeze Guard w/ Light										120	1		0.21		X			18"	91	
92	1	Serving Counter										(5)120	1		20.0			X	5-20R	32"	92	EC - provide unit with five (5) apron mounted convenience outlets.
93	1	Quick Switch Hot-Cold Food Wells							3/4"			120/208	1	1/3	9.6			X	14-20P	18"	93	
94	1	Sneeze Guard w/ Heat & Light										120	1		12.03	1.4	X			12"	94	
95	1	Quick Switch Hot-Cold Food Wells							3/4"			120/208	1	1/3	9.6			X	14-20P	18"	95	
96	1	Sneeze Guard w/ Heat & Light										120	1		12.03	1.4	X			12"	96	
97	1	Back Work Counter										120	1		20.0			X	5-20R	48"	97	EC - Provide one (1) wall mounted convenience outlets.
98	1	Cutting Board																			98	
99	1	Sandwich Prep Station										115	1	1/2	10.3			X	5-15P		99	
100	1	Vertical Sneeze Guard																			100	
101	1	Reach-In Heated Cabinet										208-230	1		7.2	1.5		X	6-15P	92"	101	
102	1	Reach-In Refrigerator										115	1	1/4	3.8			X	5-15P	92"	102	
103	1	Air Screen Merchandiser										208-240	1	1 1/2	30.0			X	6-20P	FLR	103	EC - Provide spearate 208-240/1 volt; 15 amp circuit for condensate pan.
103A	1	Soap Dispenser																			103A	
103B	1	Touchless Paper Towel Dispenser																			103B	
103C	1	Waste Bin																			103C	
104	1	Sneeze Guard w/ Heat & Light										120	1		12.03	1.4	X			12"	104	
105	1	Air Screen Merchandiser										208-240	1	1 1/2	30.0			X	6-20P	FLR	105	EC - Provide spearate 208-240/1 volt; 15 amp circuit for condensate pan.
106	1	Air Screen Merchandiser										208-240	1	1 1/2	30.0			X	6-20P	FLR	106	EC - Provide spearate 208-240/1 volt; 15 amp circuit for condensate pan.
107	1	Refrigerated Grab and Go										110-120	1		12.0			X	5-15P	18"	107	Elec Box mounted in #108; coordinate slab stub up w/ millwork location per plan.
108	1	Cashier Counter																			108	
109	1	P.O.S. System										120	1		20.0			X	5-20P	18"	109	By Owner - Verify and Coordinate all Utility Requirements in the field with the General Contractor. Elec Box mounted in #108; coordinate slab stub up w/ millwork location per plan.
110	1	Mobile Condiment Counter																			110	
111	1	Refrigerated Grab and Go										110-120	1		12.0			X	5-15P	18"	111	Elec Box mounted in #112; coordinate slab stub up w/ millwork location per plan.
112	1	Cashier Counter																			112	
113	1	P.O.S. System										120	1		20.0			X	5-20P	18"	113	By Owner - Verify and Coordinate all Utility Requirements in the field with the General Contractor. Elec Box mounted in #112; coordinate slab stub up w/ millwork location per plan.
114	1	Mobile Condiment Counter																			114	
115	1	Refrigerated Grab and Go										110-120	1		12.0			X	5-15P	18"	115	Elec Box mounted in #116; coordinate slab stub up w/ millwork location per plan.
116	1	Cashier Counter																			116	
117	1	P.O.S. System										120	1		20.0			X	5-20P	18"	117	By Owner - Verify and Coordinate all Utility Requirements in the field with the General Contractor. Elec Box mounted in #116; coordinate slab stub up w/ millwork location per plan.
118	1	Mobile Condiment Counter																			118	
119	1	Refrigerated Grab and Go										110-120	1		12.0			X	5-15P	18"	119	Elec Box mounted in #120; coordinate slab stub up w/ millwork location per plan.
120	1	Cashier Counter																			120	
121	1	P.O.S. System										120	1		20.0			X	5-20P	18"	121	By Owner - Verify and Coordinate all Utility Requirements in the field with the General Contractor. Elec Box mounted in #120; coordinate slab stub up w/ millwork location per plan.
122	1	Mobile Condiment Counter																			122	
123	1	Back Work Counter w/ Dump & Hand Sink				(2)1/2"	1/2"	(2)1/2"	2"			(4)120	1		(3)20.0 & (1) 2.0			X	(3)5-20R & (1)5-15P	(3)48" & (1)18"	123	PC - Provide 110 degree hot water to facuet. EC - Provide two (2) wall mounted convenience outlets.
124	1	Spare Number																			124	
125	1	Refrigerated Merchandiser										115	1	1/2	8.5			X	5-15P	18"	125	
126	1	Reach-In Heated Cabinet										208-230	1		7.2	1.5		X	6-15P	18"	126	
127	1	Soap Dispenser																			127	
128	1	Touchless Paper Towel Dispenser																			128	
129	1	Waste Bin																			129	
130	1	Coffee Brewer										120/208	3		29.6	12.1	X			18"	130	By Owner - Verify and Coordinate all Utility Requirements in the field with the General Contractor.
130A	1	Water Filtration System					3/8"														130A	PC – Filtered water to feed Item No. 130.
131	1	Back Work Counter w/ Dump Sink & Hand Sink				(2)1/2"	(2)1/2"	1-1/2"	2"			(2)120	1		(1)20.0 & (1)2.0			X	(1)5-20R & (1) 5-15P	(1)48" & (1)18"	131	EC - Provide one (1) wall mounted convenience outlet. PC - Provide 110 degree incoming water to hand sink.
132	1	Slicer										120	1	1/2	5.6			X	5-15P	18"	132	
133	1	Spare Number																			133	
134	1	Hot Chocolate Dispenser					1/4"					120	1		15.0	1.8		X	5-15P	18"	134	
135	1	Spare Number																			135	
136	1	P.O.S. System										120	1		20.0			X	5-20P	18"	136	By Owner - Verify and Coordinate all Utility Requirements in the field with the General Contractor.
137	1	Grab and Go Counter										(2)120	1		2			X	5-20R	32"	137	EC - Provide two Apron Mounted Duplex Outlets
138	1	P.O.S. System										120	1		20.0			X	5-20P	18"	138	By Owner - Verify and Coordinate all Utility Requirements in the field with the General Contractor.
139	1	Condiment Counter										(2)120	1		20.0			X	5-20R	18"	139	EC - Provide two (2) convenience outlets on interior of cabinet.
140	1	Spare Number																			140	
141	1	Spare Number																			141	
142	1	Spare Number																			142	
143	1	Spare Number																			143	

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Doherty Memorial High School

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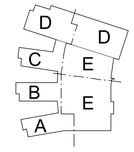
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Foodservice Utility Schedule

Locus Map

True North

Key Plan



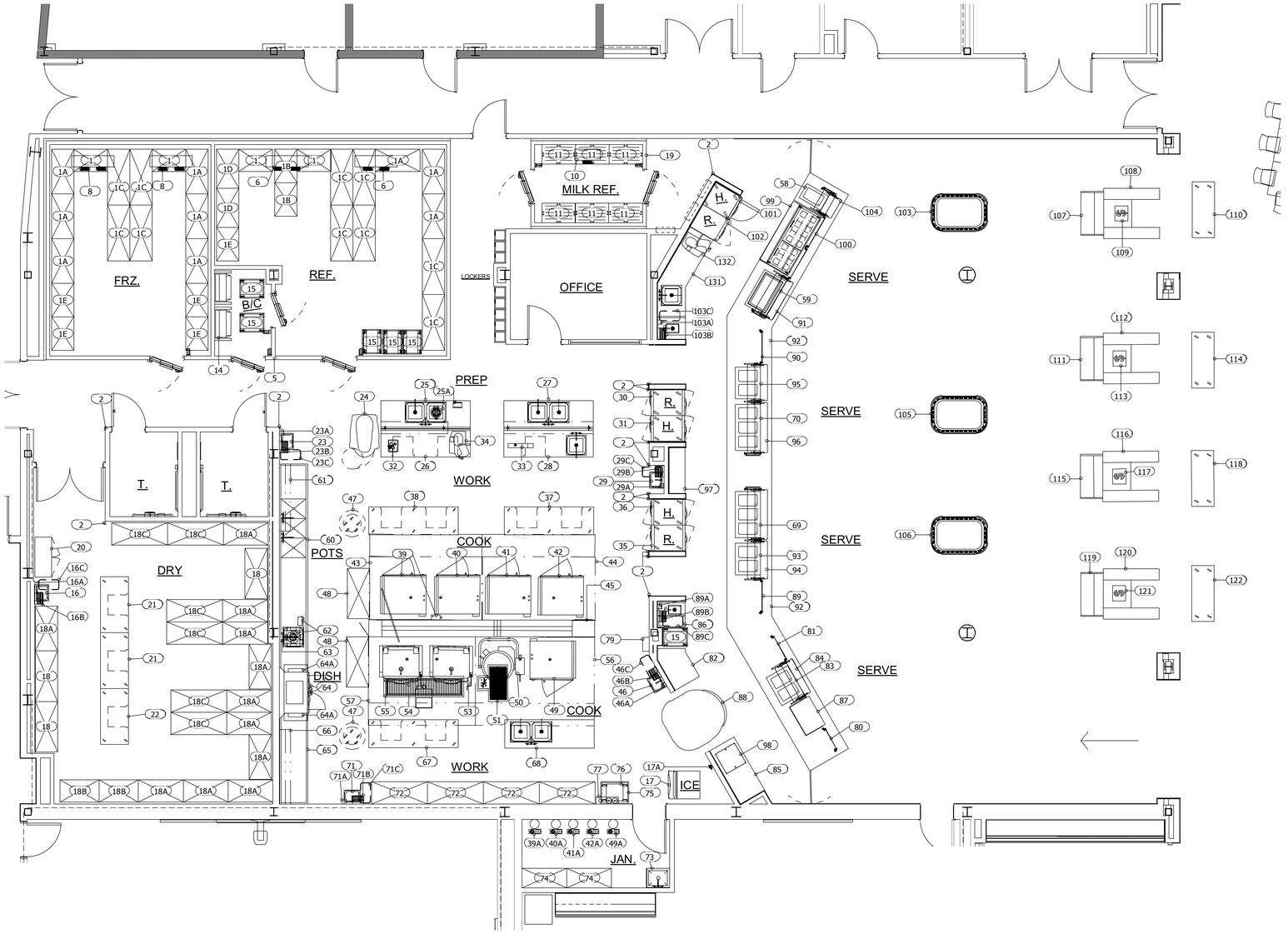
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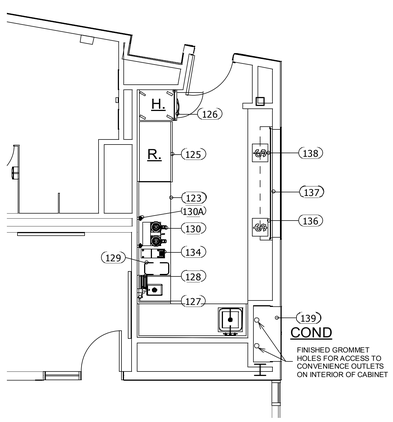
FILE:
JOB NO: #1904
SCALE:
DWN. BY: JJL
CKD. BY: EKA/PJM
DATE: JANUARY 20, 2022

K1.2

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1 Main Floor Kitchen/Servery
1/4" = 1'-0"



3 1st Floor Grab and Go
1/4" = 1'-0"

VERIFY AND COORDINATE LOCATION & INSTALLATION REQUIREMENTS FOR CONDENSING UNITS IN THE FIELD WITH THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER.

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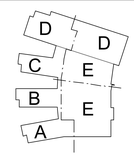
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Foodservice Equipment Layout Plan

Locus Map

True North

Key Plan



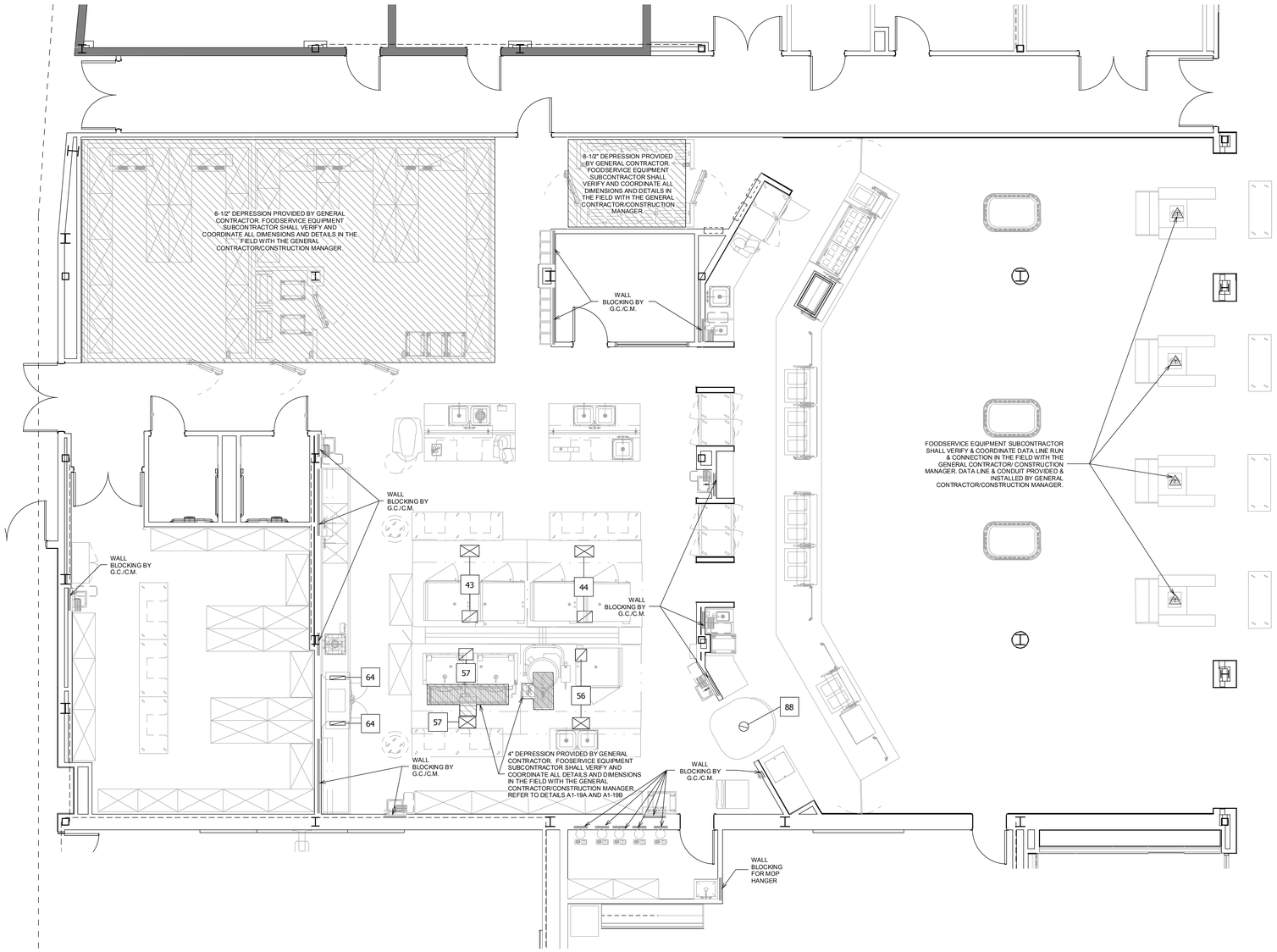
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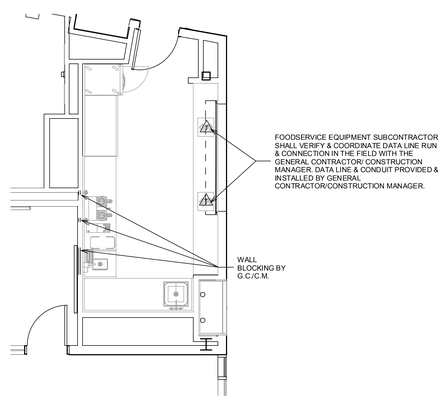
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1 Main Floor Kitchen/Servery - Bldg. Cond.
1/4" = 1'-0"



2 1st Floor Grab and Go - Bldg Cond
1/4" = 1'-0"

BUILDING CONDITIONS/HVAC SYMBOLS

- EXHAUST DUCT/GRILL
- EXHAUST DUCT/GRILL
- SUPPLY DUCT/GRILL
- FLOOR DEPRESSION
- WALL BLOCKING BY GENERAL CONTRACTOR.
- VENTILATION REQUIRED FOR UNIT BELOW.

GENERAL NOTES

1. FOODSERVICE EQUIPMENT SUBCONTRACTOR SHALL VERIFY AND COORDINATE ALL WALL BLOCKING LOCATIONS AND HEIGHTS WITH THE GENERAL CONTRACTOR /CONSTRUCTION MANAGER.
2. FOODSERVICE EQUIPMENT SUBCONTRACTOR SHALL VERIFY AND COORDINATE FLOOR DEPRESSIONS FOR FOODSERVICE EQUIPMENT IN THE FIELD BY GENERAL CONTRACTOR /CONSTRUCTION MANAGER.
3. FOODSERVICE EQUIPMENT SUBCONTRACTOR SHALL PROVIDE WALL FLASHING AS PER DETAIL F2-39.
4. FOODSERVICE EQUIPMENT SUBCONTRACTOR SHALL VERIFY AND COORDINATE REFRIGERATION LINE RUNS FOR WALK-IN COOLER AND FREEZER WITH GENERAL CONTRACTOR. VERIFY CONDENSING UNIT LOCATION WITH ARCHITECT AND GENERAL CONTRACTOR /CONSTRUCTION MANAGER.
5. WHEN INSTALLING CONCRETE SUB-FLOOR IN WALK-IN BOX, FOODSERVICE EQUIPMENT SUBCONTRACTOR SHALL PROVIDE ADEQUATE VENTILATION PER MANUFACTURERS SPECIFICATION.

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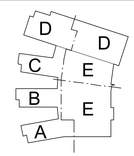
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Foodservice Building Conditions Plan

Locus Map

True North

Key Plan



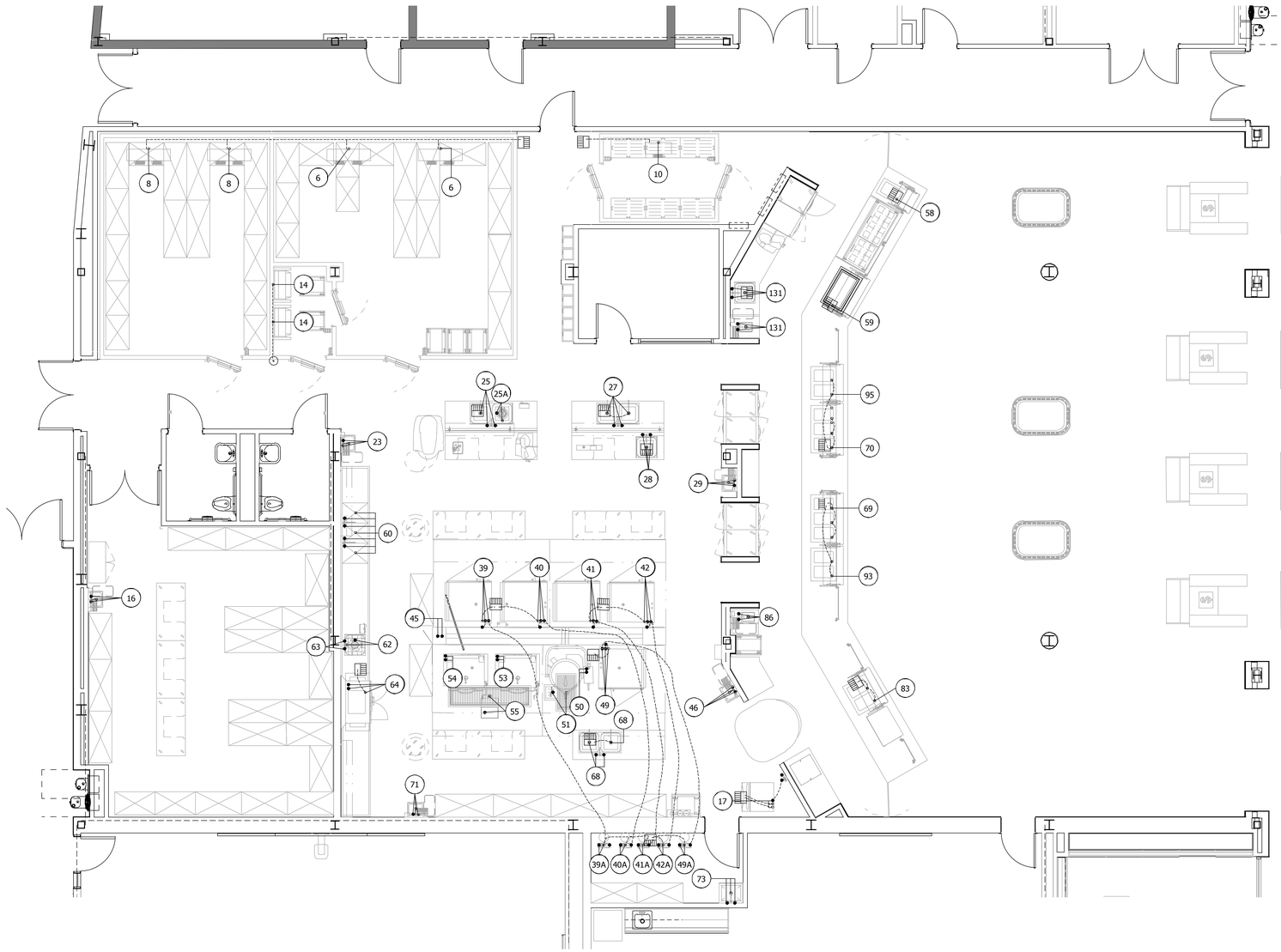
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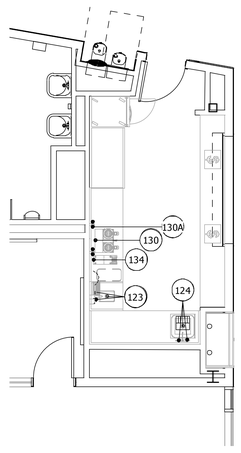
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DWN. BY:	JJL
CKD. BY:	EKA/PJM
DATE:	JANUARY 20, 2022

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1 Main Floor Kitchen/Servery - Plumbing
1/4" = 1'-0"



2 1st Floor Grab and Go - Plumbing
1/4" = 1'-0"

PLUMBING SYMBOLS

- HOT/COLD WATER
- WASTE
- CHILLED COLD WATER SUPPLY
- CHILLED COLD WATER RETURN
- INDIRECT WASTE
- HOSE BIBB (HOT OR COLD WATER)
- FUEL GAS
- FLOOR SINK W/ HALF GRATE (W/ MINIMUM CONN. SIZE)
- FLOOR SINK W/ 3/4 GRATE (W/ MINIMUM CONN. SIZE)
- FLOOR (AREA) DRAIN
- FUNNEL FLOOR DRAIN
- STEAM SUPPLY
- STEAM CONDENSATE RETURN
- AUXILIARY STEAM SUPPLY

PLUMBING NOTES

1. ALL FLOOR SINKS AND FLOOR DRAINS PROVIDED AND INSTALLED BY PLUMBING SUBCONTRACTOR. FOODSERVICE EQUIPMENT SUBCONTRACTOR TO VERIFY & COORDINATE FLOOR SINK LOCATIONS IN THE FIELD WITH THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER.
2. FOODSERVICE EQUIPMENT SUBCONTRACTOR SHALL PROVIDE REFRIGERTATION LINE RUNS BETWEEN FREEZER/ COOLER CONDENSING UNIT(S) AND COIL(S). COORDINATE IN THE FIELD WITH THE GENERAL CONTRACTOR/ CONSTRUCTION MANAGER.
3. ALL HORIZONTAL PIPING EXTENDED AND CONNECTED TO EQUIPMENT SHOULD BE RUN AT THE HIGHEST POSSIBLE ELEVATION ABOVE THE FLOOR. NO LINES SHOULD LAY DIRECTLY ON THE FLOOR AT ANY TIME.
4. RECOMMENDED FLOOR SINKS SHALL BE SQUARE TYPE INDIRECT WASTE RECEPTORS WITH REMOVABLE GRATE. PERCENTAGE OF GRATE AS INDICATED ON PLAN.
5. ALL PLUMBING FIXTURES FURNISHED FOR FOODSERVICE EQUIPMENT TO BE PROVIDED BY FOODSERVICE EQUIPMENT SUBCONTRACTOR AND INSTALLED BY THE PLUMBING SUBCONTRATOR.
6. ALL WASTES, DIRECT OR INDIRECT, TO BE FURNISHED AND INSTALLED BY THE PLUMBING SUBCONTRACTOR.
7. AUTOMATIC FIRE SYSTEM GAS LINE SHUT-OFF VALVES SUPPLIED BY FOODSERVICE EQUIPMENT SUBCONTRACTOR AND INSTALLED BY PLUMBING SUBCONTRACTOR.
8. PROVIDE 110 DEGREE INCOMING WATER TO ALL HAND SINKS.

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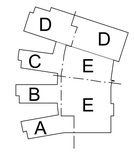
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Foodservice Plumbing Plan

Locus Map

True North

Key Plan



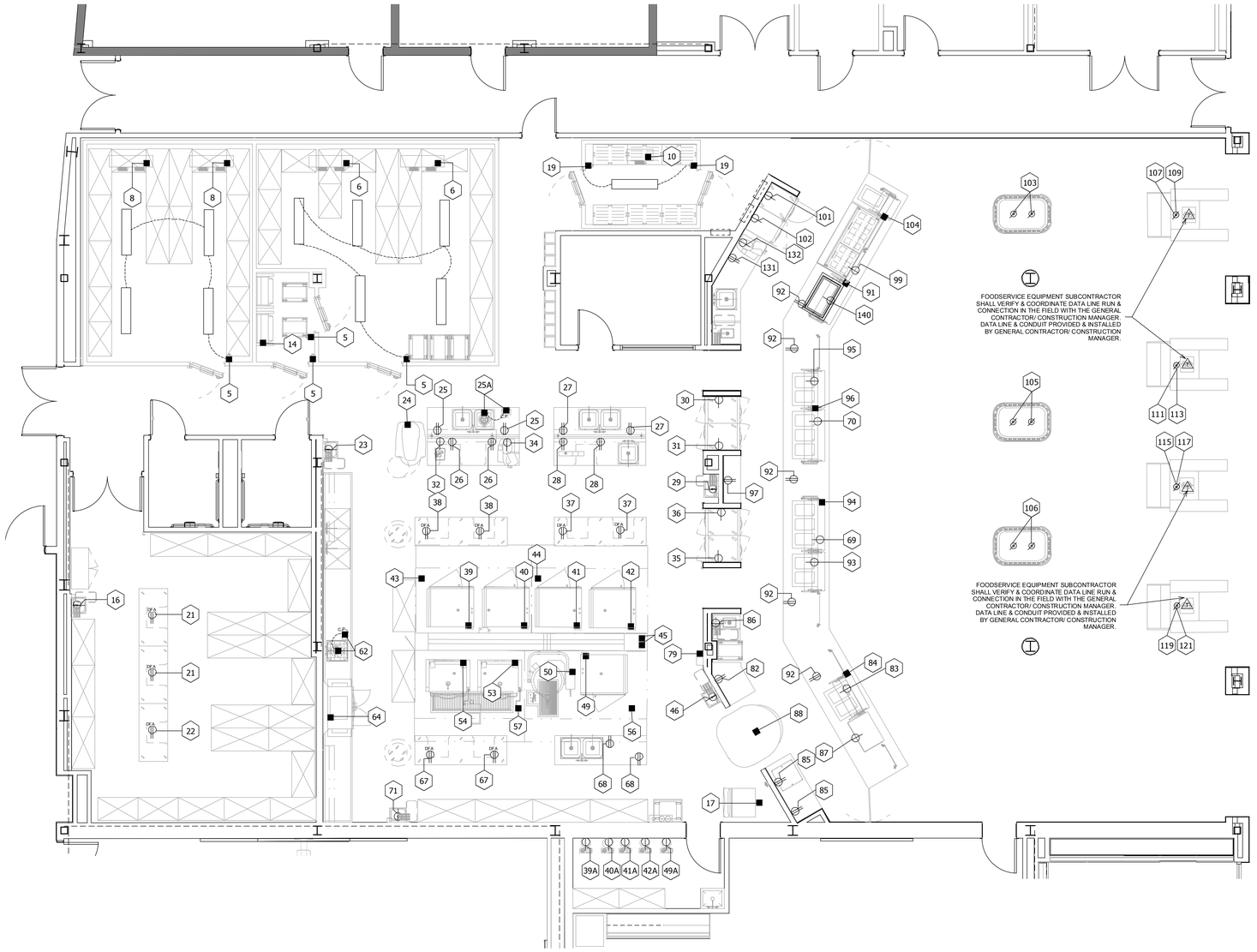
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FILE:	
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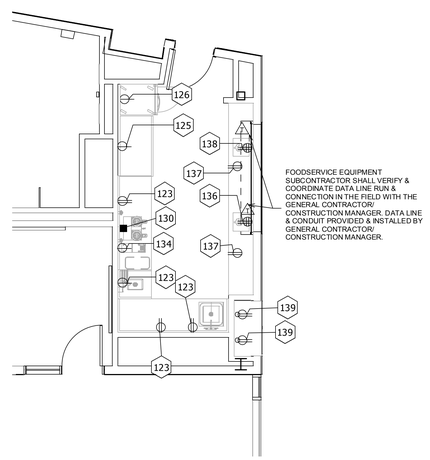
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1 Main Floor Kitchen/Servery - Electrical
1/4" = 1'-0"

VERIFY AND COORDINATE LOCATION & INSTALLATION REQUIREMENTS FOR CONDENSING UNITS IN THE FIELD WITH THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER.



3 1st Floor Grab and Go - Electrical
1/4" = 1'-0"

ELECTRICAL SYMBOLS

- DUPLEX ELECTRICAL OUTLET (DEO)
- SINGLE ELECTRICAL OUTLET (SEO)
- DUPLEX ELECTRICAL OUTLET (INSTALLED IN EQUIP. BY FOODSERVICE EQUIPMENT SUBCONTRACTOR OR MANUFACTURER.)
- SINGLE ELECTRICAL OUTLET (INSTALLED IN EQUIP. BY FOODSERVICE EQUIPMENT SUBCONTRACTOR OR MANUFACTURER.)
- ELECTRICAL CONNECTION
- JUNCTION BOX INSTALLED BY ELECTRICIAN
- JUNCTION BOX W/ FINAL CONNECTION TO EQUIPMENT
- C.P. CONTROL PANEL BY FOODSERVICE EQUIPMENT SUBCONTRACTOR / INTERCONNECTED BY ELECTRICAL SUBCONTRACTOR.
- VAPOR-PROOF LIGHT FIXTURE
- FLOOR MOUNTED RECEPTACLE
- R.F.A. RETRACTABLE RECEPTACLE (DOWN FROM ABOVE)
- TEL/DATA

ELECTRICAL NOTES

1. ELECTRICAL SUBCONTRACTOR SHALL PROVIDE AND INTERCONNECT CONTROL WIRING BETWEEN EXHAUST HOOD CONTROL SWITCH(ES) AND EXHAUST FAN(S).
2. FOODSERVICE EQUIPMENT SUBCONTRACTOR SHALL PROVIDE LIGHT FIXTURES INSTALLED FOR VENTILATORS. SWITCH, WIRING AND FINAL CONNECTION BY ELECTRICAL SUBCONTRACTOR.
3. FOODSERVICE EQUIPMENT SUBCONTRACTOR SHALL VERIFY AND COORDINATE INTERCONNECTION OF DEFROST CONTROL WIRING AND DRAIN LINE HEAT TAPE FOR WALK-IN FREEZER COIL AND CONDENSING UNIT BY ELECTRICAL SUBCONTRACTOR.
4. FOODSERVICE EQUIPMENT SUBCONTRACTOR SHALL VERIFY AND COORDINATE FINAL CONNECTIONS TO WALK-IN FREEZER/ COOLER COIL(S) AND CONDENSING UNIT(S) BY ELECTRIAL SUBCONTRACTOR.
5. FOODSERVICE EQUIPMENT SUBCONTRACTOR SHALL PROVIDE EXTRA CONTACTS FOR INTERCONNECTION OF FIRE SUPPRESSION SYSTEM TO CONTACTS FOR INTERCONNECTION OF FIRE SUPPRESSION SYSTEM TO BUILDING FIRE ALARM SYSTEM IF REQUIRED. INTERCONNECTION BY ELECTRICAL SUBCONTRACTOR.
6. FOODSERVICE EQUIPMENT SUBCONTRACTOR SHALL PROVIDE WALK-INBOX LIGHT FIXTURES TO GENERAL CONTRACTOR FOR INSTALLATION. WIRING AND FINAL CONNECTION BY ELECTRICAL SUBCONTRACTOR.
7. FOODSERVICE EQUIPMENT SUBCONTRACTOR SHALL VERIFY AND COORDINATE INTERCONNECTION OF WALK-IN REFRIGERATION WITH BUILDING EMERGENCY POWER SUPPLY BY ELECTRICAL SUBCONTRACTOR.
8. FOODSERVICE EQUIPMENT SUBCONTRACTOR SHALL VERIFY AND COORDINATE DATA LINE RUNS & CONNECTIONS IN THE FIELD WITH THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER. CONDUITS PROVIDED AND INSTALLED BY THE GENERAL CONTRACTOR /CONSTRUCTION MANAGER.

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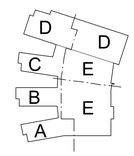
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Foodservice Electrical Plan

Locus Map

True North

Key Plan



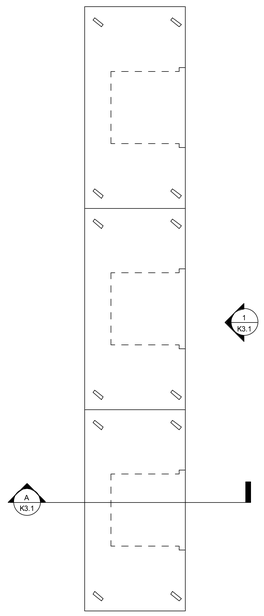
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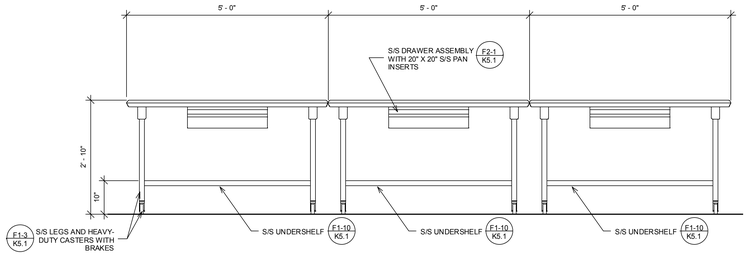
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DATE:	JANUARY 20, 2022

K2.4

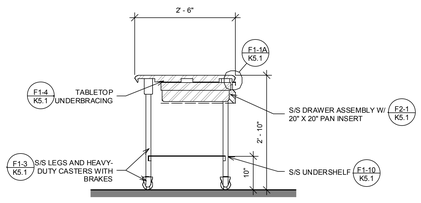
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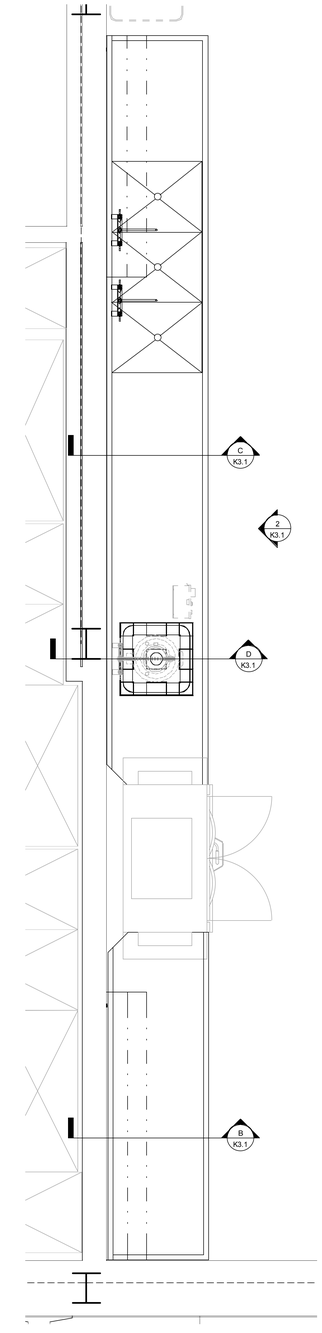
P1 Plan View - Item No's 21 & 22 - Mobile Work Table
3/4" = 1'-0"



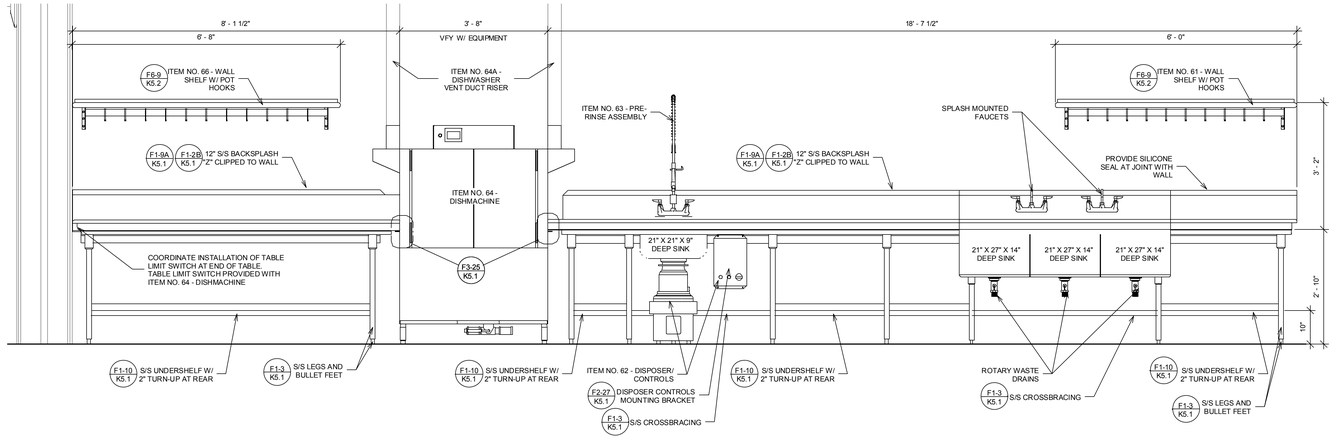
1 Elevation - Item No's 21 & 22 - Mobile Work Table
3/4" = 1'-0"



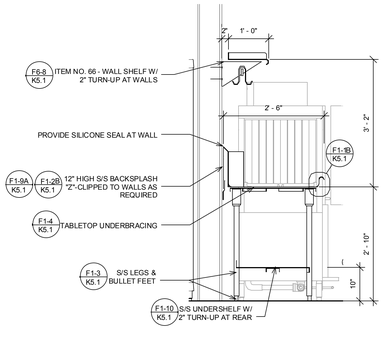
A Section - Item No's 21 & 22 - Mobile Work Table
3/4" = 1'-0"



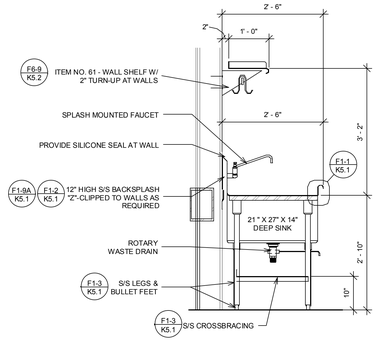
P2 Plan View - Item No's 60, 61, 65 & 66 - Pot Sink & Soiled Dishtable w/ Sink, Wall Shelf w/ Pot Hooks, Clean Dishtable
3/4" = 1'-0"



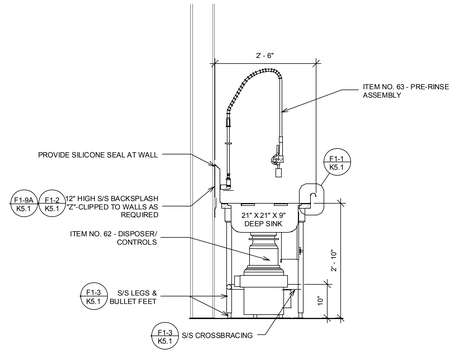
2 Elevation - Item No's 60, 61, 65 & 66 - Pot Sink & Soiled Dishtable w/ Sink, Wall Shelf w/ Pot Hooks & Clean Dishtable
3/4" = 1'-0"



B Section - Item No's 65 & 66 - Clean Dishtable & Wall Shelf w/ Pot Hooks
3/4" = 1'-0"



C Section - Item No's 60 & 61 - Pot Sink & Soiled Dishtable w/ Sink & Wall Shelf w/ Pot Hooks
3/4" = 1'-0"



D Section - Item No. 60 - Pot Sink & Soiled Dishtable w/ Sink
3/4" = 1'-0"

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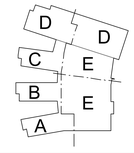
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Foodservice Fabrication Drawings

Locus Map

True North

Key Plan



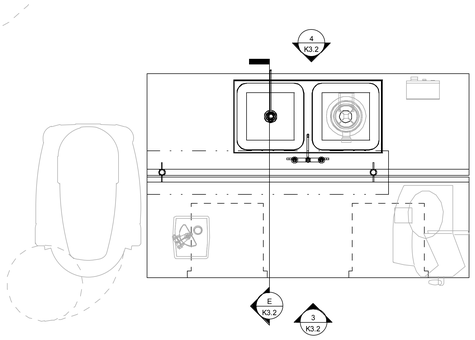
REVISIONS

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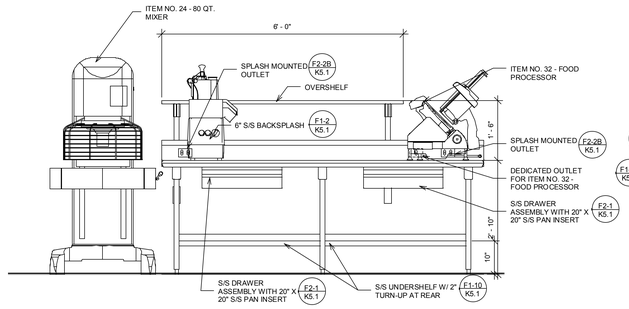
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K3.1

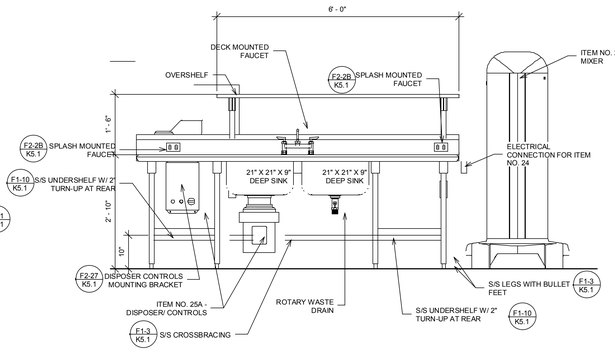
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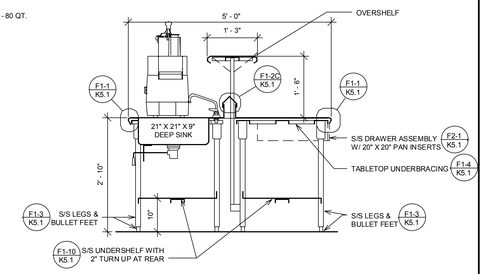
P3 Plan View - Item No's 25 & 26 - Prep Table w/ Sinks & Work Table
3/4" = 1'-0"



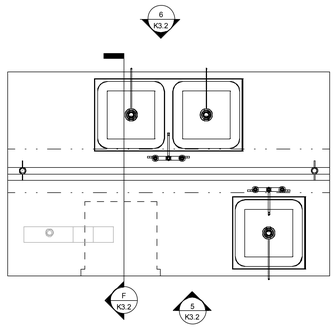
3 Elevation - Item No. 26 - Work Table
3/4" = 1'-0"



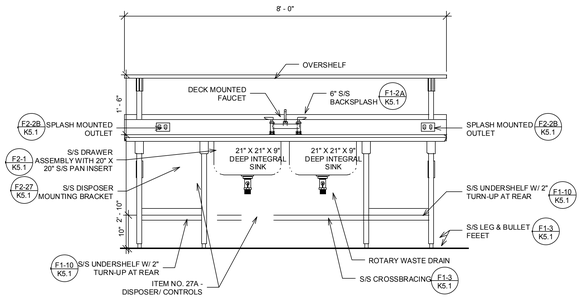
4 Elevation - Item No. 25 - Prep Table w/ Sinks
3/4" = 1'-0"



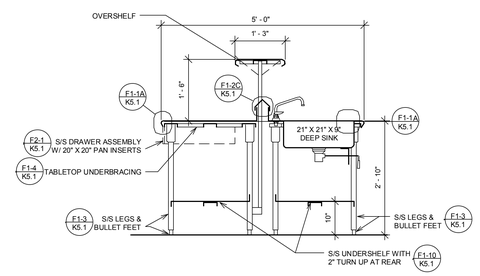
E Section - Item No's 25 & 26 - Prep Table w/ Sinks & Work Table
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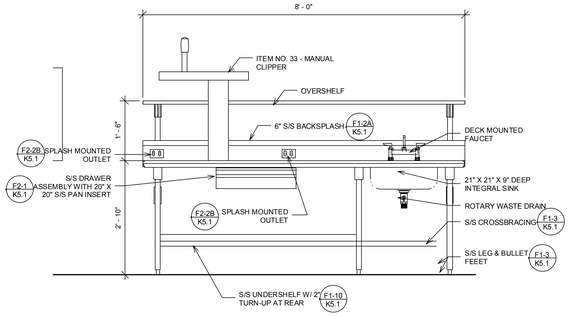
P4 Plan View - Item No's 27 & 28 - Prep Table w/ Sinks & Work Table w/ Sink
3/4" = 1'-0"



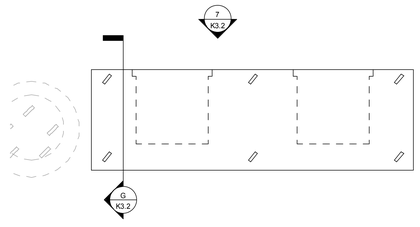
6 Elevation - Item No. 27 - Prep Table w/ Sinks
3/4" = 1'-0"



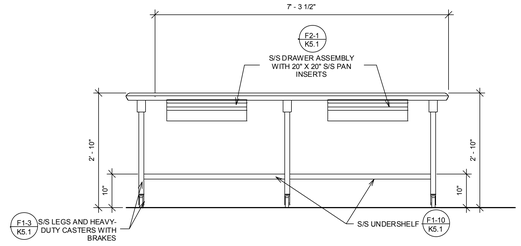
F Section - Item No's 27 & 28 - Prep Table w/ Sinks & Work Table w/ Sink
3/4" = 1'-0"



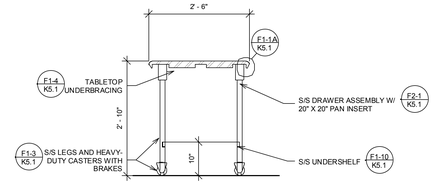
5 Elevation - Item No. 28 - Work Table w/ Sink
3/4" = 1'-0"



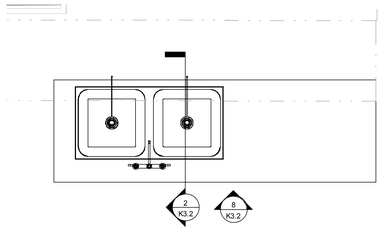
P5 Plan View - Item No's 37, 38 & 67 - Mobile Work Table
3/4" = 1'-0"



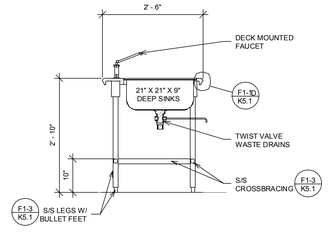
7 Elevation - Item No's 37, 68, 67 & 68 - Mobile Work Table
3/4" = 1'-0"



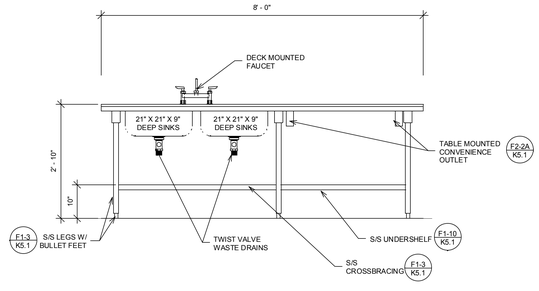
G Section - Item No's 37, 38, 67 & 68 - Mobile Work Table
3/4" = 1'-0"



P6 Plan View - Item No. 68 - Prep Table w/ Sinks
3/4" = 1'-0"



2 Section - Item No. 68 - Prep Table w/ Sinks
3/4" = 1'-0"



8 Elevation - Item No. 68 - Prep Table w/ Sinks
3/4" = 1'-0"

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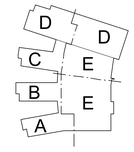
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Foodservice Fabrication Drawings

Locus Map

True North

Key Plan



REVISIONS

No.	Description	Date

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JOB NO: #1904

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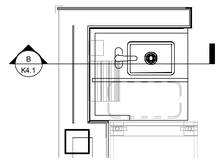
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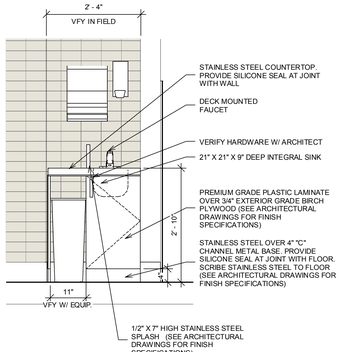
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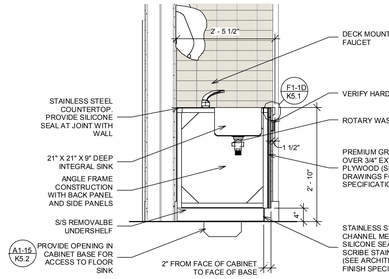
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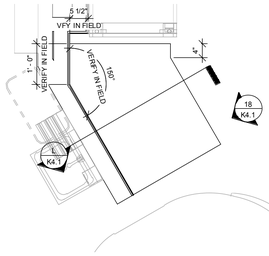
P1 Plan View - Item No. 86 - Back Work Counter w/ Sink and Hand Sink
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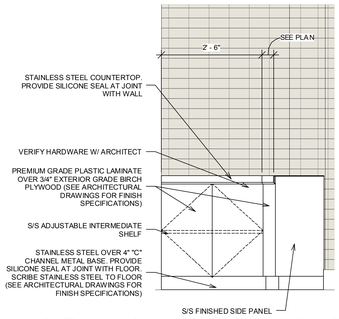
1 Elevation - Item No. 86 - Back Work Counter w/ Sink and Hand Sink
3/4" = 1'-0"



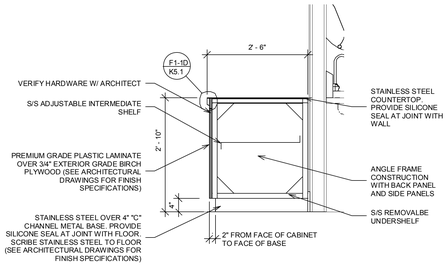
B Section - Item No. 86 - Back Work Counter w/ Sink & Hand Sink
3/4" = 1'-0"



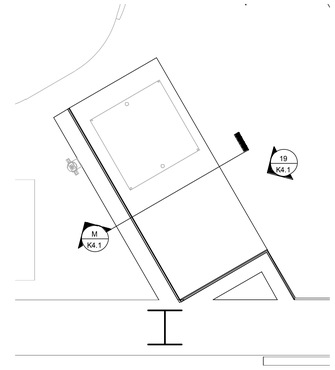
P8 Plan View - Item No. 82 - Pizza Back Work Counter
3/4" = 1'-0"



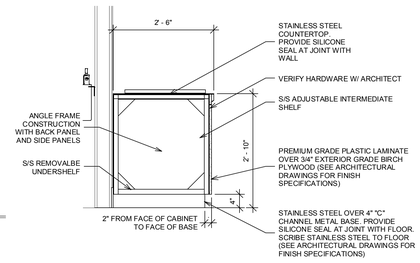
18 Elevation - Item No. 82 - Pizza Back Work Counter
3/4" = 1'-0"



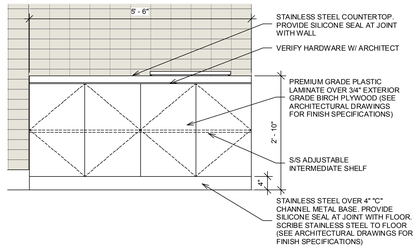
L Millwork Section L - Item No. 82
3/4" = 1'-0"



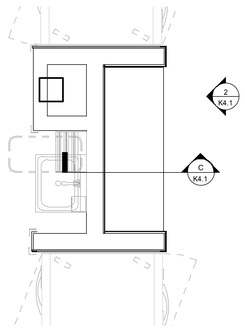
P9 Plan View - Item No. 85 - Pizza Back Work Counter
3/4" = 1'-0"



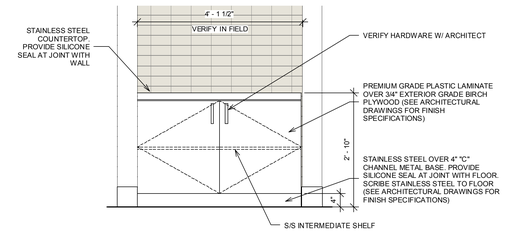
M Section - Item No. 85 - Pizza Back Work Counter
3/4" = 1'-0"



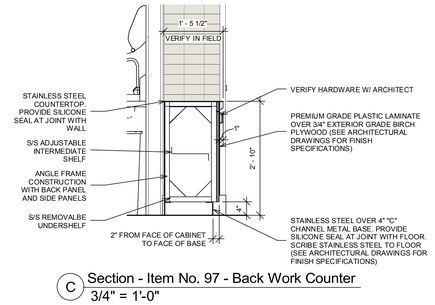
19 Elevation - Item No. 85 - Pizza Back Work Counter
3/4" = 1'-0"



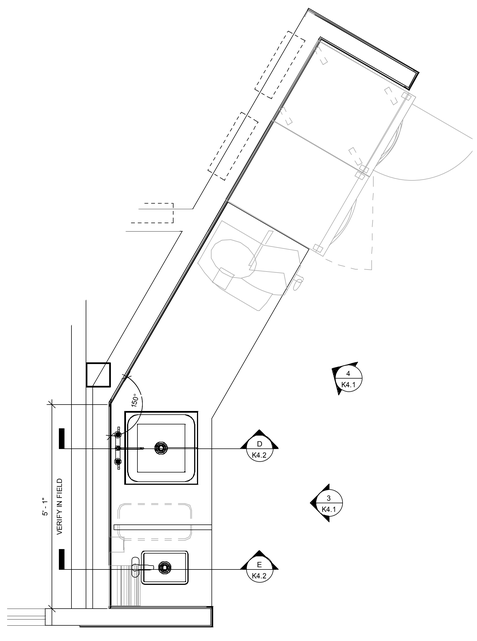
P2 Plan View - Item No. 97 - Back Work Counter
3/4" = 1'-0"



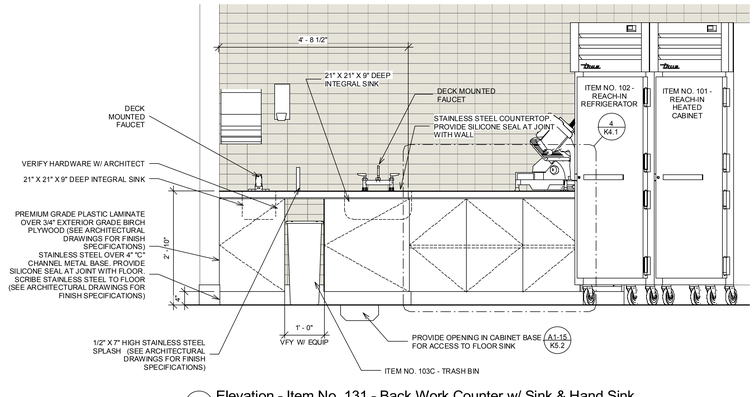
2 Elevation - Item No. 97 - Back Work counter
3/4" = 1'-0"



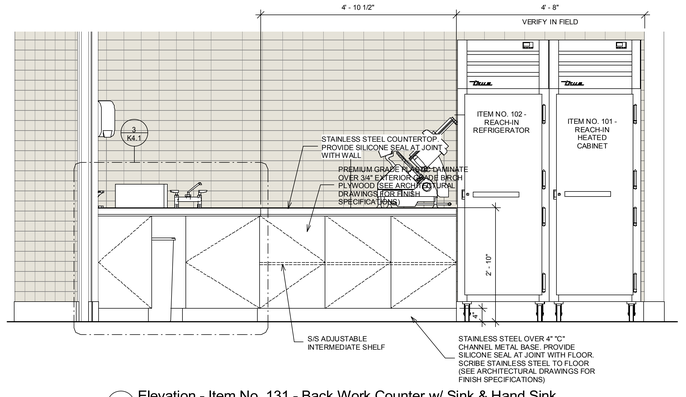
C Section - Item No. 97 - Back Work Counter
3/4" = 1'-0"



P3 Plan View - Item No. 131 - Back Work Counter w/ Sink and Hand Sink
3/4" = 1'-0"



3 Elevation - Item No. 131 - Back Work Counter w/ Sink & Hand Sink
3/4" = 1'-0"



4 Elevation - Item No. 131 - Back Work Counter w/ Sink & Hand Sink
3/4" = 1'-0"

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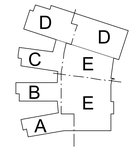
DRAWING TITLE

Foodservice Millwork Drawings

Locus Map

True North

Key Plan



REVISIONS

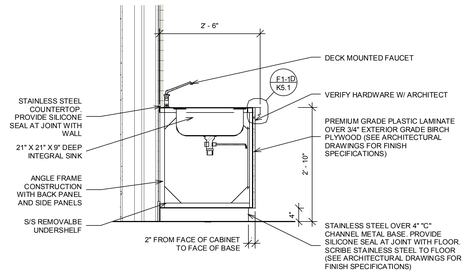
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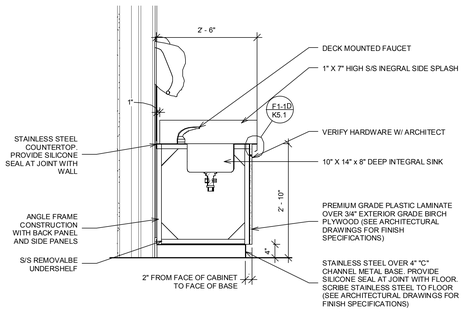
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K4.1

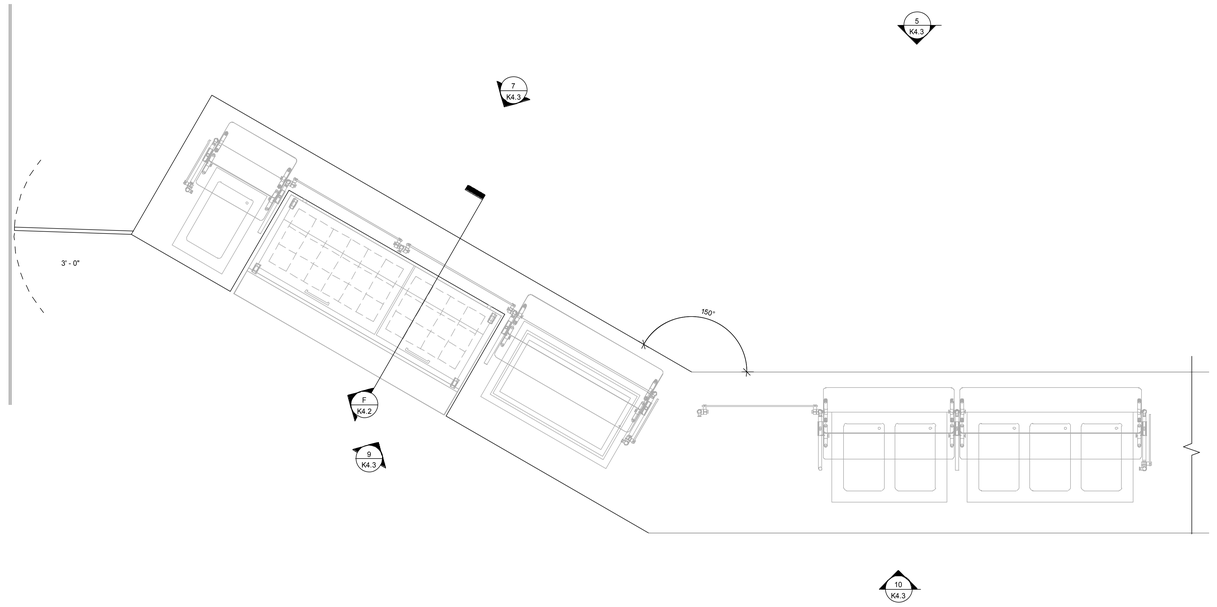
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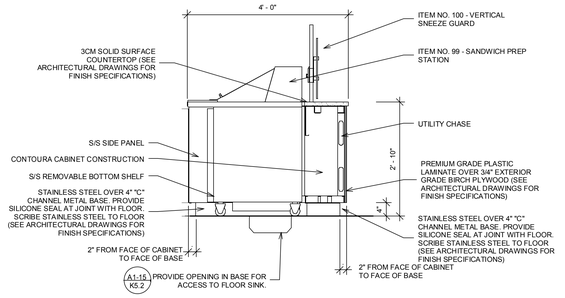
D Section - Item No. 131 - Back Work Counter w/ Sink & Hand Sink
3/4" = 1'-0"



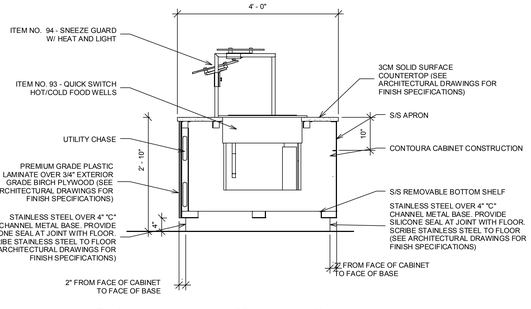
E Section - Item No. 131 - Back Work Counter w/ Sink & Hand Sink
3/4" = 1'-0"



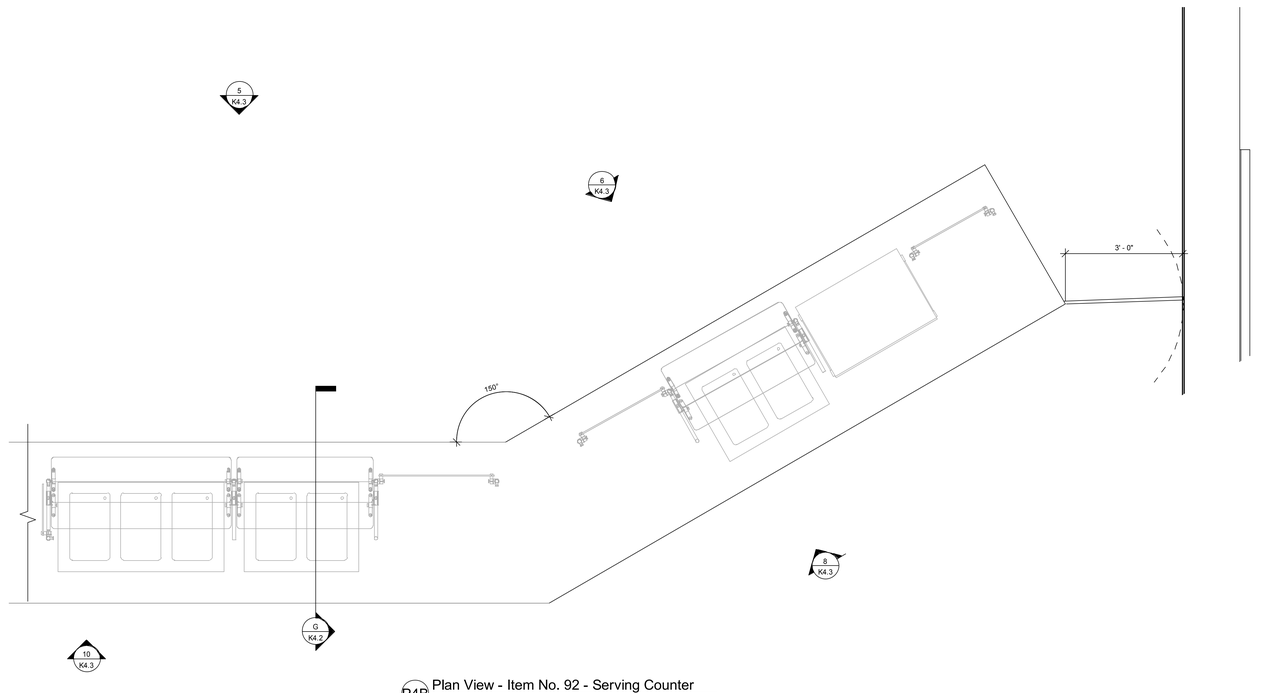
P4A Plan View - Item No. 92 - Serving Counter
3/4" = 1'-0"



F Section - Item No. 92 - Serving Counter
3/4" = 1'-0"



G Section - Item No. 92 - Serving Counter
3/4" = 1'-0"



P4B Plan View - Item No. 92 - Serving Counter
3/4" = 1'-0"

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100% CONSTRUCTION DOCUMENTS, FINAL BID PACKAGE #4

Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

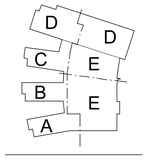
DRAWING TITLE

Foodservice Millwork Drawings

Locus Map

True North

Key Plan



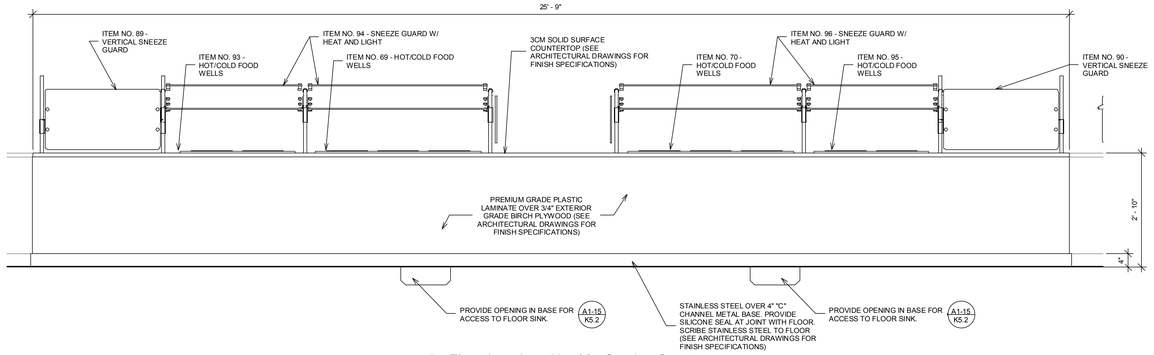
REVISIONS

No.	Description	Date

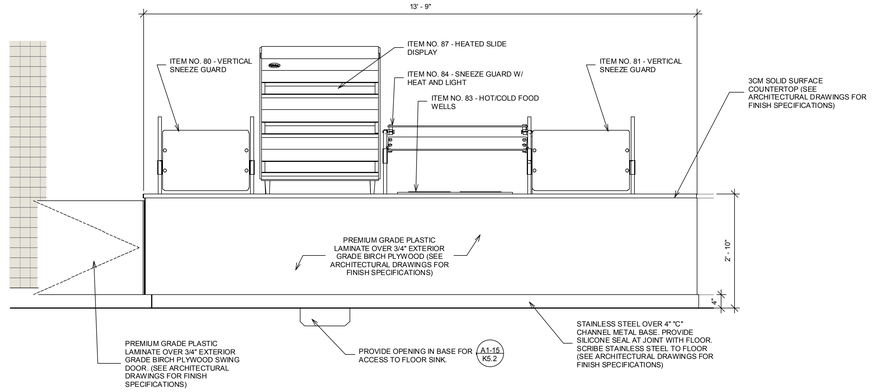
FILE:	
JOB NO:	#1904
SCALE:	3/4" = 1'-0"
DWN. BY:	JJL
CKD. BY:	PJM
DATE:	JANUARY 20, 2022

K4.2

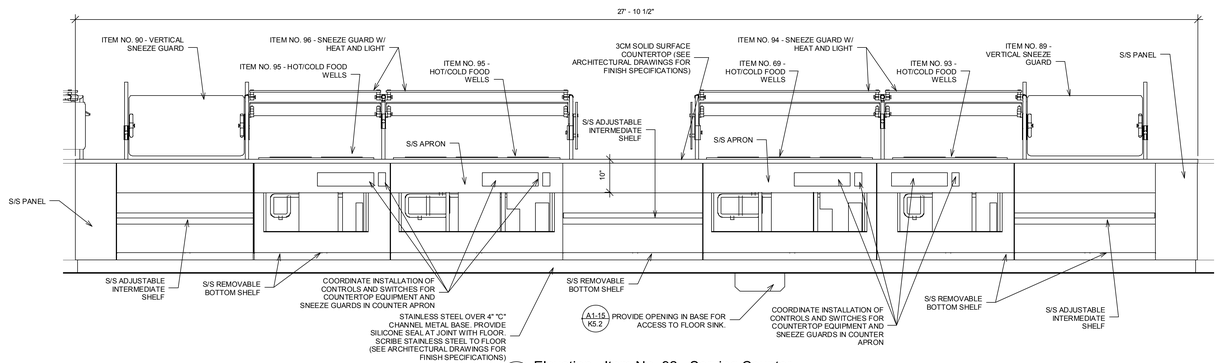
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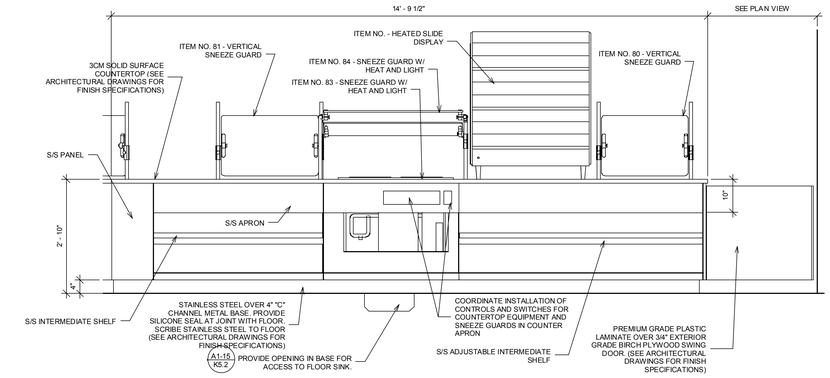
5 Elevation - Item No. 92 - Serving Counter
3/4" = 1'-0"



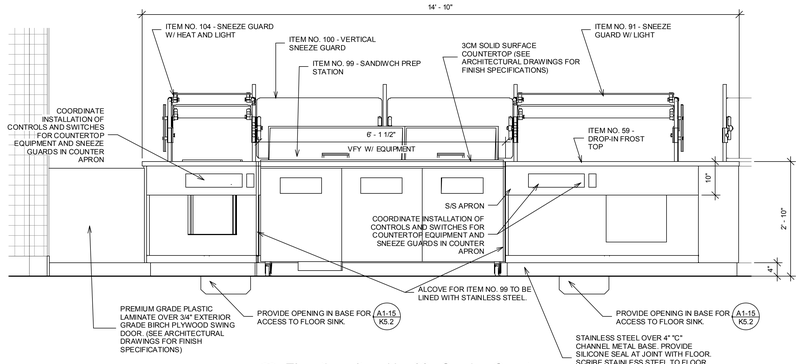
6 Elevation - Item No. 92 - Serving Counter
3/4" = 1'-0"



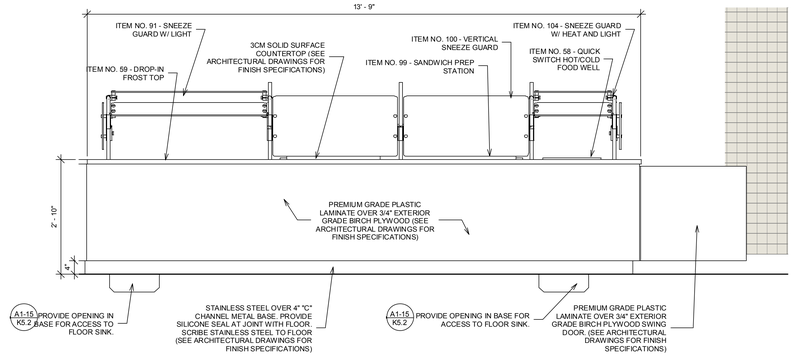
10 Elevation - Item No. 92 - Serving Counter
3/4" = 1'-0"



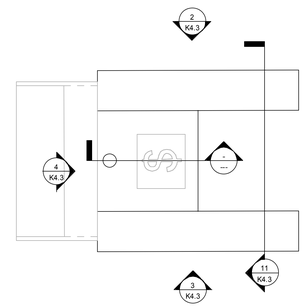
8 Elevation - Item No. 92 - Serving Counter
3/4" = 1'-0"



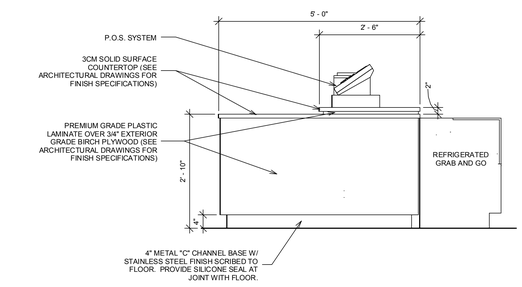
9 Elevation - Item No. 92 - Serving Counter
3/4" = 1'-0"



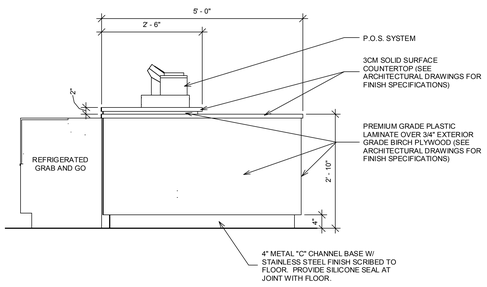
7 Elevation - Item No. 92 - Serving Counter
3/4" = 1'-0"



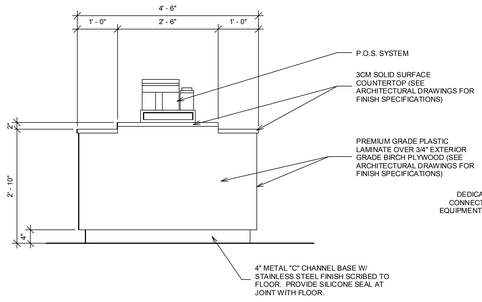
1 Millwork Plan 5 - Item No's 108, 112, 116 & 120
3/4" = 1'-0"



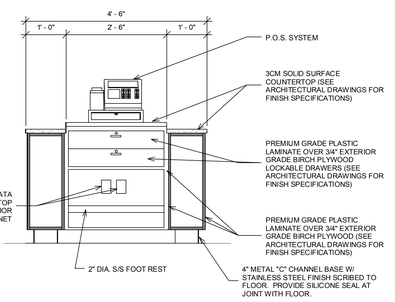
2 Millwork Elevation 11 - Item No's 108, 112, 116 & 120
3/4" = 1'-0"



3 Millwork Elevation 12 - Item No's 108, 112, 116 & 120
3/4" = 1'-0"



4 Millwork Elevation 13 - Item No's 108, 112, 116 & 120
3/4" = 1'-0"



11 Millwork Section H - Item No's 108, 112, 116 & 120
3/4" = 1'-0"

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DRAWING TITLE

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Locus Map

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Key Plan

REVISIONS

No.	Description	Date

FILE:

JOB NO: #1904

SCALE: 3/4" = 1'-0"

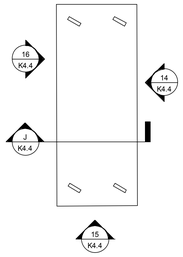
DWN. BY: JJL

CKD. BY: PJM

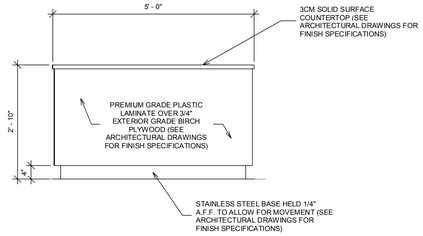
DATE: JANUARY 20, 2022

K4.3

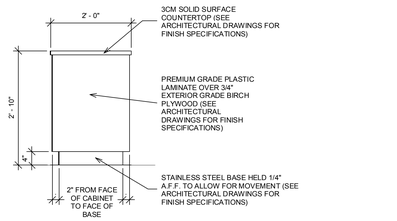
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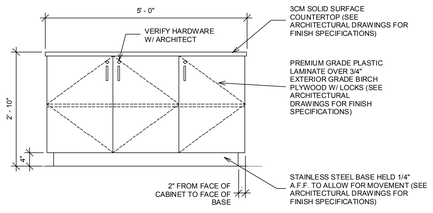
P6 Plan View - Item No's 110, 114, 117 & 122 - Mobile Condiment Counter
3/4" = 1'-0"



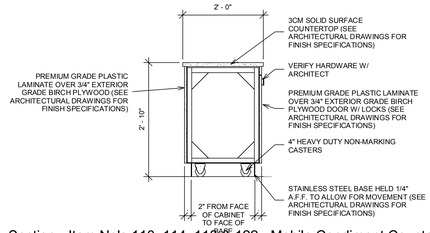
14 Elevation - Item No's 110, 114, 117 & 122 - Mobile Condiment Counter
3/4" = 1'-0"



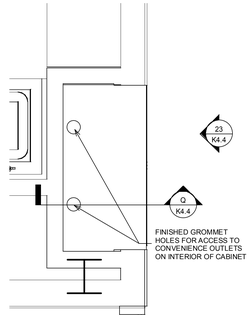
15 Elevation - Item No's 110, 114, 118 & 122 - Mobile Condiment Counter
3/4" = 1'-0"



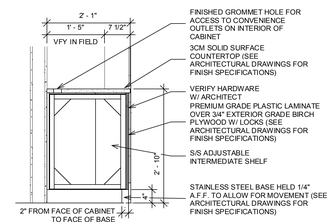
16 Elevation - Item No's 110, 114, 118 & 122 - Mobile Condiment Counter
3/4" = 1'-0"



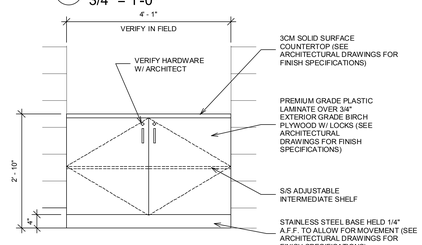
J Section - Item No's 110, 114, 118 & 122 - Mobile Condiment Counter
3/4" = 1'-0"



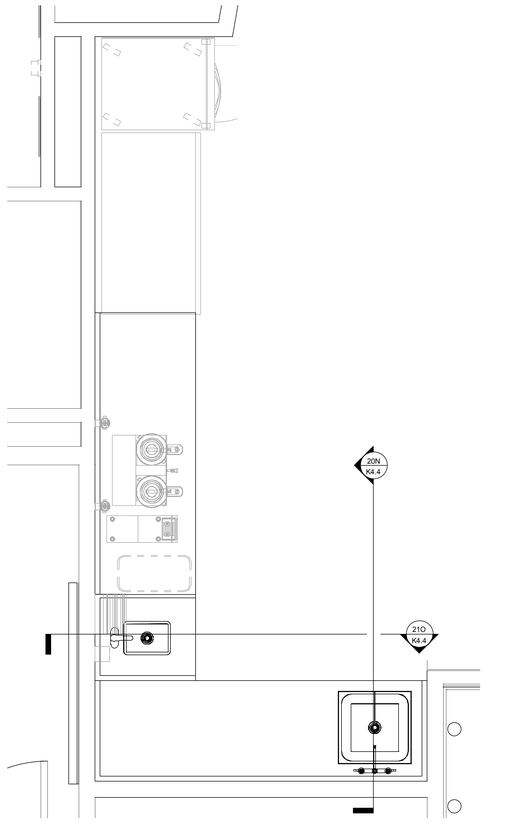
P12 Plan View - Item No. 130 - Condiment Counter
3/4" = 1'-0"



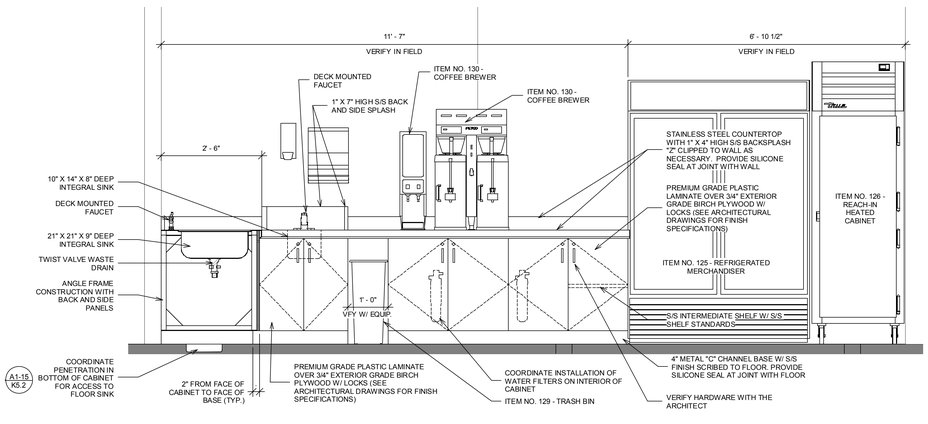
Q Section - Item No. 139 - Condiment Counter
3/4" = 1'-0"



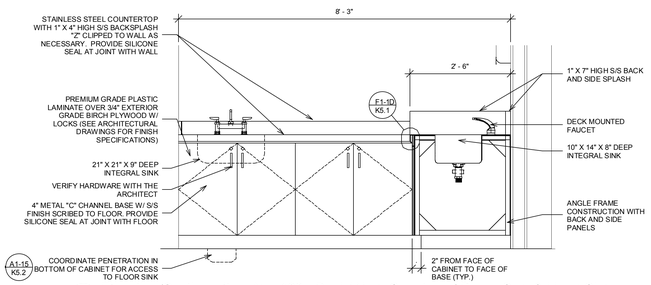
23 Elevation - Item No. 139 - Condiment Counter
3/4" = 1'-0"



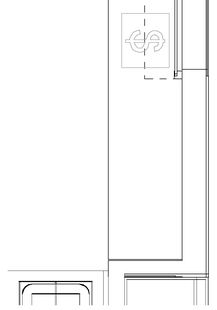
P10 Plan View - Item No. 123 - Back Work Counter w/ Dump Sink & Hand Sink
3/4" = 1'-0"



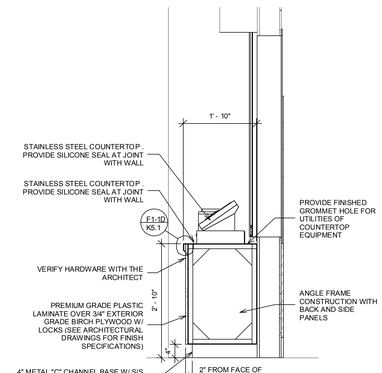
20N Elevation/Section - Item No. 123 - Back Work Counter w/ Dump Sink & Hand Sink
3/4" = 1'-0"



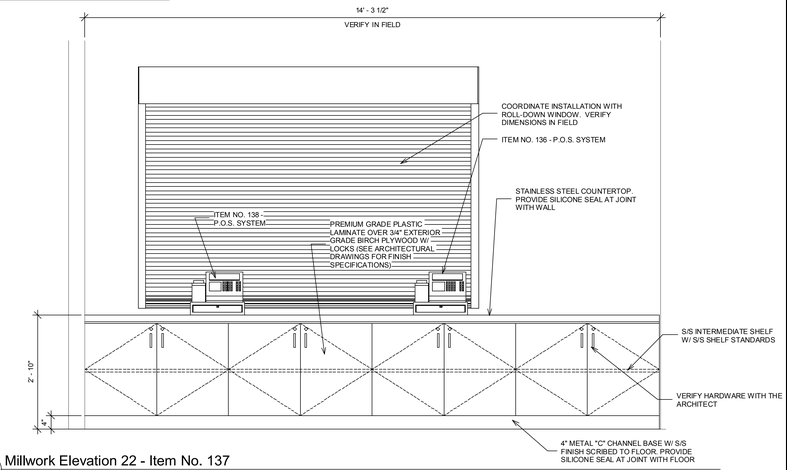
21O Elevation/Section - Item No. 123 - Back Work Counter w/ Dump Sink & Hand Sink
3/4" = 1'-0"



P11 Plan View - Item No. 137 - Grab and Go Counter
3/4" = 1'-0"



P Section - Item No. 137 - Grab and Go Counter
3/4" = 1'-0"



22 Millwork Elevation 22 - Item No. 137
3/4" = 1'-0"

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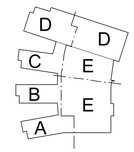
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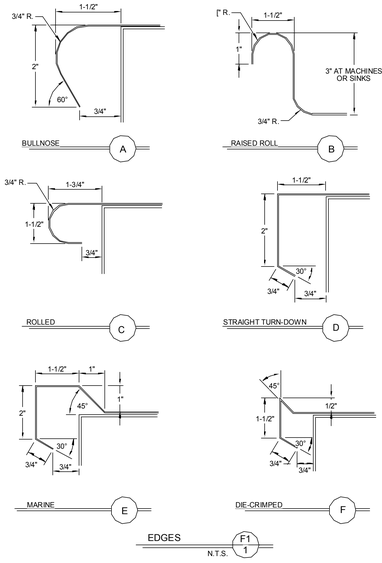
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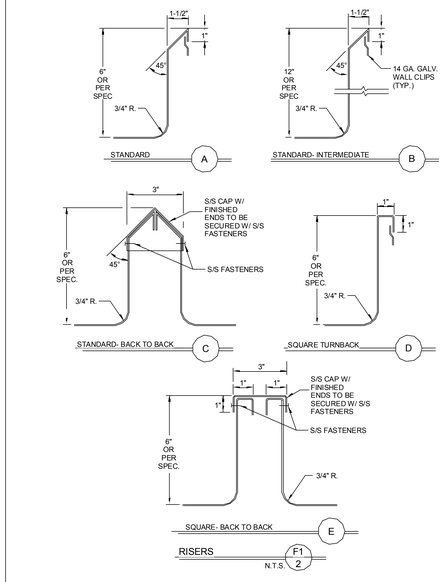
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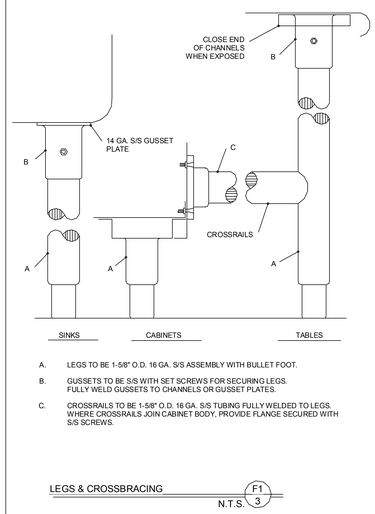
FILE:	
JOB NO:	#1904
SCALE:	3/4" = 1'-0"
DWN. BY:	JJL
CKD. BY:	EKA/PJM
DATE:	JANUARY 20, 2022

K4.4

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A. LEGS TO BE 1-5/8" O.D. 16 GA. S/S ASSEMBLY WITH BULLET FOOT.

B. GUSSETS TO BE S/S WITH SET SCREWS FOR SECURING LEGS. FULLY WELD GUSSETS TO CHANNELS OR GUSSET PLATES.

C. CROSSRAILS TO BE 1-5/8" O.D. 16 GA. S/S TUBING FULLY WELDED TO LEGS. WHERE CROSSRAILS JOIN CABINET BODY, PROVIDE FLANGE SECURED WITH S/S SCREWS.

LEGS & CROSSBRACING F1 3 N.T.S.

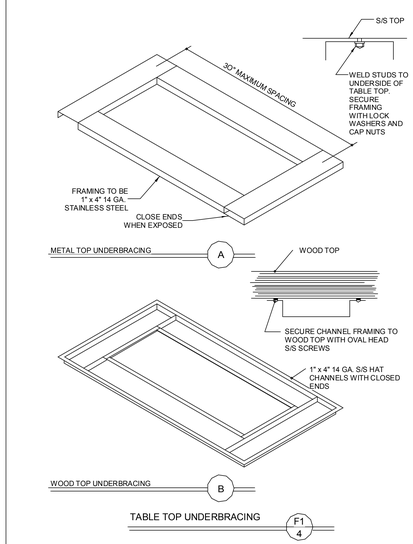
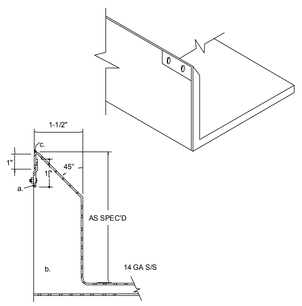
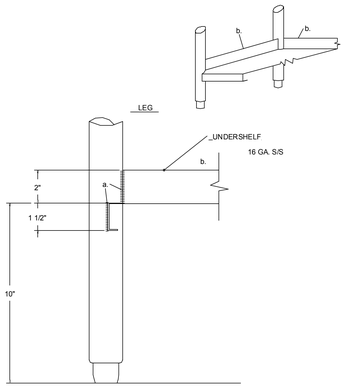


TABLE TOP UNDERBRACING F1 4



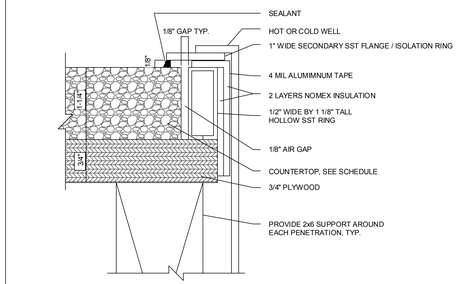
a. 12 GA. S/S CLIP, 4" LONG, FASTENED TO WALL AT EACH END OF UNIT AND 4'-0" ON CENTER. SECURE TO WALL WITH MIN. OF TWO 1" X 20 S/S TOGGLE BLOTS OR EXPANSION SHIELDS.
b. EXPOSED ENDS TO BE FULLY WELDED AND CLOSED.
c. SEAL ALL AROUND TO WALL WITH SILICONE SEALANT

BACKSPLASH - WALL UNIT F1 9A N.T.S.

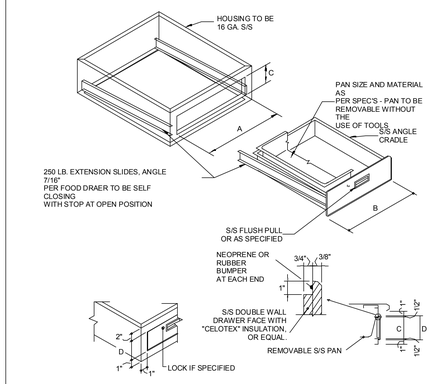


a. FULLY WELDED, GRIND SMOOTH AND POLISH.
b. WHEN SPECIFIED, TURN REAR ENDS UP 2".

STD. UNDERSHELF DETAIL F1 10 N.T.S.

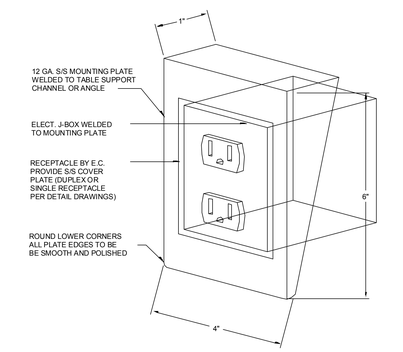


COUNTERTOP DROP-IN DETAIL F1 14 N.T.S.

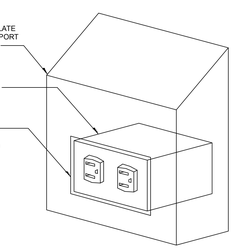


S/S PAN SIZES		A.		B		C		D		E.	
		BODY OPENING		DRAWER FACE		BODY OPENING		DRAWER FACE		PAN DEPTH	
INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
15 x 20	380 x 510	16 3/4"	425	17 3/4"	450	6"	150	7"	180	5	130
20 x 15	510 x 380	21 3/4"	555	22 3/4"	580	6"	150	7"	180	5	130
20 x 20	510 x 510	21 3/4"	555	22 3/4"	580	6",11"	150.280	7",12"	180.300	5",10"	130.255

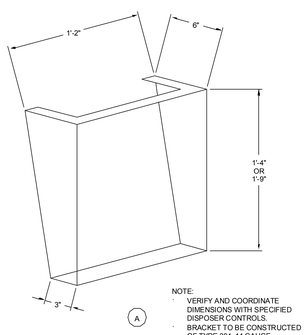
DRAWER ASSEMBLIES F2 1 N.T.S.



RECEPTACLE MOUNTING PLATE F2 2A N.T.S.

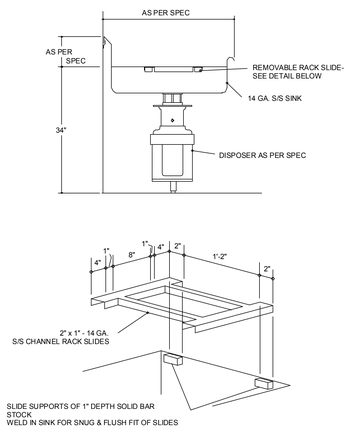


SPLASH MOUNTED RECEPTACLE MOUNTING PLATE F2 2B N.T.S.

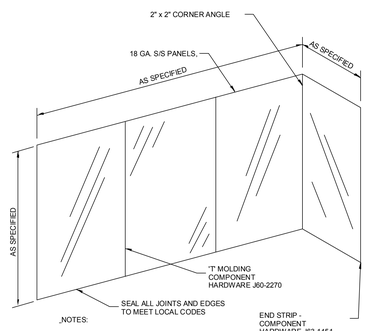


NOTE:
- VERIFY AND COORDINATE DIMENSIONS WITH SPECIFIED DISPOSER CONTROLS
- BRACKET TO BE CONSTRUCTED OF TYPE 304, 14 GAUGE STAINLESS STEEL

DISPOSER SWITCH BRACKETS F2 26 N.T.S.

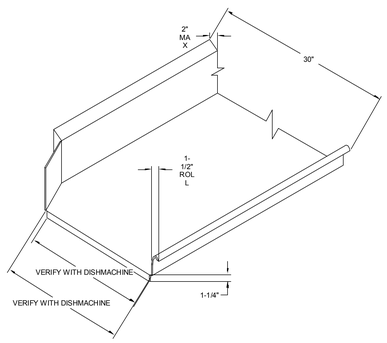


DISPOSER SINK & RACK SLIDE F2 27

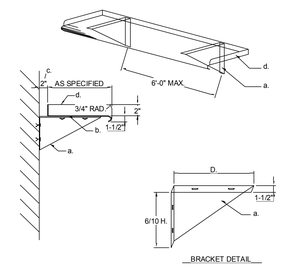


NOTES:
1. ADHERE TO WALLS WITH LIQUID NAILS
2. PROVIDE HOLES FOR UTILITIES AS REQUIRED

WALL FLASHING F2 39A N.T.S.



TURN DOWN INTO DISHMACHINE F3 25 N.T.S



BRACKET DETAIL

a. S/S BRACKETS OF ALL WELDED CONSTRUCTION
b. S/S SHELVES OF ALL WELDED CONSTRUCTION SUBSTRUCTURE TYP MAUF. STUDS MFD TO UNDERSIDE FASTEN WITH LOCK WASHERS AND S/S CAP NUTS.
c. 2" CLEAR REAR AND ENDS.
d. FULLY WELD, GRIND SMOOTH & POLISH.

STANDARD WALL SHELF DETAIL F6 8 N.T.S.

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WORCESTER PUBLIC SCHOOLS

PROJECT

100% CONSTRUCTION DOCUMENTS, FINAL BID PACKAGE #4

Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

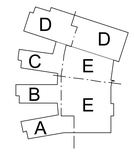
DRAWING TITLE

Foodservice Fabrication Details

Locus Map

True North

Key Plan



REVISIONS

No.	Description	Date

FILE:

JOB NO: #1904

SCALE: 1/4" = 1'-0"

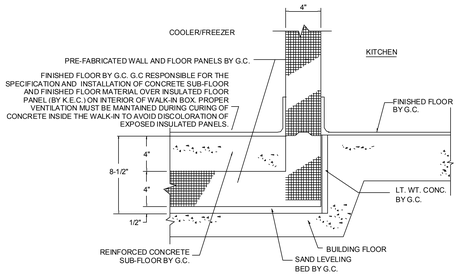
DWN. BY: Author

CKD. BY: Checker

DATE: JANUARY 20, 2022

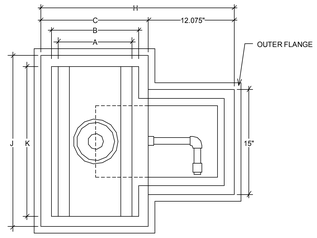
K5.1

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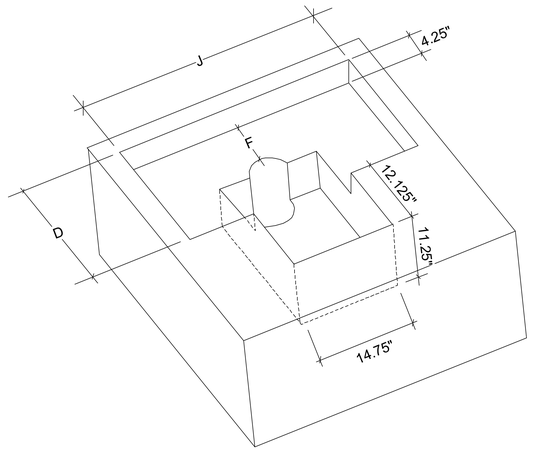


WALK-IN DEPRESSION W/ SUB FLOOR — A1 5A — N.T.S.

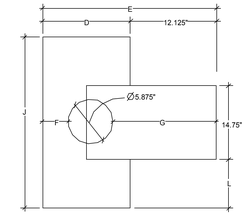
1 Detail A1-5A - Walk-in Depression (8-1/2")
1/4" = 1'-0"



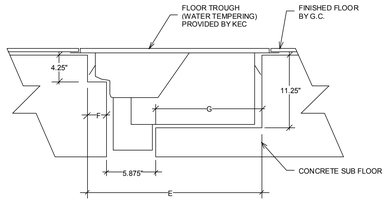
TOP VIEW



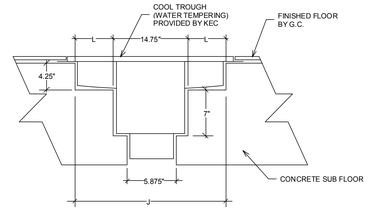
ROUGH-IN ISOMETRIC VIEW
(FINISHED FLOOR & FLOOR TROUGH NOT SHOWN)



BOTTOM VIEW



ROUGH-IN END VIEW



ROUGH-IN FRONT VIEW

WIDTHS

	12" WIDE	15" WIDE	18" WIDE	24" WIDE
A	7"	10"	13"	19"
B	9"	12"	15"	21"
C	12"	15"	18"	24"
D	9.25"	12.25"	15.25"	21.25"
E	21.375"	24.375"	27.375"	33.375"
F	1.688"	3.188"	4.688"	7.688"
G	13.763"	15.263"	16.763"	19.763"
H	24.075"	27.075"	30.075"	36.075"

MATCH WIDTH AND LENGTH IN CHART WITH MODEL SPECIFIED FOR "LETTER" DIMENSIONS

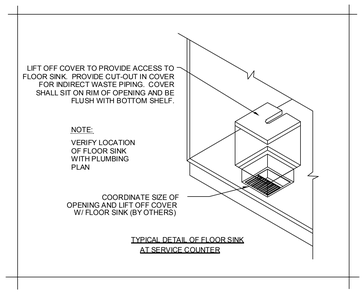
EXAMPLES:
SIZE FOR ROUGH-IN HOLE FOR TROUGH IS:
- WIDTH = DIMENSION "D"
- LENGTH = DIMENSION "J"
- DEPTH = 4.25"

SIZE FOR ROUGH-IN FOR PLUMBING COMPARTMENT IS:
- WIDTH = DIMENSION "E", USE "F" & "G" FOR PLACEMENT
- LENGHT = 14.75", USE DIMENSION "L" FOR PLACEMENT
- DEPTH = 11.25"

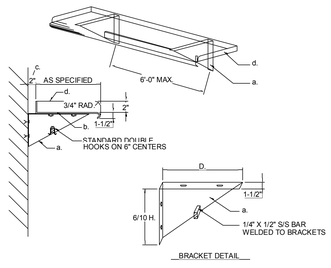
LENGTHS

	15" LONG	18" LONG	24" LONG	30" LONG	36" LONG	48" LONG	60" LONG	72" LONG	84" LONG	96" LONG	120" LONG
J	15"	18"	24"	30"	36"	48"	60"	72"	84"	96"	120"
K	12"	15"	21"	27"	33"	45"	57"	69"	81"	93"	117"
L	0"	1.625"	4.627"	7.625"	10.625"	16.625"	22.625"	28.625"	34.625"	40.625"	52.625"

WATER TEMPERING FLOOR TROUGH DEPRESSION — A1 19A — N.T.S.

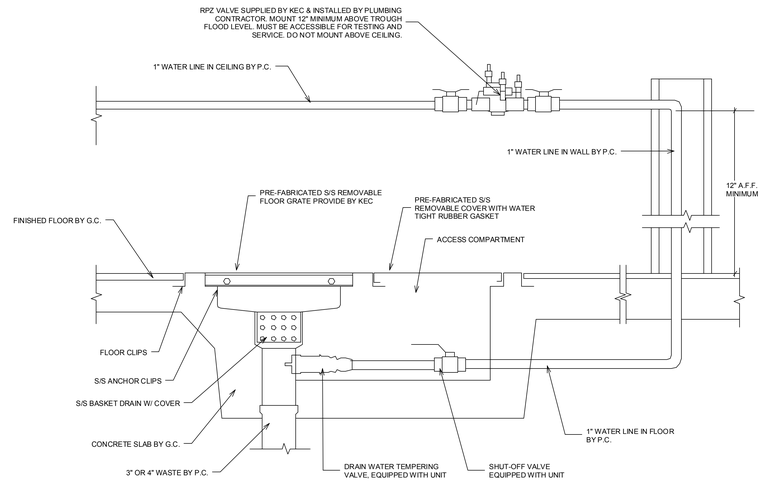


FLOOR SINK @ SERVICE COUNTER — A1 15 — N.T.S.



a. S/S BRACKETS OF ALL WELDED CONSTRUCTION
b. S/S SHELVES OF ALL WELDED CONSTRUCTION. SHELVING TO HAVE SLOTTED HOLES FOR ADJUSTABILITY. FASTEN WITH LOCK WASHERS AND S/S CAP NUTS.
c. 2" CLEAR REAR AND ENDS.
d. FULLY WELD, GRIND SMOOTH & POLISH.

WALL SHELF WITH POT HOOKS — F6 9 — N.T.S.



WATER TEMPERING FLOOR TROUGH INSTALL GUIDE — A1 19B — N.T.S.

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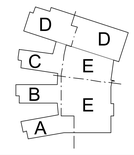
DRAWING TITLE

Foodservice Fabrication Details

Locus Map

True North

Key Plan



REVISIONS

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FILE:
JOB NO: #1904
SCALE: 1/4" = 1'-0"
DWN. BY: Author
CKD. BY: Checker
DATE: JANUARY 20, 2022

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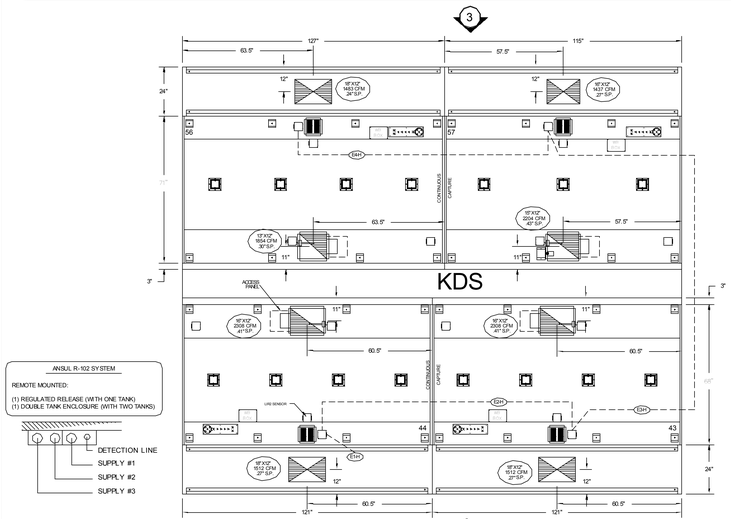
HOOD INFORMATION TABLE

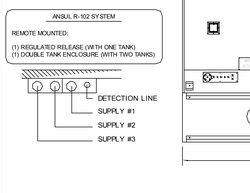
HOOD NUMBER	HOOD MODEL	EXHAUST AIR FLOW REQUIREMENTS						GREASE EXTRACTOR			HOOD CONSTRUCTION	HOOD WEIGHT (LBS)	SUPPLY AIR REQUIREMENTS					PLENUM WEIGHT (LBS)
		EXHAUST CFM	T.A.B. PORT STATIC PRESSURE	TOTAL HOOD STATIC PRESSURE	EXHAUST COLLAR QTY.	EXHAUST COLLAR LENGTH	EXHAUST COLLAR WIDTH	QTY.	SIZE L	SIZE H	TYPE		SUPPLY CFM	SUPPLY STATIC PRESSURE	SUPPLY COLLAR QTY.	SUPPLY COLLAR LENGTH	SUPPLY COLLAR WIDTH	
44	KVE	2308	0.29"	0.41"	1	16"	12"	6	20"	13"	KSA	EXPO. 18 GA. 304 S.S.	950	1512	0.27"	1	18"	12"	202
								-	11"	13"								
43	KVE	2308	0.29"	0.41"	1	16"	12"	6	20"	13"	KSA	EXPO. 18 GA. 304 S.S.	950	1512	0.27"	1	18"	12"	202
								-	11"	13"								
57	KVE	2204	0.31"	0.43"	1	15"	12"	5	20"	13"	KSA	EXPO. 18 GA. 304 S.S.	926	1437	0.27"	1	16"	12"	192
								1	11"	13"								
56	KVE	1854	0.19"	0.30"	1	13"	12"	6	20"	13"	KSA	EXPO. 18 GA. 304 S.S.	1023	1483	0.24"	1	18"	12"	212
								-	11"	13"								

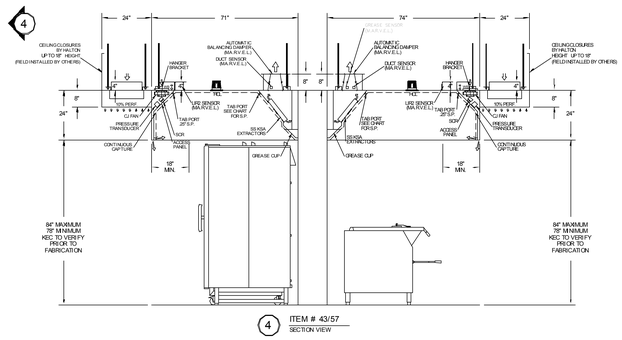
TOTAL EXH. CFM = 8674 TOTAL SUPPLY CFM = 5944

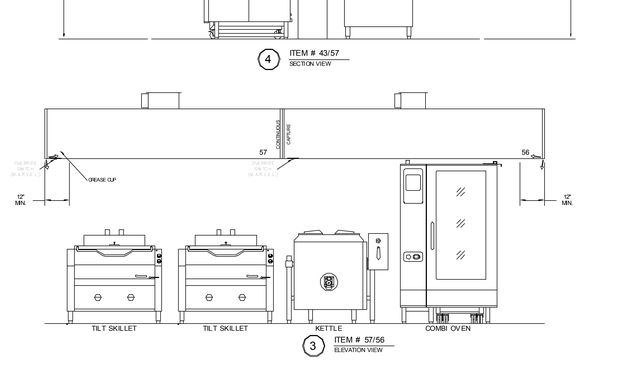
ELECTRICAL CONNECTION SCHEDULE

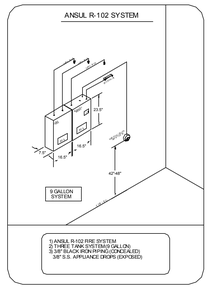
CONNECTION #	CONNECTION DESCRIPTION	FROM	TO
E1-H	120V, 15AMP - HOOD LIGHT POWER - 3 WIRES	BUILDING SOURCE	HOOD 44
E2-H	FIELD CONNECTION FOR HOOD LIGHTS	HOOD 44	HOOD 43
E3-H	FIELD CONNECTION FOR HOOD LIGHTS	HOOD 43	HOOD 57
E4-H	FIELD CONNECTION FOR HOOD LIGHTS	HOOD 57	HOOD 56











GENERAL SPECIFICATIONS

1- HOOD CONSTRUCTION AND DESIGN MEETS NFPA 96 AND UL 710 STANDARD.

2- HOOD IS NSF AND ETL LISTED UNDER THE FOLLOWING FILE NUMBER: ETL #1031432004PRIT-001

3- ALL INSTALLATION WORK IS TO BE PERFORMED BY QUALIFIED PERSONS AND IN ACCORDANCE WITH STATE AND LOCAL BUILDING CODE REQUIREMENTS.

4- THE INSTALLATION SHALL BE IN ACCORDANCE WITH NFPA 96, REMOVAL OF SMOKE AND GREASE LADEN VAPORS FROM COMMERCIAL COOKING EQUIPMENT.

5- ALL EXHAUST DUCTWORK AND TRANSITIONS ARE TO BE PROVIDED BY THE HVAC CONTRACTOR.

6- CLEARANCE FROM HOOD AND DUCTS TO COMBUSTIBLE MATERIAL SHALL BE PER APPLICABLE BUILDING CODES.

7- FOR PROPER OPERATION OF THE HOOD SYSTEM, IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO HAVE THE HOOD BALANCED AND TESTED TO ENSURE THAT THE EXHAUST AND SUPPLY REQUIREMENTS OF THE HOOD ARE MET.

INSTALLATION REQUIREMENTS

KITCHEN EQUIPMENT CONTRACTOR'S REQUIREMENTS

1- PROVIDE DRAWINGS TO APPROPRIATE TRADES REFERENCING UTILITY SERVICE AND COORDINATE FINAL CONNECTION.

2- DELIVER, ASSEMBLE AND INSTALL HALTON SYSTEM PER DRAWING.

3- FURNISH WIRING AND PLUMBING DIAGRAMS TO END USER.

4- THE K.E.C MUST INFORMHALTON OF ANY CHANGES IN EQUIPMENT OR BUILDING STRUCTURE. FIELD MODIFICATIONS ARE THE RESPONSIBILITY OF THE K.E.C.

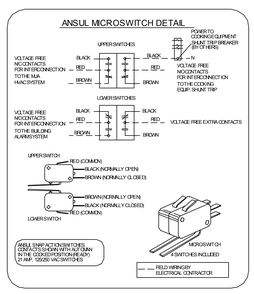
5- IF HALTON MANUAL EXHAUST VOLUME DAMPERS ARE PROVIDED, THE K.E.C. IS RESPONSIBLE FOR THEIR INSTALLATION OR TO MAKE ARRANGEMENTS WITH OTHER TRADES FOR THEIR INSTALLATION.

6- IF HALTON MODEL KVL BACKSHELF STYLE HOODS ARE PROVIDED, THE K.E.C. IS RESPONSIBLE FOR THE INSTALLATION OF THE CAPTURE-JET FAN.

ELECTRICAL CONTRACTOR'S REQUIREMENTS

1- PROVIDE AND CONNECT ALL REQUIRED VOLTAGES, CONNECTORS, WIRING, CONDUIT, ETC., PER NEC AND ALL APPLICABLE LOCAL CODES.

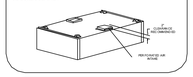
ANSUL MICROSWITCH DETAIL



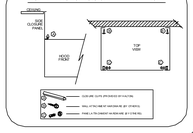
CAPTURE JET CLEARANCE DETAIL

Capture Jet ® Fan Cover Clearance

Patented Capture Jet ® technology perimeter air jets improve capture and containment of heat and grease emissions. It is very important to leave air space above and around the Capture Jet ® fan intake cover on the top of the Halton hood. Please leave 2 inches of clearance on the top and sides of the perforated Capture Jet ® intake cover to allow unimpeded entrance of air into the Capture Jet ® fan.



CEILING CLOSURE PANELS



ELECTRICAL EQUIPMENT REQUIREMENTS

FLUORESCENT LIGHT FIXTURE
40 WATT MAX BULB+ .67 AMP EA.

RECESSED INCANDESCENT LIGHT FIXTURE
150 WATT MAX BULB+ 1.25 AMP EA.

GLOBE INCANDESCENT LIGHT FIXTURE
100 WATT MAX BULB+ .83 AMP EA.

HCL LIGHT FIXTURES+ .12 AMP EA.

LED LIGHT FIXTURES+ .30 AMP EA

CAPTURE JET FAN+ .72 AMP EA

ALL HOOD CIRCUITS ARE NOT TO EXCEED 15 AMP

LIGHT BULBS, IF REQUIRED, ARE TO BE PROVIDED BY OTHERS

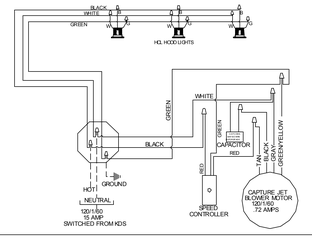
CEILING HEIGHT NOTE

IF HALTON COMPANY IS TO PROVIDE CEILING CLOSURE PANELS, THE EXACT DIMENSION OF THE FINISHED CEILING HEIGHT MUST BE PROVIDED PRIOR TO RELEASE.

FINISHED CEILING HEIGHT A.F.F.: _____

Typical wiring of Capture-Jet fan REMOTE SWITCH PANEL ON KDS

BY HALTON
BY ELECTRICIAN

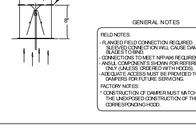


EXHAUST VOLUME DAMPER

MODEL: ABD (Automatic Balancing Damper)

TAG	"L"(in./mm)	"W"(in./mm)	QUANTITY	CONSTRUCTION*
44	16"	12"	1	ALUMINIZED
43	16"	12"	1	ALUMINIZED
57	15"	12"	1	ALUMINIZED
56	13"	12"	1	ALUMINIZED

ACTUATOR: BELIMO

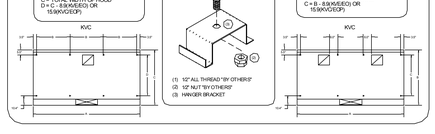


GENERAL NOTES

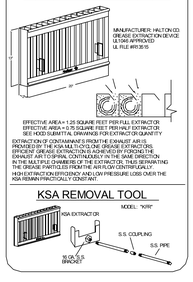
FIELD NOTES:
- FLANGED FIELD CONNECTION REQUIRED. SLEEVED CONNECTION WILL CAUSE DAMPER MALFUNCTIONING.
- DAMPERS DO NOT MEET NFPA96 REQUIREMENTS. AWILL COMPONENT'S SHOWN FOR REFERENCE ONLY (UNLESS ORDERED WITH HOOD).
- ADEQUATE ACCESS MUST BE PROVIDED TO DAMPERS FOR FUTURE SERVICING.

FACTORY NOTES:
- CONSTRUCTION OF DAMPER MUST MATCH THE CONSTRUCTION OF THE DUCTWORK (UNLESS NOTED). CORRESPONDING HOOD.

HANGER BRACKET LAYOUT



KSA GREASE EXTRACTOR



EXTRACTION OF CONTAMINANTS FROM THE EXHAUST AIR IS PROVIDED BY THE KSA MULTI-CYCLONE GREASE EXTRACTORS. EFFICIENT GREASE EXTRACTION IS ACHIEVED BY FORCING THE EXHAUST AIR TO SPIRAL CONTINUOUSLY IN THE SAME DIRECTION. THIS CAUSES CENTRIFUGAL FORCES TO ACT ON THE AIR, REMOVING THE GREASE PARTICLES FROM THE AIRFLOW CENTRIFUGALLY. HIGH EXTRACTION EFFICIENCY AND LOW PRESSURE LOSS OVER THE KSA HIGHMAN PRINCIPALLY CONSTANT.

KSA REMOVAL TOOL

PERFORMANCE CRITERIA

OTHER MANUFACTURERS WISHING TO OFFER AN ALTERNATE TO THE SPECIFIED MANUFACTURER MUST APPLY FOR PERMISSION TO DO SO IN WRITING FROM THE OFFICE OF THE SPECIFYING CONSULTANT. APPLICATION MUST BE RECEIVED BY THE CONSULTANT AT LEAST TEN WORKING DAYS PRIOR TO THE BID DATE. ANY ALTERNATE SYSTEM MUST MEET CONSTRUCTION AND PERFORMANCE REQUIREMENTS AND EFFICIENCIES AS OUTLINED IN THIS SPECIFICATION.

REQUESTS FOR APPROVAL MUST INCLUDE GREASE FILTRATION PERFORMANCE DATA (MICRON SIZE VS. EXTRACTION EFFICIENCY) AND MANUFACTURERS OWN EXHAUST AIR FLOW CALCULATIONS BASED ON THE CONVECTIVE HEAT LOAD OF COOKING EQUIPMENT BENEATH THE HOOD.

EFFICIENCY COMPARISON DATA TO BE PERFORMED IN ACCORDANCE WITH THE MOST CURRENT ASTM STANDARD F1704 AND INCLUDE RESULTS FOR THE REQUIRED CAPTURE AND CONTAINMENT EXHAUST AIR FLOW IN ACCORDANCE WITH THE TEST METHOD TO DETERMINE THE THRESHOLD OF CAPTURE AND CONTAINMENT." DATA MUST INCLUDE THERMAL IMAGING RESULTS VALIDATING CONFORMANCE TO ASTM F1704 AND SUPPLY AIR TEMPERATURE REQUIREMENT OF 74°F.

MAKE UP AIR WILL BE CALCULATED SO THAT THE SAME AMOUNT OF AIR WILL BE TAKEN FROM THE ZONE AS IS REQUIRED BY THE SPECIFIED SYSTEM. AN ADDITIONAL LOAD CANNOT BE PLACED ON THE KITCHEN HVAC SYSTEM.

MANUFACTURER MUST PROVIDE A WRITTEN GUARANTEE OF PERFORMANCE, ENSURING THE SPECIFYING ENGINEER THAT THE SYSTEM WILL PERFORM TO THE ENGINEER'S SATISFACTION WHEN INSTALLED AND BALANCED ACCORDING TO DESIGN AIR FLOWS AND RESULTS OF ASTM STANDARD F1704 TEST. (AS DETERMINED BY TAB PORTS AND PRESSURE VS. AIR FLOW CURVES.) CONSULTANT RESERVES THE RIGHT TO REJECT ANY SYSTEM WHICH, WHEN INSTALLED, DOES NOT PROVIDE CAPTURE AND CONTAINMENT AT THE THRESHOLD FLOW RATE DETERMINED IN ASTM F1704. REJECTED SYSTEM MUST BE REPLACED WITH SPECIFIED SYSTEM, WITH ALL REPLACEMENT COSTS PAID BY MANUFACTURER OF REJECTED SYSTEM.

ANY CHANGES IN THE SPECIFIED SIZING OF POWER WIRING, FAN SIZE, HORSEPOWER REQUIREMENTS, OR GAS LINES DUE TO THE USE OF ANY SYSTEM OTHER THAN THAT WHICH IS SPECIFIED IS THE RESPONSIBILITY OF THE ALTERNATE HOOD MANUFACTURER, AND MUST BE COORDINATED BY THE HOOD MANUFACTURER AND CONTRACTORS INVOLVED.

THIS DRAWING MUST BE CHECKED, SIGNED AND RETURNED TO THE APPROPRIATE FACTORY. PLEASE VERIFY THE FOLLOWING:
1. ALL DIMENSIONAL INFORMATION, MOUNTING POSITIONS AND CLEARANCES
2. THE QUANTITY AND TYPE OF COOKING EQUIPMENT.

NOTE TO APPROVER
ANY CHANGES IN COOKING EQUIPMENT SUCH AS INCREASED ENERGY INPUTS OR EQUIPMENT POSITION MAY AFFECT EXHAUST AIR FLOW. HALTON MUST BE NOTIFIED IF ANY OF THESE CHANGES ARE MADE AFTER DRAWINGS ARE APPROVED AND RETURNED.

☐ REVISE AND RESUBMIT
APPROVED FOR FABRICATION ☐ WITH CHANGES AS NOTED
☐ WITH NO CHANGES
APPROVED BY _____ DATE _____

MAIL APPROVED DRAWINGS TO APPROPRIATE FACTORY BELOW:
☐
HALTON CO. (USA)
101 INDUSTRIAL DRIVE
SCOTTSVILLE, KY 42164
1-270-237-5600

1021 BREVIK PLACE
MISSISSAUGA, ON L4W 3R7
1-905-624-0301

WEBSITE: www.halton.com

REV.	REVISION DESCRIPTION	BY	DATE
	CFMs & EQUIPMENT	SKM	02.17.21
	HOOD REDESIGN	MM	01.10.22

PROJECT: DOHERTY HIGH SCHOOL
LOCATION: WORCESTER, MA
DRAWN BY: MAB | DATE: 06.16.20
SCALE: NOT TO SCALE
CONSULTANT: Colburn Guyette Foodservice Design

Halton

DRAWING TITLE: HOOD DETAILS
DRAWING No.: U20-521
REV. NO.: 2 | SHEET NO.: 1 of 3

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CONSULTANT'S STAMP

OWNER

WORCESTER PUBLIC SCHOOLS

PROJECT

100% CONSTRUCTION DOCUMENTS, FINAL BID PACKAGE #4

Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

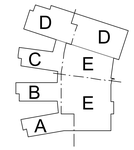
DRAWING TITLE

Foodservice Manufacturer Drawings

Locus Map

True North

Key Plan



REVISIONS

No.	Description	Date

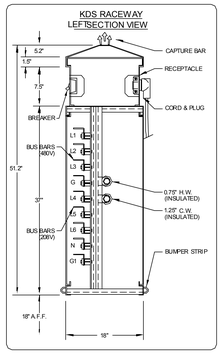
FILE:
JOB NO: #1904
SCALE: 1 : 26
DWN. BY: JJL
CKD. BY: PJM
DATE: JANUARY 20, 2022

K6.1

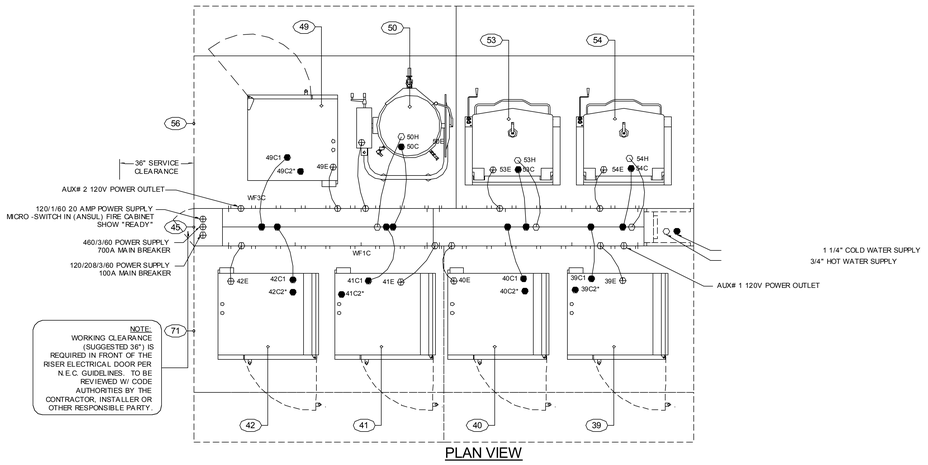
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KDS RACEWAY LEFTSECTION VIEW

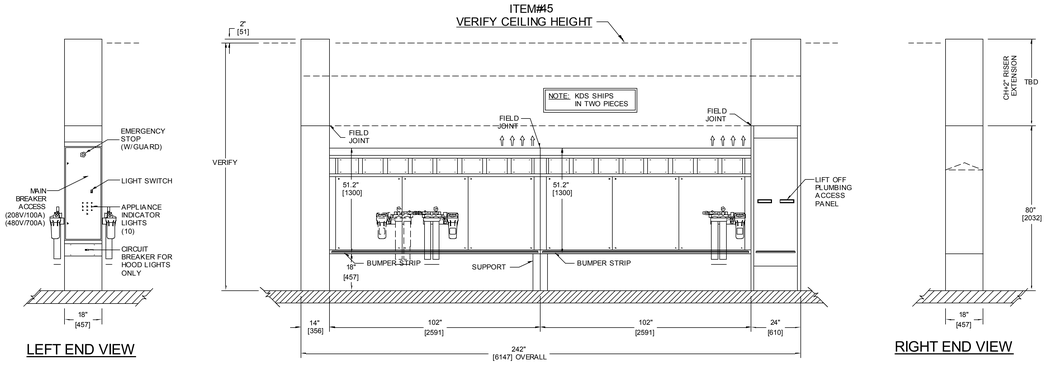


NOTE:
WATER FILTER TO BE PROVIDED BY HALTON AND FACTORY INSTALLED.



NOTE:
WORKING CLEARANCE (SUGGESTED 36") IS REQUIRED IN FRONT OF THE RISER ELECTRICAL DOOR PER N.E.C. GUIDELINES. TO BE REVIEWED W/ CODE AUTHORITIES BY THE CONTRACTOR, INSTALLER OR OTHER RESPONSIBLE PARTY.

PLAN VIEW



LEFT END VIEW

RIGHT END VIEW

FRONT ELEVATION

GENERAL NOTES FOR UTILITY DISTRIBUTION SYSTEM

FOOD SERVICE EQUIPMENT CONTRACT REQUIREMENTS
- VERIFY MAKE, MODEL, UTILITY REQUIREMENTS AND LOCATION OF ALL EQUIPMENT TO BE SERVICED BY UTILITY SYSTEM.
- VERIFY ACCESSIBILITY INTO BUILDING/KITCHEN AREA.
- VERIFY ALL UTILITY ROUGH-INS.
- DISTRIBUTION OF SUBMITTAL DRAWINGS, INSTALLATION MANUALS, OPERATION MANUALS, ETC. TO RESPECTIVE TRADES AND END USERS.
- DELIVERY AND INSTALLATION OF UNIT(S) PER DRAWINGS.
- VERIFY COMPLIANCE WITH ALL LOCAL CODES & AGENCIES.

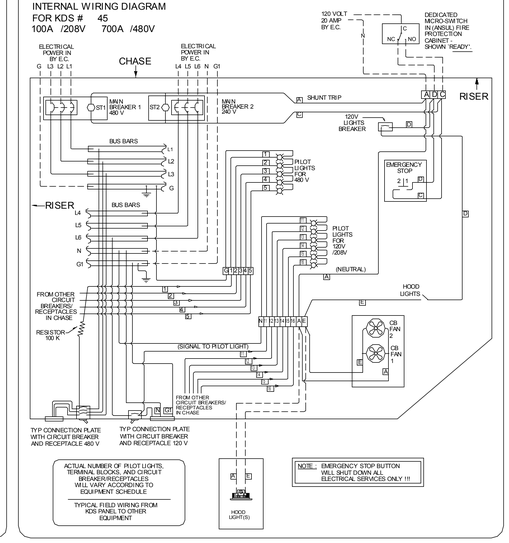
ELECTRICAL SERVICE EQUIPMENT CONTRACT REQUIREMENTS
- INSTALL 2 WIRE CIRCUIT AND MATERIALS REQUIRED TO TERMINAL BLOCKS FOR VENTILATOR CONTROLS AND FIRE PROTECTION CIRCUIT.
- INTERCONNECT LIGHT SWITCH(S) LOCATED IN UTILITY RISER TO VENTILATOR HOOD LIGHTS. LOCATION OF FIXTURE J-BOX SHOWN ON VENTILATOR HOOD DRAWINGS.
- INSPECT FOR LOOSE CONNECTIONS (CAUSED BY SHIPPING) AND TIGHTEN AS REQUIRED.
- REMOVE AND REPLACE ACCESS PANELS AND ENCLOSURES NECESSARY FOR CONNECTION AND INSTALLATION OF SYSTEM.
- INSTALL ELECTRICAL SERVICE(S) K.O. CONDUIT WIRING AND OVERLOAD PROTECTION DEVICE(S) RATED AT A CONTINUOUS OPERATING LOAD OF:

100 AMPS	208/120/3...VOLTS
700 AMPS	480/208/120/3...VOLTS

PLUMBING CONTRACT REQUIREMENTS
- PROVIDE COLD WATER SERVICE AND CONNECTION OF SAME TO CONNECTION POINT AS SHOWN ON HALTON DRAWING [1.25"] NPT, 40 PSIG.
- PROVIDE HOT WATER SERVICE AND CONNECTION OF SAME TO CONNECTION POINT AS SHOWN ON HALTON DRAWING [0.75"] NPT, 40 PSIG. MAX. 140° F TO 180°F.
- INTERCONNECT ALL PIPE CONNECTION UNIONS AT FIELD JOINT. ALL UNIONS PROVIDED AND PRE-FITTED AT FACTORY.
- REMOVAL AND REPLACEMENT OF ACCESS PANELS, DOORS, ENCLOSURE TRIM, ETC. NECESSARY FOR PROVIDING FIELD CONNECTIONS FOR SYSTEM.
- TEST ALL FIELD JOINTS FOR LEAKAGE, TIGHTEN AS REQUIRED. TEST ALL FACTORY JOINTS AND FITTINGS FOR LEAKAGE RESULTING FROM SHIPPING AND HANDLING.
- ALL OTHER CONNECTIONS REQUIRED FOR ACCESSORY EQUIPMENT, CONNECTIONS AND INSULATION BY PLUMBING CONTRACTOR.
- COST OF FIELD TESTING AND CERTIFYING BACK FLOW PREVENTERS, IF EQUIPPED, BY PLUMBING CONTRACTOR
- ANY TESTING REQUIRED BY THE AHJ ON THE BACKFLOW PREVENTER, IF EQUIPPED, TO BE PERFORMED BY THE PLUMBER OR OTHER TRADE AFTER INSTALLATION IS COMPLETED AND NOT BY HALTON.

FIELD WIRING

INTERNAL WIRING DIAGRAM
FOR KDS # 45
100A /208V 700A /480V

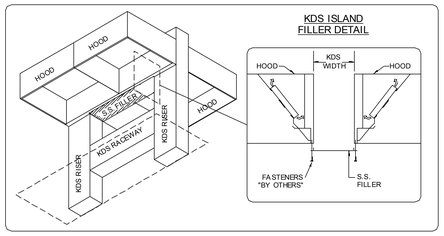


ACTUAL NUMBER OF PILOT LIGHTS, TERMINAL BLOCKS, AND CIRCUIT BREAKER/RECEPTACLES WILL VARY ACCORDING TO EQUIPMENT SCHEDULE

TYPICAL FIELD WIRING FROM KDS PANEL TO OTHER EQUIPMENT

NOTE: EMERGENCY STOP BUTTON WILL SHUT DOWN ALL ELECTRICAL SERVICES ONLY !!!

KDS ISLAND FILLER DETAIL

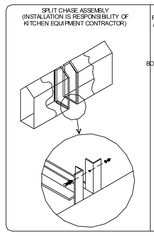


NOTE: CONFIRM EQUIPMENT UTILITY CONNECTION LOCATIONS, & SUPPLY LOADINGS AND SIZES.
NOTE: CONFIRM ALL GAS & WATER HOSE SIZING AND LENGTHS.
NOTE: CONFIRM ALL CORD/PLUG, AND CABLE SIZING AND LENGTHS)
NOTE: REDUCERS FOR GAS CONNECTION SUPPLIED BY HALTON (WHERE APPLICABLE).
NOTE: QUICK DISCONNECTS & RESTRAINING CABLES ARE PROVIDED BY HALTON.
NOTE: ALL MAIN RISER SERVICES ARE FROM ABOVE AND INCLUDE MAIN SHUT OFF VALVES UNLESS STATED OTHERWISE.
NOTE: VERIFY THE APPLIANCE MAKE, MODEL, UTILITY REQUIREMENTS.
NOTE: MATERIAL USED IS 18 ga. 300 SERIES s/s #4 FINISH UNLESS STATED OTHERWISE
NOTE: THIS KDS SHIPS IN 2 PIECES

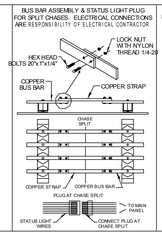
SYMBOL CHART

⊕	ELEC. CONNECTION	●	STEAM SUPPLY
●	C.W. CONNECTION	◑	STEAM RETURN
○	H.W. CONNECTION	A	COMPRESSED AIR
⋈	GAS CONNECTION	⬟	CHILLED WATER SUPPLY
F	FILTERED CONN.	⬠	CHILLED WATER RETURN

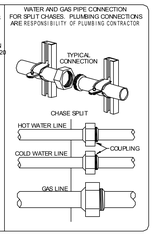
SPLIT CHASE ASSEMBLY (INSTALLATION IS RESPONSIBILITY OF KITCHEN EQUIPMENT CONTRACTOR)



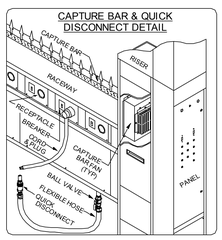
BUS BAR ASSEMBLY & STATUS LIGHT PLUG FOR SPLIT CHASES. ELECTRICAL CONNECTIONS ARE RESPONSIBILITY OF ELECTRICAL CONTRACTOR



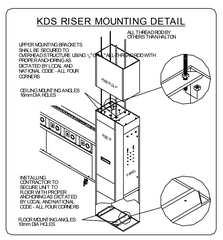
WATER AND GAS PIPE CONNECTION FOR SPLIT CHASES. PLUMBING CONNECTIONS ARE RESPONSIBILITY OF PLUMBING CONTRACTOR



CAPTURE BAR & QUICK DISCONNECT DETAIL



KDS RISER MOUNTING DETAIL



NOTE: CONFIRM EQUIPMENT UTILITY CONNECTION LOCATIONS, & SUPPLY LOADINGS AND SIZES.
NOTE: CONFIRM ALL GAS & WATER HOSE SIZING AND LENGTHS.
NOTE: CONFIRM ALL CORD/PLUG, AND CABLE SIZING AND LENGTHS)
NOTE: REDUCERS FOR GAS CONNECTION SUPPLIED BY HALTON (WHERE APPLICABLE).
NOTE: QUICK DISCONNECTS & RESTRAINING CABLES ARE PROVIDED BY HALTON.
NOTE: ALL MAIN RISER SERVICES ARE FROM ABOVE AND INCLUDE MAIN SHUT OFF VALVES UNLESS STATED OTHERWISE.
NOTE: VERIFY THE APPLIANCE MAKE, MODEL, UTILITY REQUIREMENTS.
NOTE: MATERIAL USED IS 18 ga. 300 SERIES s/s #4 FINISH UNLESS STATED OTHERWISE
NOTE: THIS KDS SHIPS IN 2 PIECES

ELECTRIC CONNECTION LEGEND

CORD & PLUG :
A - STRAIGHT BLADE WITH STRAIGHT CAP
B - STRAIGHT BLADE WITH ANGLE CAP
C - TWIST LOCK
D - TWIST LOCK, WATERTIGHT
* - EXISTING EQUIP. (CORD NOT REQUIRED)

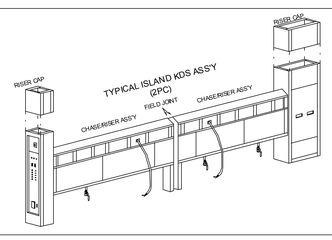
RECEPTACLE :
AR - STRAIGHT BLADE
CR - TWIST LOCK
DR - TWIST LOCK, WATERTIGHT
ER - STRAIGHT BLADE, WATERTIGHT
DCO - DUPLEX CONV. OUTLET

PLUMBING CONNECTION LEGEND

QD - QUICK DISCONNECT & S/S HOSE ASSY.
BV - BALL VALVE, 1/4 TURN
NPT - CAPPED NIPPLE FOR FUTURE
INT - INTERNAL PRE-PLUMBED CONN.

OTHER

DIR - DIRECT CONNECTION
PS - PIN & SLEEVE
INT - INTERNAL PRE-WIRED CONNECTION
BO - BREAKER ONLY, NO RECEPTACLE
M - CORD SET BY EQUIP. MFR.
FE - FUTURE ELECTRIC
E.C. - ELECTRICAL CONTRACTOR
K.E.C. - KITCHEN EQUIPMENT CONTRACTOR
F - FILTERED WATER (REQUIRED)



ITEM# 45

HALTON - UTILITY SCHEDULE FOR KDS

ITEM NO.	EQUIPMENT DESCRIPTION TYPE/ MAKE/ MODEL (REMARKS)	208/120/3.../60 ELECTRIC: CONN NO.	LINE NO.	AMP.	VOLTS/...	BREAKER AMP/POLE	REC. TYPE	PLUG TYPE	LEN (FT)	480/120/3.../60 ELECTRIC: CONN NO.	AMP.	VOLTS/...	BREAKER AMP/POLE	REC. TYPE	PLUG TYPE	LEN (FT)	COLD WATER: CONN NO.	DIA (IN)	CONN TYPE	LEN (FT)	HOT WATER: CONN NO.	DIA (IN)	CONN TYPE	LEN (FT)
42	COMBI OVEN / ALTO-SHAAM / CTP20-20E									42E	79.4	480/3	80	DIR		6	42C1	3/4"	QD	5				
																	42C2*	3/4"	QD	5				
41	COMBI OVEN / ALTO-SHAAM / CTP20-20E									41E	79.4	480/3	80	DIR		6	41C1	3/4"	QD	5				
																	41C2*	3/4"	QD	5				
40	COMBI OVEN / ALTO-SHAAM / CTP20-20E									40E	79.4	480/3	80	DIR		6	40C1	3/4"	QD	5				
																	40C2*	3/4"	QD	5				
39	COMBI OVEN / ALTO-SHAAM / CTP20-20E									39E	79.4	480/3	80	DIR		6	39C1	3/4"	QD	5				
																	39C2*	3/4"	QD	5				
49	COMBI OVEN / ALTO-SHAAM / CTP20-20E									49E	79.4	480/3	80	DIR		6	49C1	3/4"	QD	5				
																	49C2*	3/4"	QD	5				
50	KETTLE / VULCAN / K60ELT									50E	21.7	480/3	30/3	DIR		6	50C	1/2"	QD	5	50H	1/2"	QD	5
53	TILT SKILLET / MIDDLEBY / 40P-STEM									53E	21.7	480/3	30/3	DIR		6	53C	3/8"	QD	5	53H	3/8"	QD	5
54	TILT SKILLET / MIDDLEBY / 40P-STEM									54E	21.7	480/3	30/3	DIR		6	54C	3/8"	QD	5	54H	3/8"	QD	5
WF1	WATER FILTER / EVERPURE / EV9797-22																WF1C	1/2"	QD	5				
WF2	WATER FILTER / EVERPURE / EV9797-22																WF2C	1/2"	QD	5				
WF3	WATER FILTER / EVERPURE / EV9797-22																WF3C	1/2"	QD	5				
LX	HOOD LIGHTS				120/1	20/1																		
AUX1	CONVENIENCE OUTL #1-DCO	AUX1	L1	12	120/1	20/1	GFCI																	
AUX2	CONVENIENCE OUTL #2-DCO	AUX2	L2	12	120/1	20/1	GFCI																	
	APPLIANCE LOAD PER LINE	L1=12A, L2=AA, L3=0A								L1=462.1A, L2=462.1A, L3=462.1A														
	MFG SYSTEM CAPACITY	⊕ 15 AMPS (25% Safety incl.)								⊕ 577.6 AMPS (25% Safety incl.)							○ 1 1/4" NPT				◯ 3/4" NPT			
	FUTURE RESERVE	68 AMPS								97.92 AMPS														
	APPROXIMATE WEIGHT= 2530lbs	BREAKER SIZE 100 AMPS								BREAKER SIZE 700 AMPS							40 PSIG				40 PSIG			
		208/120/3.../60 ELECTRIC								480/120/3.../60 ELECTRIC							COLD WATER				HOT WATER			

THIS DRAWING MUST BE CHECKED, SIGNED AND RETURNED TO THE APPROPRIATE FACTORY. PLEASE VERIFY THE FOLLOWING:
1. ALL DIMENSIONAL INFORMATION, MOUNTING POSITIONS
2. THE LOCATION AND TYPE OF COOKING EQUIPMENT.

NOTE TO APPROVER
ANY CHANGES IN COOKING EQUIPMENT SUCH AS INCREASED ENERGY INPUTS OR EQUIPMENT PLACEMENT MAY REQUIRE A RECALCULATION OF MAKE-UP AIR REQUIREMENTS. IF THESE CHANGES OCCUR, A RECALCULATION EXHAUST AIRFLOW MAY BE REQUIRED.

☐ REVISE AND RESUBMIT
☐ APPROVED FOR FABRICATION ☐ WITH CHANGES AS NOTED
☐ WITH NO CHANGES

APPROVED BY: DATE:

MAIL APPROVED DRAWINGS TO APPROPRIATE FACTORY BELOW:

HALTON CO. (CANADA)
6303 ROPER PLACE
MISSISSAUGA, ONT. L4W 3R7
1-905-624-0301

☐

HALTON CO. (USA)
101 INDUSTRIAL DRIVE
SCOTTSVILLE, KY 42164
1-270-237-5600

WEBSITE: www.halton.com

REV.	DESCRIPTION	BY	DATE
1	CHANGED TO ALL ELECTRIC APPLIANCES	SKM	02.17.21
2	HOOD/KDS REDESIGN	MM	01.10.22

PROJECT: DOHERTY HIGH SCHOOL
LOCATION: WORCESTER, MA
DATE: 06.16.20
DRAWN BY: MAB
SCALE: NOT TO SCALE
CONSULTANT: COLBURN GUYETTE

Halton

DRAWING TITLE:

DRAWING No.: U20-521

REV. NO.: 2 SHEET NO.: 2 of 3

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ARCHITECT'S STAMP

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781-826-5522

CONSULTANT'S STAMP

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WORCESTER PUBLIC SCHOOLS

PROJECT

100% CONSTRUCTION DOCUMENTS, FINAL BID PACKAGE #4

Doherty Memorial High School

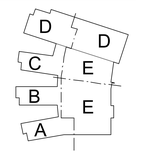
299 Highland Street, Worcester, MA 01602

DRAWING TITLE

Foodservice Manufacturer Drawings

Locus Map

Key Plan



REVISIONS

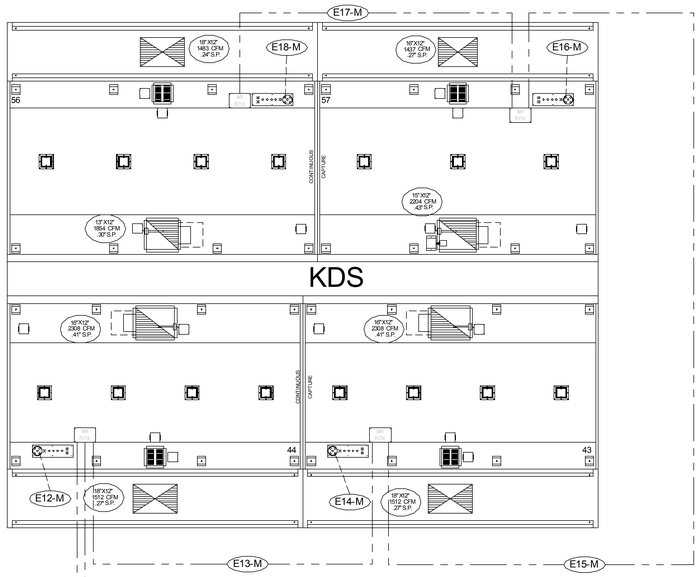
No.	Description	Date

FILE:
JOB NO: #1904
SCALE: 1 : 26
DWN. BY: JJL
CKD. BY: PJM
DATE: JANUARY 20, 2022

K6.2

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ELECTRICAL & DATA CABLE CONNECTION SCHEDULE

CONNECTION #	CONNECTION DESCRIPTION	FROM	TO
E1-M	120V, 15AMP - CONTROL PANEL POWER - 3 WIRES	BUILDING SOURCE	CONTROL PANEL
E2-M	FIRE MODE SIGNAL - TO FIRE SUPPRESSION PANEL - 2 WIRES	CONTROL PANEL	FIRE SYSTEM
E3-M	CAT5E CABLE - FOR BMS(BACNET) (FUTURE)	CONTROL PANEL	BMS
E4-M	CAT5E CABLE - NETWORK CABLE	CONTROL PANEL	HOOD #44
E5-M	0-10V & START/STOP MUA SIGNAL TO BMS - 4 WIRES	CONTROL PANEL	BMS
E6-M	7 WIRE STP CABLE - PLENUM RATED FT6 - TO EF VFD	CONTROL PANEL	VFD
E7-M	2 WIRE 24V CABLE - MODBUS VFD COMMUNICATION	CONTROL PANEL	VFD
E8-M	FIELD CONNECTION FOR MAIN DUCT GREASE SENSOR - 3 WIRES	CONTROL PANEL	GREASE SENSOR
E9-M	CAT5 CABLE - TO SPACE TEMPERATURE SENSOR	HOOD #44	TEMP SENSOR
E10-M	HIGH VOLTAGE WIRING FROMBUILDING SOURCE TO VFD	BUILDING SOURCE	VFD
E11-M	HIGH VOLTAGE WIRING FROM VFD TO FAN MOTOR	VFD	EF MOTOR
E12-M	120V, 15AMP - M.A.R.V.E.L. CONTROLLER POWER - 3 WIRES	BUILDING SOURCE	HOOD #44
E13-M	CAT5E CABLE - NETWORK CABLE	HOOD #44	HOOD #43
E14-M	120V, 15AMP - M.A.R.V.E.L. CONTROLLER POWER - 3 WIRES	BUILDING SOURCE	HOOD #43
E15-M	CAT5E CABLE - NETWORK CABLE	HOOD #43	HOOD #57
E16-M	120V, 15AMP - M.A.R.V.E.L. CONTROLLER POWER - 3 WIRES	BUILDING SOURCE	HOOD #57
E17-M	CAT5E CABLE - NETWORK CABLE	HOOD #57	HOOD #56
E18-M	120V, 15AMP - M.A.R.V.E.L. CONTROLLER POWER - 3 WIRES	BUILDING SOURCE	HOOD #56

M.A.R.V.E.L. SCOPE OF WORK

RESPONSIBILITY TO BE SELECTED BY GENERAL CONTRACTOR

DEFINITIONS FOR REFERENCE:

M.A.R.V.E.L. I SYSTEMS = 1 EXHAUST FAN SERVING 1 KITCHEN HOOD

M.A.R.V.E.L. II SYSTEMS = 1 EXHAUST FAN SERVING MULTIPLE KITCHEN HOODS

VFD = VARIABLE FREQUENCY DRIVES

CONNECTION LOCATIONS WILL VARY PER SYSTEM, REFER TO HALTON M.A.R.V.E.L. DIAGRAMS FOR SPECIFICS

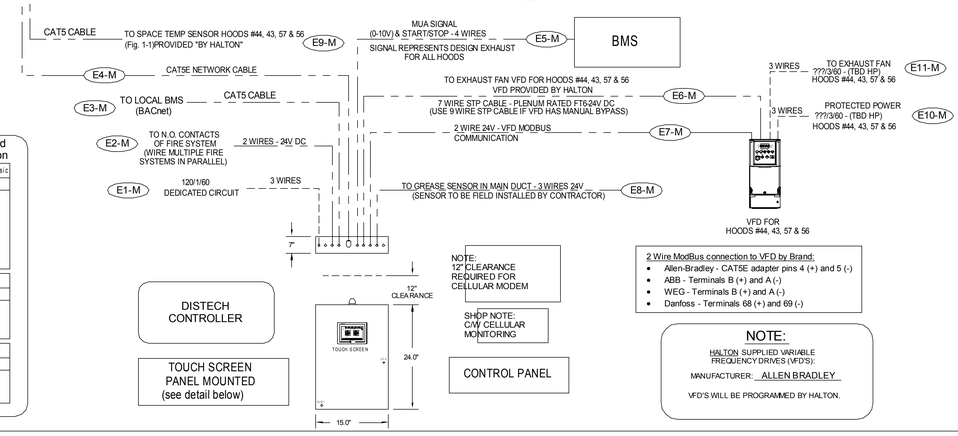
1. APPLICABLE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF THE M.A.R.V.E.L. CONTROL PANEL. LOCATION TO BE DETERMINED BY OC AND SHALL BE WITHIN SAME SPACE AS THE KITCHEN HOODS BEING SERVED BY PANEL. (M.A.R.V.E.L. I HOOD SYSTEMS WILL NOT HAVE SUCH PANEL)
2. APPLICABLE CONTRACTOR TO SUPPLY AND INSTALL 115V (15AMP) DEDICATED CIRCUIT AT M.A.R.V.E.L. CONTROL PANEL
3. APPLICABLE CONTRACTOR TO SUPPLY AND INSTALL RJ45 CAT5E CABLE CONNECTION AT M.A.R.V.E.L. CONTROL PANEL FOR M.A.R.V.E.L. II SYSTEMS OR AT KITCHEN HOOD FOR M.A.R.V.E.L. I SYSTEMS FOR I.P. ADDRESS.
4. APPLICABLE CONTRACTOR TO INSTALL SPACE TEMP SENSOR (SUPPLIED BY HALTON) IN SAME SPACE AS KITCHEN HOOD SYSTEM AND 48"-54" A.F.F. NEAREST MUA T-STAT.
5. APPLICABLE CONTRACTOR SHALL SUPPLY AND RUN RJ45 CAT5E CABLE CONNECTION FROM SPACE TEMP SENSOR TO M.A.R.V.E.L. CONTROL PANEL (M.A.R.V.E.L. II) OR TO KITCHEN HOOD (M.A.R.V.E.L. I)
6. APPLICABLE CONTRACTOR TO SUPPLY AND RUN 2 WIRE 24V DC WIRING FROM ANSUL FIRE SYSTEM ETHERTO M.A.R.V.E.L. CONTROL PANEL (M.A.R.V.E.L. II) OR TO KITCHEN HOOD (M.A.R.V.E.L. I).
7. APPLICABLE CONTRACTOR SHALL CONNECT RJ45 CAT5E CABLE FROM HOOD TO HOOD AND TO PANEL AS SHOWN IN HALTON M.A.R.V.E.L. DIAGRAM.
8. APPLICABLE CONTRACTOR TO SUPPLY AND RUN 4 WIRE MUA SIGNAL (0-10V & START/STOP) FROM M.A.R.V.E.L. CONTROL PANEL (M.A.R.V.E.L. II) OR FROM KITCHEN HOOD (M.A.R.V.E.L. I) TO BMS OR DDC.
9. APPLICABLE CONTRACTOR TO SUPPLY AND RUN 7 WIRE STP PLENUM RATED CABLE @ WIRE STP CABLE IF VFD IS PROVIDED WITH BYPASS) FROM M.A.R.V.E.L. CONTROL PANEL (M.A.R.V.E.L. II) OR FROM KITCHEN HOOD (M.A.R.V.E.L. I) TO EXHAUST FAN VFD(S) (VFDS AND CABINET SUPPLIED BY HALTON UNLESS OTHERWISE NOTED)
10. APPLICABLE CONTRACTOR TO SUPPLY AND RUN 2 WIRE 24V CABLE FROM CONTROL PANEL TO VFD, FOR MODBUS COMMUNICATION.
11. APPLICABLE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF THE VFD(S). LOCATION TO BE DETERMINED BY OC AND SHALL BE WITHIN 150 FEET MAX DISTANCE FROM EXHAUST FANS).
12. APPLICABLE CONTRACTOR TO SUPPLY AND INSTALL THREE PHASE OR SINGLE PHASE POWER FEED FROM CIRCUIT BREAKER(S) TO VFD(S). APPLICABLE CONTRACTOR TO SUPPLY AND INSTALL THREE PHASE OR SINGLE PHASE POWER FROM VFD(S) TO EXHAUST / MUA (IF APPLICABLE) MOTORS. ALL TO BE RAN IN SEPARATE CONDUIT.
13. APPLICABLE CONTRACTOR SHALL INSTALL GREASE SENSOR(S), IF PROVIDED, IN MAIN EXHAUST TRUNK, AND WIRE THE SENSOR BACK TO THE DESIGNATED LOCATION.
14. APPLICABLE CONTRACTOR TO SUPPLY AND INSTALL 115V (15AMP) DEDICATED CIRCUIT AT EACH KITCHEN HOOD. (IF HOODS ARE UV, A SECOND 115V DEDICATED CIRCUIT IS REQUIRED.)
15. INSTALLING CONTRACTOR TO BE RESPONSIBLE FOR PROVIDING ADEQUATE ACCESS TO ALL COMPONENTS LOCATED ABOVE HOOD.
16. HALTON REPRESENTATIVE TO PERFORM FINAL FIELD COMMISSIONING ONCE ALL RESPONSIBILITIES ARE COMPLETED ABOVE.

COMMUNICATION WIRING NOTE:

MAXIMUM LENGTH OF CABLES BETWEEN ANY THREE CONTROLLERS (CONTROL PANELS, HOODS, ETC) IN SERIES IS 328 FEET (100 METERS). THIS ALLOWS CONTINUED COMMUNICATION THROUGH A FAILED CONTROLLER. IF GREATER CABLE LENGTH IS NEEDED BETWEEN CONTROLLERS, AN INLINE ETHERNET BOOSTER MUST BE SPECIFIED AND USED.

NOTES:

ALL FIELD WIRING AND CONNECTION POINTS ARE SUBJECT TO CHANGE DUE TO ELECTRICAL COMPONENT(S) UPDATE OR OBSOLESCENCE. HALTON WILL NOT BE LIABLE FOR ANY CHANGE ORDERS BASED ON DRAWINGS CREATED ONE OR MORE YEARS PRIOR TO PRODUCTION. WHEN RELEASED AN UPDATED SET OF ELECTRICAL DIAGRAMS(S) WILL BE SUPPLIED.



NOTE:
12" CLEARANCE REQUIRED FOR CELLULAR MODEM

SHOP NOTE:
CVV CELLULAR MONITORING

DISTECH CONTROLLER

TOUCH SCREEN PANEL MOUNTED (see detail below)

CONTROL PANEL

2 Wire ModBus connection to VFD by Brand:
- Allen-Bradley - CAT5E adapter pins 4 (+) and 5 (-)
- ABB - Terminals B (+) and A (-)
- WEG - Terminals B (+) and A (-)
- Danfoss - Terminals 68 (+) and 69 (-)

NOTE:

HALTON SUPPLIED VARIABLE FREQUENCY DRIVES (VFD'S):

MANUFACTURER: ALLEN BRADLEY

VFD'S WILL BE PROGRAMMED BY HALTON.

GREASE SENSOR LOCATION MATRIX

GREASE SENSOR #	LOCATION
1	MAIN DUCT
2	57
3	-
4	-
5	-
6	-
7	-
8	-
9	-
10	-

CONNECTIVITY NOTES:

- IF COMMUNICATION WITH BUILDING MANAGEMENT SYSTEM (BMS) IS TO BE BACNET.
- THIS DEVICE IS DEFAULTED TO COMMUNICATE AS A SLAVE DEVICE.
- THIS DEVICE IS CONFIGURED AS IP.

NOTES:

ALL WIRING AND CABLING TO BE PROVIDED BY ELECTRICAL CONTRACTOR UNLESS STATED OTHERWISE

NOTES:

ALL FAN MOTORS MUST BE COMPATIBLE WITH VARIABLE FREQUENCY DRIVES (VFD'S). ALL MOTORS MUST BE CONNECTED TO THREE PHASE POWER. ELECTRONICALLY COMMUTATED MOTORS (ECM) ARE ALSO ACCEPTABLE IF SINGLE PHASE POWER IS TO BE USED. (24V POWER SUPPLY TO THE ECM IS BY OTHERS)

NOTES:

ALL VARIABLE FREQUENCY DRIVES (VFD'S) MUST BE INSTALLED WITHIN 150' OF THE EXHAUST FAN.

(FIG 1-1)

FAN CONFIGURATION DATA FOR M.A.R.V.E.L.

Exhaust Data:

EF Item #: _____ Voltage/Phase/Hertz: _____

EF HP: _____ ___ / ___ / ___

Hood Item#'s connected to this fan: _____

EF Item #: _____ Voltage/Phase/Hertz: _____

EF HP: _____ ___ / ___ / ___

Hood Item#'s connected to this fan: _____

EF Item #: _____ Voltage/Phase/Hertz: _____

EF HP: _____ ___ / ___ / ___

Hood Item#'s connected to this fan: _____

EF Item #: _____ Voltage/Phase/Hertz: _____

EF HP: _____ ___ / ___ / ___

Hood Item#'s connected to this fan: _____

Make Up Air Data:

Quantity of MUA "Zones": _____

Hood Item#'s located in Zone 1: _____

Hood Item#'s located in Zone 2: _____

NOTE: Above information must be completed in full prior to project being released for production. If more than four exhaust fans or two MUA zones are being used, please provide this data as well.

M.A.R.V.E.L. Standard Sequence of Operation

☐ M.A.R.V.E.L. I & Basic

Standard Sequence

Start/Run M.A.R.V.E.L.
- ON
- Idle
- Cooking or Active mode

Make up Air
- 0-10V Output

Fire system sequence
Standard override

☑ M.A.R.V.E.L. II

Standard Sequence

Same sequence as M.A.R.V.E.L. I and
- 4ED adjustment

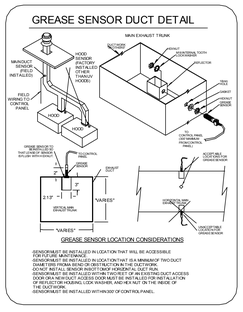
Make up air
- Single 0-10Vdc split signal

☐ M.A.R.V.E.L. Plus

Standard Sequence

Same sequence as M.A.R.V.E.L. II and
- Output to BMS 0-10V, split or whole
- Output to VAV Boxes

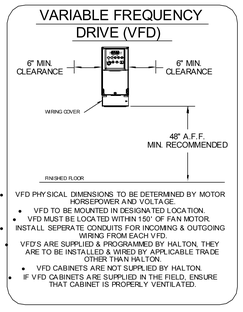
GREASE SENSOR DUCT DETAIL



GREASE SENSOR LOCATION CONSIDERATIONS

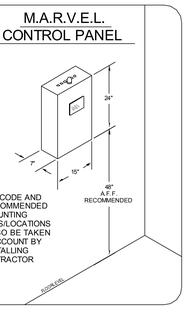
GENSORHUST BE INSTALLED IN LOCATION THAT WILL BE ACCESSIBLE FOR CLEANING AND MAINTENANCE
GENSORHUST BE INSTALLED IN LOCATION THAT IS A MINIMUM OF TWO DUCT DIAMETERS FROM A BEND OR OBSTRUCTION IN THE DUCTWORK
GENSORHUST BE INSTALLED IN A HORIZONTAL SECTION OF DUCTWORK
GENSORHUST BE INSTALLED WITHIN TWO FEET OR AN EXISTING DUCT ACCESS DOOR OR A NEW DUCT ACCESS DOOR MUST BE INSTALLED FOR INSTALLATION
GENSORHUST BE MOUNTING LOCK WASHERS, AND HEX NUT ON THE INSIDE OF THE DUCTWORK
GENSORHUST BE INSTALLED WITHIN 300' OF CONTROL PANEL.

VARIABLE FREQUENCY DRIVE (VFD)



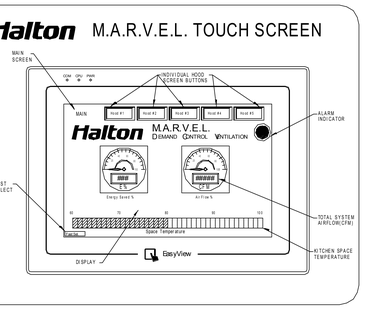
- VFD PHYSICAL DIMENSIONS TO BE DETERMINED BY MOTOR HORSEPOWER AND VOLTAGE.
- VFD TO BE MOUNTED IN DESIGNATED LOCATION.
- VFD MUST BE LOCATED WITHIN 150' OF FAN MOTOR.
- INSTALL SEPERATE CONDUITS FOR INCOMING & OUTGOING WIRING FROM EACH VFD.
- VFD'S ARE SUPPLIED & PROGRAMMED BY HALTON. THEY ARE TO BE INSTALLED & WIRED BY APPLICABLE TRADE OTHER THAN HALTON.
- VFD CABINETS ARE NOT SUPPLIED BY HALTON.
- IF VFD CABINETS ARE SUPPLIED IN THE FIELD, ENSURE THAT CABINET IS PROPERLY VENTILATED.

M.A.R.V.E.L. CONTROL PANEL



LOCAL CODE AND ADA RECOMMENDED MOUNTING POSITIONS/LOCATIONS MUST ALSO BE TAKEN INTO ACCOUNT BY INSTALLING CONTRACTOR

Halton M.A.R.V.E.L. TOUCH SCREEN



M.A.R.V.E.L. SYSTEM

M.A.R.V.E.L. EQUIPMENT CONNECTED LOADS

M.A.R.V.E.L. CONTROL PANEL= 10 AMPS EA.

M.A.R.V.E.L. PLC AT EACH HOOD SECTION= 4 AMPS EA. (MAXIMUM 3 M.A.R.V.E.L. HOOD PLC'S PER 15A CIRCUIT)

ALL CIRCUITS ARE NOT TO EXCEED 15 AMP

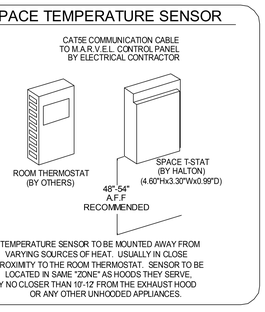
NOTES:

RELD WIRING (BY E.C.) - 120V - 12AWG MIN.-10AWG MAX.

RELD WIRING (BY E.C.) - 24V - 22AWG MIN.-16AWG MAX.

SPACE TEMPERATURE SENSOR

CATSE COMMUNICATION CABLE TO M.A.R.V.E.L. CONTROL PANEL BY ELECTRICAL CONTRACTOR



TEMPERATURE SENSOR TO BE MOUNTED AWAY FROM VARYING SOURCES OF HEAT. USUALLY IN CLOSE PROXIMITY TO THE ROOM THERMOSTAT. SENSOR TO BE LOCATED IN SAME "ZONE" AS HOODS THEY SERVE. BY NO CLOSER THAN 10'-12' FROM THE EXHAUST HOOD OR ANY OTHER UNHOODED APPLIANCES.

THIS DRAWING MUST BE CHECKED, SIGNED AND RETURNED TO THE APPROPRIATE FACTORY. PLEASE VERIFY THE FOLLOWING:

1. ALL DIMENSIONAL INFORMATION, MOUNTING POSITIONS
2. DUCT CLEARANCES
3. THE CORRECT TYPE OF COOKING EQUIPMENT.

NOTE TO APPROVER
ANY CHANGES IN COOKING EQUIPMENT SUCH AS INCREASED ENERGY INPUTS OR EQUIPMENT TYPES MAY REQUIRE A RECALCULATION OF EXHAUST AIRFLOW. ANY OF THESE CHANGES OCCUR, A RECALCULATION EXHAUST AIRFLOW MAY BE REQUIRED

☐ REVISE AND RESUBMIT

APPROVED FOR FABRICATION ☐ WITH CHANGES AS NOTED ☐ WITH NO CHANGES

APPROVED BY: _____ DATE: _____

MAIL APPROVED DRAWINGS TO APPROPRIATE FACTORY BELOW:

☐ HALTON CO. (CANADA) 1021 BREVIK PLACE MISSISSAUGA, ONT. L4W 3R7 (905) 624-0901

☒ HALTON CO. (USA) 101 INDUSTRIAL DRIVE SCOTTSVILLE, KY. 42164 (270) 237-5500

WEBSITE: www.halton.com

REV	REVISION DESCRIPTION	BY	DATE
1	HOOD CFMS	SKM	02.17.21
2	UPDATED HOODS	MM	01.10.22

PROJECT: DOHERTY HIGH SCHOOL
LOCATION: WORCESTER, MA
DRAWN BY: MAB
DATE: 06.16.20
SCALE: NOT TO SCALE
CONSULTANT: Coburn Guyette Foodservice Design

DRAWING TITLE: DEMAND CONTROL DETAILS

DRAWING No.: U20-521

REV. NO.: 2

SHEET NO.: 3 of 3

LPA|A

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Worcester MA 01605
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ARCHITECT'S STAMP

CONSULTANT

COLBURN GUYETTE
100 LEDGEWOOD PLACE STE 104
ROCKLAND, MA 02370
781-826-5522

CONSULTANT'S STAMP

OWNER

WORCESTER PUBLIC SCHOOLS

PROJECT

100% CONSTRUCTION DOCUMENTS, FINAL BID PACKAGE #4

Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

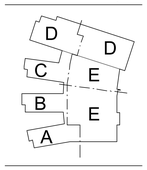
DRAWING TITLE

Foodservice Manufacturer Drawings

Locus Map

True North

Key Plan



REVISIONS

No.	Description	Date

FILE:

JOB NO: #1904

SCALE: 1 : 22

DWN. BY: JJL

CKD. BY: PJM

DATE: JANUARY 20, 2022

K6.3

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GENERAL NOTES

1. ALL WORK MUST BE INSPECTED AND FOUND ACCEPTABLE BY THE ENGINEER OF RECORD OR THE AUTHORITIES HAVING JURISDICTION. ANY WORK NOT CONFORMING WITH THE CONTRACT DOCUMENTS, APPROVED SHOP DRAWINGS AND APPROVED CALCULATIONS SHALL BE CORRECTED OR REPLACED AT NO EXTRA COST TO THE OWNER, BEFORE FINAL PAYMENT WILL BE RELEASED.
2. DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE NOT INTENDED TO SHOW EVERY DETAIL, OFFSET, ETC. REQUIRED FOR A COMPLETE INSTALLATION. THE CONTRACTOR SHALL INCLUDE IN HIS PRICE, ALL MATERIALS, LABOR, EQUIPMENT, RIGGING, SUB-CONTRACTED WORK, PERMITS, FEES, AND ALL OTHER EXPENSES REQUIRED TO PROVIDE COMPLETE AND OPERATING SYSTEMS.
3. LOCATIONS AND ROUTING OF EQUIPMENT AND DISTRIBUTION SYSTEMS ARE APPROXIMATE. EXACT LOCATIONS TO SECURE THE BEST RESULTS SHALL BE DETERMINED IN THE FIELD. COORDINATE WORK WITH OTHER TRADES AND BUILDING STRUCTURE TO AVOID CONFLICTS.
4. ALL WORK TO BE DONE IN ACCORDANCE WITH THE MOST RECENT PRINTING OF APPLICABLE NATIONAL, STATE, AND LOCAL CODES, AND RECOMMENDED PRACTICES.
5. ALL EQUIPMENT, PIPE, AND FITTINGS TO BE INSTALLED PER MANUFACTURERS INSTALLATION INSTRUCTIONS.
6. "PROVIDE" MEANS TO FURNISH AND NEATLY INSTALL IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, APPROVED SUBMITTALS, AND MANUFACTURERS REQUIREMENTS, ALL MATERIALS AND LABOR REQUIRED FOR A COMPLETE, OPERATING SYSTEM.
7. SOME CONTRACT REQUIREMENTS EXCEED MINIMUM CODE REQUIREMENTS. PRICE AND INSTALL WHAT IS SHOWN.

FIRE PROTECTION SCOPE SUMMARY

1. THIS IS A SCOPE SUMMARY ONLY. SEE SPECIFICATIONS FOR DETAILS.
2. NEW FLOW TEST, WITNESSED BY THE DESIGN ENGINEER-OF-RECORD AND / OR LOCAL FIRE DEPARTMENT..
3. NEW "SPRINKLER VALVE AND WATER-FLOW DETECTOR" DISPLAY PANELS – REQUIRED BY 780 CMR SECTION 911 FOR FIRE COMMAND CENTERS IN HIGH-RISE BUILDINGS.
4. PREPARE "FIRE PROTECTION SHOP DRAWINGS" AND HYDRAULIC CALCULATIONS, STAMPED BY A MASS. PROFESSIONAL REGISTERED ENGINEER.
5. COMPLETE AND OPERATING STANDPIPE SYSTEM AND ALL REQUIRED ACCESSORIES PER NFPA 14, 2013 EDITION, WITH 4 COMBINATION SPRINKLER STANDPIPE RISERS, 4 STANDPIPE-ONLY RISERS, AND ALL INTER-CONNECTING PIPING, RISER ISOLATION VALVES, ROOF HYDRANTS / HOSE VALVES, AND DRAINS. ALL HOSE VALVES SHALL BE CENTERED IN 23"X23" RECESSED VALVE CABINETS, PROVIDED BY THE G.C. ANGLE VALVE OUTLET DOWN 30 DEGREES. ALL EXPOSED PIPE TO BE GALVANIZED.
6. 2 NEW, 6", FIRE DEPT. CONNECTIONS WITH 4, 2-1/2" INLETS EACH, APPROVED BY THE WORCESTER FIRE DEPT. PIPE FDC BALL DRIPS TO THE EXTERIOR OF THE BUILDING. TERMINATING WITH A 45 DOWN FDCS SHALL INCLUDE ALL INTER-CONNECTING PIPING REQUIRED TO SERVE ALL RISERS, PLUS 2 STAGE HOSE STATIONS.
   A. PROVIDE A SUPERVISED CONTROL VALVE AND FLOW SWITCH ON THE LINE TO THE STAGE HOSE STATIONS.
   B. NEW ELECTRIC BELL MOUNTED ABOVE EACH FDC (PER THE ARCHITECTURAL ELEVATIONS). SHALL ACTIVATE UPON ANY FIRE ALARM OR SPRINKLER WATER-FLOW.
7. PROVIDE TEMPORARY STANDPIPE HOSE STATIONS ON EACH FLOOR AS THE BUILDING IS ERECTED PER NPFA 241. PERMANENT-STANDPIPE RISERS MAY BE USED AS THE TEMPORARY STANDPIPE. MAINTAIN TEMPORARY HOSE STATIONS IN SERVICE UNTIL THE STANDPIPE-SPRINKLER SYSTEM IS SUBSTANTIALLY COMPLETE.
8. COMPLETE AND OPERATING WET SPRINKLER SYSTEM (MOST OF BUILDING) AND DRY SPRINKLER SYSTEM (UNDER-BUILDING PARKING GARAGE) PER NFPA 13 2013 EDITION, THE 10TH EDITION STATE BUILDING CODE, LOCAL ORDINANCES, AND THE PRE-APPROVED FIRE PROTECTION NARRATIVE.
9. NEW ZONE-CONTROL-VALVE (ZCV) STATIONS, EACH WITH CHECK VALVE, PRESSURE-RELIEF VALVE, CONTROL VALVE. SUPERVISED TAMPER SWITCH, SUPERVISED FLOW SWITCH, AND VALVED PRESSURE GAGES LOCATED ON EACH FLOOR FOR ALL SPRINKLER / STANDPIPE RISERS SERVING MORE THAN 1 FLOOR.
10. COMPLETE AND OPERATING CLEAN-AGENT FIRE SUPPRESSION SYSTEM FOR THE 563 SQFT IT SERVER ROOM, PER NFPA 2001.
11. SUPERVISE THE INSTALLATION AND PRESSURE TESTING OF ALL UNDERGROUND WATER PIPING AND VALVES DEDICATED TO FIRE PROTECTION SERVICE. PROVIDE A COMPLETED, NFPA MATERIALS AND TEST CERTIFICATE FOR THE UNDERGROUND FP-ONLY PIPING.
12. THE FIRE PROTECTION TRADE-CONTRACTOR'S INSTALLATION SCOPE RESPONSIBILITY SHALL START AT A BLANK FLANGE, INSIDE THE FP-SERVICE ROOM, AT THE TERMINATION OF THE SITE-CONTRACTOR'S NEW 8" FP WATER ENTRANCE..
13. NEW 8" BACKFLOW PREVENTOR. BACKFLOW TO INCLUDE FULL-PORT, LINE-SIZE, INDICATING CONTROL VALVES ON EITHER SIDE AND A VALVED PRESSURE GAUGE ON THE CITY SIDE.
14. APPROVED SEISMIC SEPARATION ASSEMBLY PROVIDING 1" OF MOVEMENT IN ALL DIRECTIONS, WHEREVER FP OR DRAIN PIPING CROSSES A BUILDING SEISMIC SEPARATION JOINT. PROVIDE A 4-WAY BRACE WITHIN 6', ON BOTH SIDES OF EACH SPRINKLER SEISMIC SEPARATION.
15. MAIN DRAIN PIPING (SIZE PER NFPA) AND AUXILIARY DRAINS PER NFPA 13 FOR COMPLETE DRAINING OF ALL NEW PIPING. PIPE MAIN DRAINS TO THE EXTERIOR OF THE BUILDING AS SHOWN. ALTERNATE DRAIN TERMINATIONS PROPOSED BY THE CONTRACTOR MUST BE EXPLICITLY APPROVED IN WRITING BY THE ARCHITECT AND THE ENGINEER OF RECORD. AUXILIARY DRAINS SHALL BE CLEARLY LABELED IN THE FIELD, AND NOTED CLEARLY ON THE AS-BUILT DRAWINGS – SEE RECORD DRAWING REQUIREMENTS.
16. SPRINKLER HEADS PER THE SPRINKLER LEGEND. INCLUDE SPRINKLER GUARDS WHERE SPECIFIED.
17. PIPING MAINS, CROSS MAINS, AND BRANCHES, FITTINGS AND VALVES, FLEXIBLE CONNECTORS, AND EXPANSION FITTINGS. INCLUDE SWING ARMS TO CENTER SPRINKLERS IN TILED CEILINGS.
18. NEW INSPECTOR'S TEST-TEES – ONE AT EACH ZCV STATION.
19. NEW IDENTIFICATION SIGNS AT ALL NEW CONTROL VALVES, FIRE DEPT CONNECTIONS, STANDPIPE CONNECTIONS, TEST & DRAINS, AUXILIARY DRAIN VALVES, AND SPRINKLER VALVE ROOM. PIPE LABELS AND VALVE TAGS AS SPECIFIED. INSTALL PIPE LABELS DURING ROUGH-IN..
20. HANGERS AND SUPPORTS, SLEEVES, AND ESCUTCHEONS, INCLUDING MISCELLANEOUS STEEL SUPPORTS. HANGER SPACING PER THE DRAWING SCHEDULE, WHICH PER THE STRUCTURAL ENGINEER'S DIRECTION IS MORE STRINGENT THAN NFPA 13. SEE SECTION 3.8.J FOR ADDITIONAL STRUCTURAL LIMITATIONS APPLIED TO HANGING FROM CONCRETE-FILLED DECKS.
21. ACCESS PANELS FOR ANY DEVICES OR EQUIPMENT INSTALLED IN OTHER-WISE INACCESSIBLE LOCATIONS
22. SEISMIC BRACING ON ALL RISERS, MAINS, CROSS MAINS, AND ALL BRANCHES 2-1/2" AND OVER, INSTALLED PER THE DRAWING DETAILS AND NFPA 13, ALL SEISMIC BRACES SHALL ATTACH TO STEEL STRUCTURE – ATTACHMENT TO DECKS IS PROHIBITED. DRY DRAIN PIPE REQUIRES NO BRACING. SEISMIC RESTRAINT ON ALL BRANCHES 2" AND UNDER, INSTALLED PER THE DRAWING DETAILS AND NFPA 13..
   A. ALL BRACES AND RESTRAINTS MUST BE INSTALLED PRIOR TO CEILING INSTALLATION IN THAT AREA.

1. DRILLING FOR INSTALLATION OF HANGER AND SWAY-BRACING INSERTS.
2. CORE DRILLING AND CUTTING AND PATCHING FOR THE WORK OF THIS SECTION PER SECTION 01 73 00
3. 6 SPARE SPRINKLERS OF EACH TYPE, ALONG WITH SPRINKLER WRENCHES IN 1 OR MORE LABELED SPARE SPRINKLER CABINET(S) LOCATED IN THE WATER ROOM. PROVIDE ALSO – 10, ADDITIONAL SPRINKLERS ON 1" SWING ARMS WITH 1 HANGER, NOT SHOWN, TO BE USED IN UNSPECIFIED LOCATIONS AS REQUIRED.
4. SHOP DRAWINGS AND SUBMITTALS, COORDINATION AND RECORD DRAWINGS. SEE DIVISION 1 FOR COORDINATION DRAWING REQUIREMENTS.
5. HOISTING EQUIPMENT: THIS TRADE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN IN SAFE AND ADEQUATE CONDITION ALL MECHANICAL HOISTING EQUIPMENT, NECESSARY FOR THE PROPER EXECUTION OF THE WORK OF THIS SECTION, AS REFERENCED UNDER SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS.
6. STAGING, PLANKING AND SCAFFOLDING NECESSARY FOR THE PROPER EXECUTION OF THE WORK IN THIS SECTION.
7. FIRE-STOPPING OF ALL RATED WALL, FLOOR, AND CEILING PENETRATIONS USED BY THE FIRE PROTECTION TRADE-CONTRACTOR FOR ANY WORK COMPLETED UNDER THIS SECTION. SEE SECTION 07 84 00 FIRE-STOPPING FOR REQUIRED METHODS AND PROCEDURES.
8. WALLS REQUIRING SOUND-SEAL, NOTED WITH STC-RATING, INCLUDING BUT NOT LIMITED TO: CLASSROOMS, OFFICES, MEDIA CENTER, CAFETERIA, GYMNASIUM, MUSIC ROOMS, AND BATHROOMS (FOR SOUND CONTROL), AND THRU EXTERIOR WALLS (FOR WATER AND AIR SEAL) TO BE SEALED WITH NON-COMBUSTIBLE, WATER-PROOF MATERIAL, AS SPECIFIED IN SECTION 09 29 00 GYPSUM BOARD, BOTH SIDES OF ALL PENETRATIONS
9. SYSTEM FLUSHING, AND 2 HOUR HYDROSTATIC AND 24 HOUR AIR PRESSURE TESTS ON ALL NEW PIPING, PER NFPA 13. TESTS SHALL BE WITNESSED BY THE ENGINEER OF RECORD, OWNER'S PROJECT MANAGER, OR WORCESTER FIRE DEPT. REPAIR ALL DEFECTS.
10. SYSTEM AND EQUIPMENT START-UPS, AND COMPLETED NFPA 13 TEST AND ACCEPTANCE REPORTS . REPAIR ALL DEFECTS.
11. WORK WITH FIRE ALARM TRADE CONTRACTOR IN THE TESTING OF ALL FP FLOW SWITCHES, PRESSURE SWITCHES, FLOW ALARMS AND TAMPER SWITCHES, AND CLEAN AGENT PANEL, CONTROLS, AND DEVICES. SUBMIT SIGNED OFF TEST REPORT – SEE LIST OF DEVICES REQUIRING TESTING UNDER SECTION 3.17.
    A. SUCCESSFUL F/A TESTING OF ALL FP DEVICES LISTED IN SECTION 3.17 IS A PRE-REQUISITE TO FP SUBSTANTIAL COMPLETION. F/A TESTING OF ALL FP DEVICES LISTED IN SECTION 3.17 SHALL BE REPEATED 1 YEAR AFTER SUBSTANTIAL COMPLETION. SUCCESSFUL TESTING IS A PRE-REQUISITE TO ENDING THE WARRANTY PERIOD.
12. PULL ALL PERMITS, PAY ALL FEES AND OBTAIN REQUIRED INSPECTIONS. WORCESTER BUILDING DEPARTMENT PERMIT APPLICATION FEES HAVE BEEN WAIVED BY THE CITY.
13. CLOSE-OUT DOCUMENTS AS SPECIFIED.

FIRE PROTECTION NOTES

1. SPRINKLER LOCATIONS IN CEILINGS ON THESE PLANS HAVE BEEN COORDINATED BY THE ARCHITECT FOR AESTHETICS, AND TO AVOID CONFLICTS WITH OTHER TRADES. LOCATIONS SHALL NOT BE CHANGED WITHOUT WRITTEN APPROVAL OF BOTH THE FP ENGINEER OF RECORD, AND THE ARCHITECT. IF LAYOUT SHOWN MUST BE MODIFIED TO PROVIDE PROPER SPRINKLER COVERAGE PER CODE, NOTIFY THE ENGINEER IMMEDIATELY IN WRITING.
2. ALL EQUIPMENT AND MATERIALS USED SHALL BE LISTED FOR THE USE REQUIRED AND FOR A MINIMUM OF 175 PSI.
3. ALL SPRINKLERS IN SQUARE-TILED CEILINGS SHALL BE CENTERED IN THE TILE +/-.25". SPRINKLERS IN RECTANGULAR-TILES SHALL BE CENTERED AS SHOWN.
4. COORDINATE EXACT PIPING LOCATIONS AND HEIGHTS WITH BUILDING STRUCTURE, ARCHITECTURE AND ALL OTHER TRADES. VERIFY ALL DIMENSIONS IN THE FIELD.
5. RUN ALL MAINS, CROSS MAINS AND BRANCH PIPING AS HIGH AS POSSIBLE - MINIMUM 6" ABOVE THE TOP OF CEILING GRIDS.
6. ALL PIPING SHALL BE A53 BLACK STEEL. 2" AND UNDER SHALL BE SCHEDULE 40, WITH THREADED OR GROOVED JOINTS. PIPING 2-1/2" AND OVER MAY BE SCHEDULE 10 OR 40 WITH ROLL-GROOVED JOINTS. NO CUT-GROOVE PIPE PERMITTED.
7. ALL RUN-OUTS AND DROPS TO INDIVIDUAL SPRINKLERS ARE 1" UNLESS NOTED OTHERWISE. BRANCHES AND RUN-OUTS SHALL BE TAKEN FROM THE SIDE OR TOP OF THE CM OR BRANCH. BOTTOM OUTLETS PERMITTED IF THERE IS LESS THAN 6" SPACE ON THE SIDE.
8. SLEEVE ALL PIPE PENETRATIONS THRU MASONRY WALLS. WHERE PIPE PASSES THROUGH BUILDING MASONRY OR STEEL STRUCTURE, ADJUST PIPE POSITION SO IT IS NOT IN CONTACT WITH THE SLEEVE OR STRUCTURE.
   8.1. THE HOLE DRILLED SHALL BE MINIMUM 2" GREATER THAN THE PIPE O.D. FOR PIPE UNDER 4", AND 4" GREATER THAN PIPE SIZE FOR PIPE 4" OR LARGER. OR
   8.2. FLEXIBLE COUPLINGS SHALL BE PROVIDED WITHIN 1' OF BOTH SIDES OF THE STRUCTURE
9. GROOVED PIPE COUPLINGS LISTED AS "FLEXIBLE" COUPLINGS SHALL BE PROVIDED:
   9.1. AT THE TOP AND BOTTOM OF EACH RISER
   9.2. ABOVE AND BELOW ALL FLOOR PENETRATIONS,
   9.3. AND WITHIN 24" OF BUILDING EXPANSION JOINTS (ONE SIDE ONLY).
   9.4. ALL OTHER LOCATIONS REQUIRED BY NFPA 13.
10. PROVIDE 4-WAY RESTRAINTS ON ALL SPRIGS AND DROPS OVER 8' (TOTAL DEVELOPED LENGTH).
11. GROOVED-PIPE COUPLINGS NOT SPECIFIED AS "FLEXIBLE" SHALL BE "RIGID" TYPE.
12. SPRINKLER TEMPERATURE RATINGS SHALL BE PER NFPA 13: INCLUDING (BUT NOT LIMITED TO):
   12.1. INTERMEDIATE TEMPERATURE THROUGH-OUT, EXCEPT WHERE A HIGHER TEMPERATURE IS REQUIRED BY CODE.
   12.2. HIGH TEMPERATURE: WITHIN 7 FT OF HEATING EQUIPMENT PRESSURE RELIEF VALVES; WITHIN 7 FT OF UNIT HEATER DISCHARGE; AND OVER EXTRA HAZARD SPACES.
13. PROVIDE SPRINKLER GUARDS FOR ALL UPRIGHTS IN THE GYM, MECHANICAL SPACES, IN STORAGE ROOMS, UNDER STAIRS, AND OTHER LOCATIONS WHERE EXPOSED AND UNDER 12' .
14. ALL C-CLAMP TYPE FASTENERS FOR HANGERS OR RESTRAINTS SHALL HAVE A RETAINING STRAP. C-CLAMP TYPE FASTENERS FOR SEISMIC RESTRAINT, SHALL BE PART OF A LISTED SYSTEM.
15. ALL MAINS AND CROSS MAINS (REGARDLESS OF SIZE) SHALL BE SEISMICALLY BRACED LONGITUDINALLY 40' FROM THE END-OF-LINE, AND MAX. 80' O.C. THERE-AFTER. ALL MAINS AND CROSS MAINS AND AND ALL BRANCH PIPING 2-1/2" OR LARGER SHALL BE SEISMICALLY BRACED LATERALLY 6' FROM THE EOL, AND MAX. 40' OC. THERE-AFTER. PROVIDE ADDITIONAL BRACING IN LOCATIONS REQUIRED BY NFPA 13, INCLUDING BUT NOT LIMITED TO:
   15.1. 4-WAY BRACE WITHIN 6' AND ON BOTH SIDES OF SEISMIC SEPARATION ASSEMBLIES.
   15.2. WHERE BRACE LOADS WOULD OTHERWISE EXCEED THE MAX. PERMITTED LOAD PER TABLE 9.3.5.3.2 a THRU e.
16. BRANCHES WITH 2 OR MORE SPRINKLERS SHALL BE RESTRAINED VERTICALLY AND LATERALLY WITHIN 2' OF THE END HANGER INTERMEDIATE RESTRAINTS SHALL BE PROVIDED PER NFPA 13.
17. DRAINS AND TEST CONNECTIONS SHALL BE INSTALLED TO PERMIT FULL FLOW WITHOUT CAUSING WATER DAMAGE.
   17.1. DRAINS 2" AND OVER SHALL BE HARD-PIPED TO THE BUILDING EXTERIOR AS SHOWN. PIPE THRU WALL SHALL BE GALVANIZED, AIR AND WATER SEAL PIPE TO SLEEVE (OR CORED HOLE), BOTH SIDES OF WALL.
   17.2. AUXILIARY DRAINS FOR LINES UNDER 5 GALLONS WATER CONTENT MAY BE A PLUGGED TEE, OR SINGLE-PENDANT PIPED OFF THE BOTTOM OF THE LINE TO BE DRAINED.
   17.3. AUXILIARY DRAINS FOR LINES OVER 5 GALLONS WATER CONTENT SHALL BE HOSE END DRAINS, WITH CAP AND CHAIN, SIZE PER NFPA 13.
19. ELECTRICAL PANELS AND DEVICES ARE NOT SHOWN ON THESE DRAWINGS. COORDINATE PIPE ROUTING TO AVOID RUNNING DIRECTLY OVER ANY ELECTRICAL POWER, TELECOM, OR CONTROL PANELS.
20. ALL DETAILS (VALVING, SUPERVISION, ETC) ARE SUBJECT TO THE APPROVAL OF THE AUTHORITY HAVING JURISDICTION (AHJ).
21. ALL PIPE SHALL BE HYDROSTATICALLY TESTED AT 200 PSI. ALL HYDROSTATIC TEST SHALL BE WITNESSED BY THE ENGINEER-OF-RECORD OR AUTHORITY HAVING JURISDICTION.
22. PROVIDE ALL CODE-REQUIRED, DURABLE, PERMANENTLY INSTALLED, AHJ APPROVED SIGNS INCLUDING (NOT LIMITED TO):
   22.1. "BUILDING SPRINKLER CONTROL VALVES" IN 2-1/2" HIGH LETTERS ON ALL VALVE-ROOM DOORS.
   22.2. "SPRINKLER-STANDPIPE" IN 1" HIGH LETTERS ON THE FIRE DEPT. CONNECTION(S).
   22.3. "TEST AND DRAIN" IN 2" HIGH LETTERS ON ALL TEST AND DRAINS. PROVIDE COLOR CODED MAP SHOWING DRAIN SERVICE AREAS.
   22.4. "SPRINKLER CONTROL VALVE" IN 2" HIGH LETTERS - ALL VALVES. PROVIDE COLOR CODED MAP SHOWING VALVE CONTROL AREAS.
   22.5. "DESIGN HYDRAULICS SUMMARY: WITH FLOW TEST GPM AND PRESSURES, RISER NUMBER, AND DESIGN GPM AND PRESSURES FOR EACH CALCULATED AREA.
   22.6. NFPA 13 "GENERAL INFORMATION" SIGN
   22.7. LIST OF SPARE SPRINKLERS AND AREA USED IN THE SPARE SPRINKLER CABINET
   22.8. PROVIDE AN 8-1/2x11, LAMINATED, COLOR-CODED, CLEARLY LABELED FLOOR PLAN AT EACH CONTROL VALVE, SHOWING THE SERVICE AREA OF EACH VALVE AND AUX. DRAIN IN THAT ZONE.

MASTER FP LEGEND

SYMBOL	DESCRIPTION
	FLAT-PLATE, CONCEALED PENDANT, STANDARD SPRAY, QR, K5.6, 200 F. VK462 OR EQUAL.
K11.2 EC LT QR20	FLAT-PLATE, CONCEALED PENDANT, LIGHT HAZARD EXTENDED COVERAGE QR UP TO 20'x20', K11.2 200F VK636 OR EQUAL.
K11.2 EC OH QR20	FLAT-PLATE, CONCEALED PENDANT, ORDINARY HAZARD EXTENDED COVERAGE. QR UP TO 20'X20' K11.2, 200F, VK538 OR EQUAL.
	SEMI-RECESSED PENDANT, STORAGE-DENSITY, SR, K11.2, 200F VK536 OR EQUAL
K11.2 EC OH SR 286 F	SEMI-RECESSED, EC-OH PENDANT, SR, K11.2 286 F, V1113 OR EQUAL.
	FUSIBLE LINK UPRIGHT - STANDARD SPRAY, QR, K5.6, 200 F VK301 OR EQUAL.
K8.0	FUSIBLE LINK UPRIGHT, SS, QR, K8.0, 200F, VK351 OR EQUAL - 3/4" THREAD FOR EH WHERE MIN. K8 IS REQUIRED
K11.2 EC OH QR14	FUSIBLE LINK UPRIGHT - EXTENDED COVERAGE - QR UP TO 14'x14' OR SR UP TO 20'x20', K11.2 200 F OH LISTED, VK535 OR EQUAL.
K11.2	DRY SIDEWALL - SR, K 11.2, 155 F. OH LISTED. TYCO DS-3 (TY5339) OR EQUAL.
	DRY SIDEWALL - ADJUSTABLE, RECESSED, QR, K 5.6, 155 F BULB-STYLE, VK182 OR EQUAL.
	CONCEALED, HORIZONTAL SIDEWALL - QR, K5.6, 220 F LINK-STYLE, VK481 OR EQUAL.
	FLAT - PLATE CONCEALED, DRY PENDANT - QR, 200 F, VICTAULIC V3302 OR EQUAL
	BACK-TO-BACK ATTIC SPRINKLER LISTED FOR UP TO 12:12 SLOPE. 200 F., K5.6 TYCO TYBB-3 - TY3182 OR EQUAL.
	FP WET SYSTEM PIPING - LABELED WITH SERVICE AND SIZE. INCLUDES: STANDPIPE (STDP-SIZE"), OR SPRINKLER (SPR-WET-SIZE").
	FP DRY SYSTEM PIPING - WITH SERVICE AND SIZE. (SPR-DRY - SIZE")
	FP DRAIN PIPING - DRAIN - SIZE"
	NEW UNDERGROUND PIPING BY SITE CONTRACTOR. LABELED UNDERGROUND FIRE SERVICE (UGFS-SIZE"),
	AUXILIARY DRAIN
	SINGLE OR DOUBLE BRANCH RISER NIPPLE.
C	RISER ALARM CHECK VALVE
	SUPERVISED, INDICATING CONTROL VALVE
	FLOW SWITCH
	VALVED PRESSURE GAGE
	DOUBLE-CHECK VALVE BACKFLOW PREVENTOR
	FD CONNECTION CHECK VALVE WITH BALL DRIP
	TEST AND DRAIN
	FIRE DEPT. CONNECTION -4" STORZ REQUIRED
B	WATER-FLOW BELL - WIRED BY DIV. 26
	FLEXIBLE COUPLING
ZCV Rx-y	ZONE CONTROL VALVE STATION, PER SHEET FP1.2 DETAIL. WITH RISER # (X) AND FLOOR # (Y)
3	SHEET-KEYNOTE REPLACES FREQUENTLY REPEATED TEXT. SEE KEYNOTE LEGEND THIS SHEET.
REF 1.2	HYDRAULIC CALCULATION REFERENCE NUMBER
N1	HYDRAULIC CALCULATION SPRINKLER "NOZZLE" NUMBER
R7	KEY PLAN STANDPIPE ONLY SYMBOL WITH RISER NUMBER
R8	KEYPLAN COMBINATION SPRINKLER-STANDPIPE RISER WITH RISER NUMBER.

FIRE PROTECTION KEYNOTES

1	NO SPRINKLERS REQUIRED - ELEV MACHINE ROOM, ELEVATOR, OR UNDER NON-COMBUSTIBLE CANOPY
2	200F CONCEALED DRY PENDANT IN WALK-IN COOLER / FREEZER
3	HEAD CAGES REQUIRED FOR ALL SPRINKLERS IN THIS AREA
4	ORDINARY HAZARD AREA. (SPACES WITHOUT A KEYNOTE 4 OR 5 ARE LIGHT)
5	EXTRA HAZARD AREA. (SPACES WITHOUT A KEYNOTE 4 OR 5 ARE LIGHT)
6	PROVIDE APPROVED SEISMIC SEPARATION ASSEMBLY CAPABLE OF 1" MOVEMENT IN ALL DIRECTIONS.
7	NFPA "SMALL ROOM" - COVERAGE AREA = ROOM AREA / # OF SPRINKLERS
8	FIRE-STOP RATED ASSEMBLY WITH LISTED, SUBMITTED, AND APPROVED FIRE-STOP MATERIALS
9	NEW DROP NIPPLE AND UPRIGHT UNDER OBJECTS OVER 4' WIDE
10	DO NOT RUN FP PIPING OVER ANY TELECOM, OR ELECTRICAL PANELS OR EQUIPMENT. PROVIDE NFPA CLEARANCE FROM ALL SURFACE-MOUNTED LIGHTS. MAINTAIN CLEARANCES PER NFPA 70 AND APPLICABLE CODE.
11	EXTENDED COVERAGE SIDEWALL SPRINKLERS, LISTED FOR SPRAY DOWN SLOPE - PROTECTING UNDER-BLEACHER AREA.
12	PROVIDE FLEXIBLE COUPLING ON BOTH SIDES OF STEEL BEAM PENETRATION. HOLE BY METAL FABRICATIONS.

FP UNDER BLEACHERS NOTES:

1. FP LAYOUT SHALL NOT INTERFERE WITH THE BLEACHERS FULLY OPENING OR CLOSING.
2. THE DESIGN SHOWN IS CONTINGENT UPON LOCAL AUTHORITY HAVING JURISDICTION (AHJ) APPROVAL.
3. SPRINKLER SHOWN IN UNDER BLEACHER LAYOUT HAS LISTING LIMITATIONS THAT REQUIRE AHJ APPROVAL:
   3.1. SIDEWALLS ARE LISTED FOR USE UNDER (HORIZONTAL OR SLOPED) SMOOTH FLAT CEILINGS. BLEACHERS ARE NEITHER SMOOTH NOR FLAT.
   3.2. THE VIKING VK605 IS LISTED FOR USE UNDER SLOPED CEILINGS UP TO 4:12 SLOPE. BLEACHER SLOPE IS 5:12.
   3.3. THE VIKING VK605 MAXIMUM LISTED THROW IS 20 FT. THROW REQUIRED FOR 100% COVERAGE IS 21+ FT.

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Worcester Public Schools

PROJECT

100% CD FINAL BID PACKAGE #4

Doherty Memorial High School

Highland Street, Worcester, MA. 01600

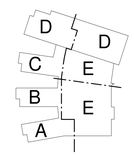
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Fire Protection, Legend, Scope, and Notes

Locus Map

True North

Key Plan



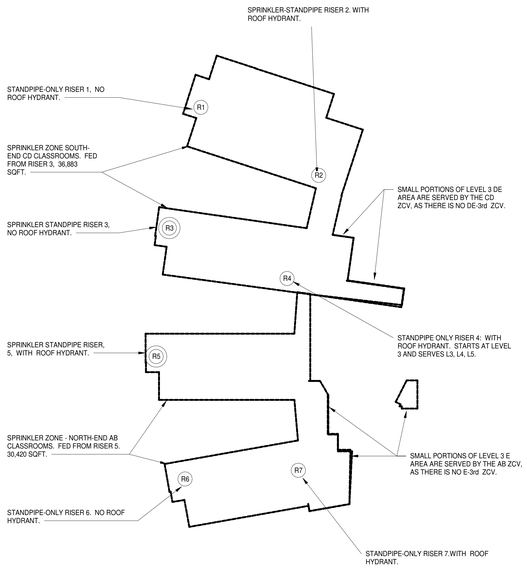
REVISIONS

No.	Description	Date

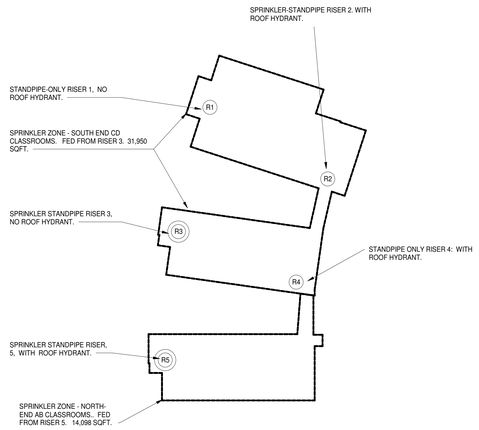
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JOB NO:	#1904
SCALE:	1/8" = 1'-0"
DWN. BY:	Author
CKD. BY:	Checker
DATE:	January 20, 2022

FP-1.0

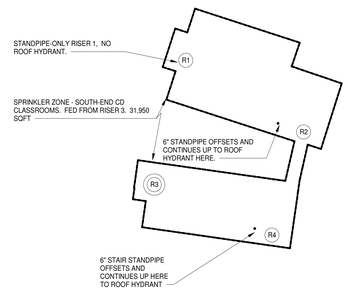
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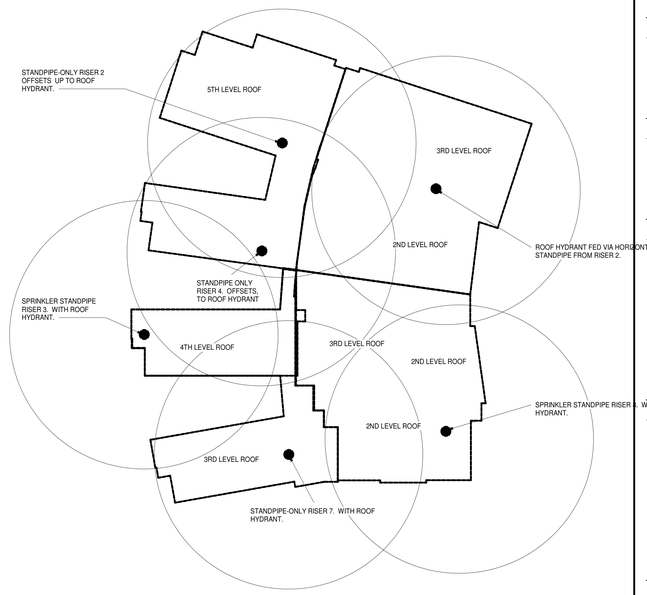
THIRD LEVEL



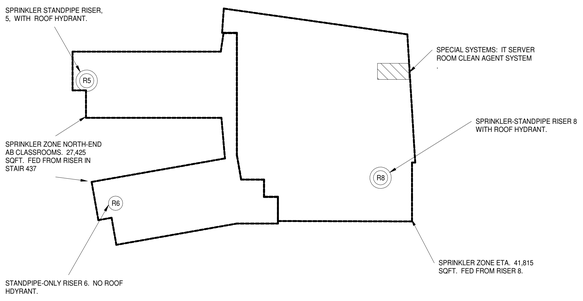
FOURTH LEVEL



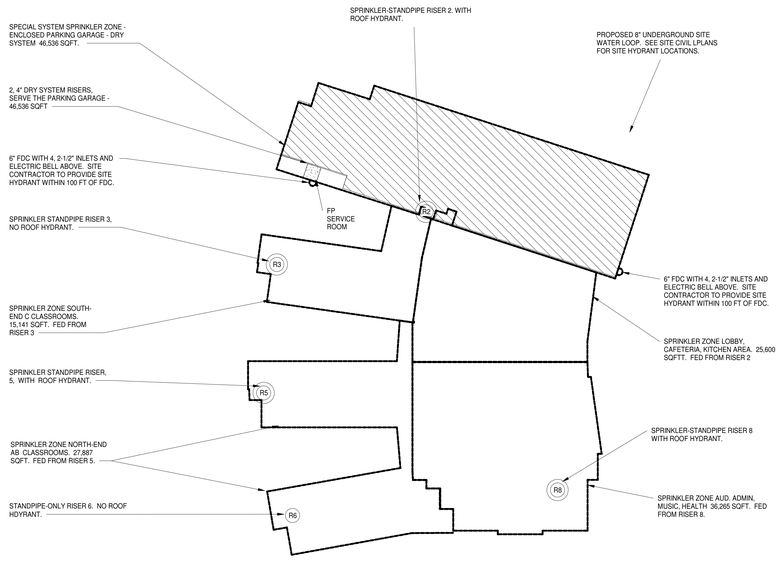
FIFTH LEVEL



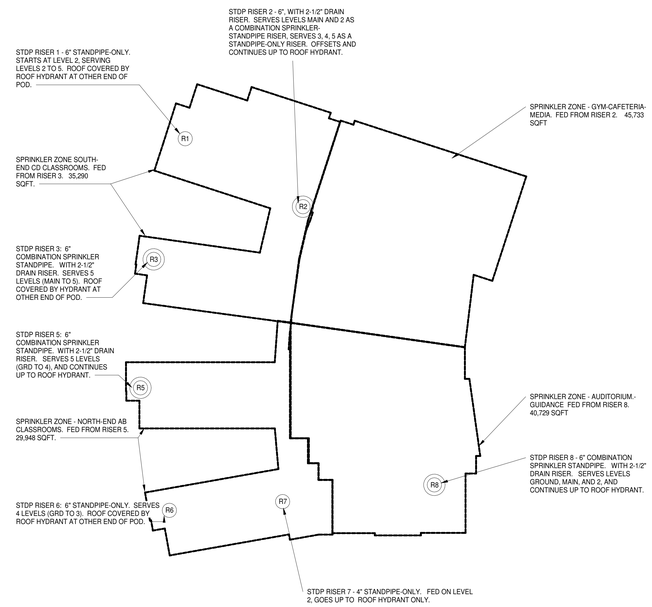
ROOF LEVEL WITH 6 HYDRANTS & 150' RADIUS COVERAGE CIRCLES



GROUND LEVEL



MAIN LEVEL



SECOND LEVEL

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PROJECT

100% CD FINAL BID PACKAGE #4

Doherty Memorial High School

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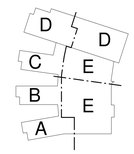
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Fire Protection Key Plan

Locus Map

True North

Key Plan



REVISIONS

No.	Description	Date

FILE:	DoHS FP 100% CD 1-17-22
JOB NO:	#1904
SCALE:	1" = 60'-0"
DWN. BY:	LKB
CKD. BY:	LKB
DATE:	January 20, 2022

FP-1.1

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PROVIDE ADDITIONAL SPRINKLERS AS NECESSARY IN ORDER TO COORDINATE WITH ANY AND ALL OBSTRUCTIONS. SEE TABLE BELOW FOR SOME COMMON CLEARANCES REQUIRED FOR STANDARD SPRAY SPRINKLERS.

REQUIRED OBSTRUCTOIN CLEARANCES			
STANDARD SPRAY SPRINKLERS MAXIMUM HEIGHT OF SPRINKLER DEFLECTOR ABOVE BOTTOM OF OBSTRUCTION	HORIZONTAL DISTANCE FROM SIDE OF SOLID, CONTINUOUS, OBSTRUCTION LOCATED TO THE SIDE OF THE SPRINKLER. SEE LAST COLUMN FOR SOFFITT EXCEPTIONS	EXTENDED COVERAGE PENDANT AND UPRIGHT SPRINKLERS MAXIMUM HEIGHT OF SPRINKLER DEFLECTOR ABOVE BOTTOM OF OBSTRUCTION	STANDARD SPRAY AND EXTENDED COVERAGE PENDANT AND UPRIGHT SPRINKLERS HORIZONTAL DISTANCE FROM SIDE OF CEILING-SOFFITT.
0'-0"	UP TO 1'	0"	SOFFITTS LESS THAN 24" DEEP (FROM WALL TO FRONT OF SOFFITT),REQUIRE NO ADDITIONAL SPRINKLERS IF CEILING SPRINKLER IS 18" MIN. ABOVE BOTTOM OF SOFFIT.
2-1/2"	1' TO 1'6"	0"	
3-1/2"	1'6" TO 2'	1"	
5-1/2"	2' TO 2'6"	1"	SOFFITS LESS THAN 30" DEEP (FROM WALL TO FRONT OF SOFFIT) MUST HAVE CLEARANCE "A" FROM SPRINKLER TO FRONT OF SOFFIT. IF D = SOFFIT DEPTH, AND B = HEIGHT OF SPRINKLER ABOVE BOTTOM OF SOFFIT: ALL MEASUREMENTS IN INCHES: A => (D - 8) + B
7-1/2"	2'-6" TO 3'	1"	
9-1/2"	3' TO 3'6"	3"	
12"	3'-6" TO 4'	3"	
14"	4' TO 4'6"	5"	WHERE THE VERTICAL DROP FROM CEILING TO BOTTOM OF SOFFIT EXCEEDS 3', THE CEILING AND SOFFIT SHALL BE COVERED AS IF THERE IS A WALL AT THE EDGE OF THE SOFFIT.
16-1/2"	4'-6" TO 5'	7"	
18"	5' TO 5'6"	7"	
20"	5'6" TO 6'	7"	
24"	6' TO 6'6"	9"	
30"	6'6" TO 7'	11"	
35"	7' TO 7'6"	14"	
N/A	7'6" TO 8'	14"	
N/A	8' TO 8'6"	15"	
N/A	8'6" TO 9'	17"	
N/A	9' TO 9'6"	19"	
N/A	9'6" TO 10'	21"	
OVER 18"	PROVIDE ADDITIONAL SPRINKLER UNDER OBSTRUCTIONS OVER 4' WIDE	14"	
CLEARANCE FROM NON-CONTINUOUS OBSTRUCTIONS (OBSTRUCTING A SINGLE SPRINKLER ONLY - SUCH AS BAR JOIST WEB, LIGHT FIXTURE, HVAC UNIT, ETC)	DISTANCE FROM SPRINKLER DEFLECTOR TO CLOSEST POINT OF NON-SOLID OBSTRUCTIONS - 3 TIMES THE MAXIMUM DIMENSION OF THE OBSTRUCTION, WITH A MAXIMUM SEPARATION OF 24" REQUIRED.	DISTANCE FROM SPRINKLER DEFLECTOR TO CLOSEST POINT OF NON-SOLID OBSTRUCTIONS - 4 TIMES THE MAXIMUM DIMENSION OF THE OBSTRUCTION, WITH A MAXIMUM SEPARATION OF 36" REQUIRED.	

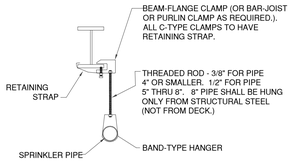
NOTE: REFER TO NFPA 13 FOR OBSTRUCTION CLEARANCES FOR SIDEWALLS AND EXTENDED COVERAGE SPRINKLERS.

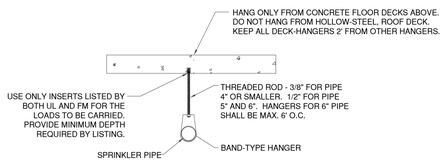
Standard Spray Sprinkler Obstruction Table

SPRINKLER PIPE HANGER MAXIMUM SPACING									
PIPE TYPE	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"
GROOVED SCHEDULE 10 AND THREADED SCHEDULE 30 AND 40 HUNG FROM STRUCTURAL STEEL.	12'	12'	15'	15'	15'	15'	15'	15'	15'
GROOVED SCHEDULE 10 AND THREADED SCHEDULE 30 AND 40 HUNG FROM CONCRETE DECK	12'	12'	15'	15'	15'	15'	NOT PERMITTED	NOT PERMITTED	NOT PERMITTED
EOL HANGER - MAX. DISTANCE FROM LAST SPRINKLER < 100 PSI	36"	48"	60"	60"	60"	60"	60"	60"	60"
EOL HANGER - MAX. DISTANCE FROM LAST SPRINKLER > 100 PSI	12"	12"	12"	12"	12"	12"	12"	12"	12"

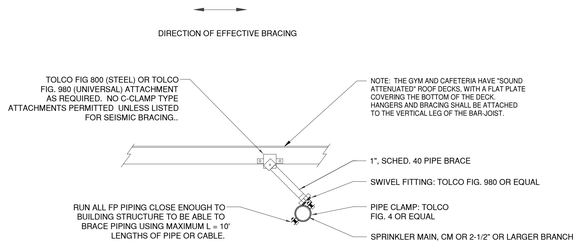
NOTE 1. COORDINATE EXACT HANGER LOCATION WITH BUILDING STRUCTURE

Pipe Hanger Spacing

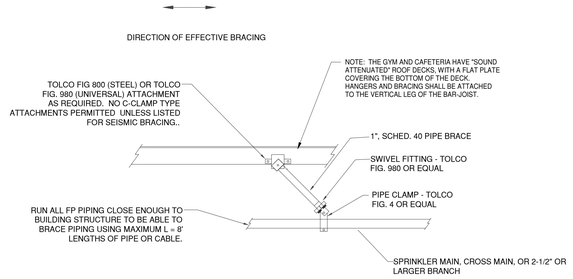




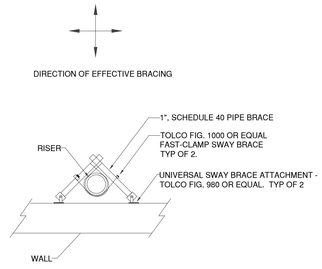
Pipe Hanger Details - Steel and Concrete Deck



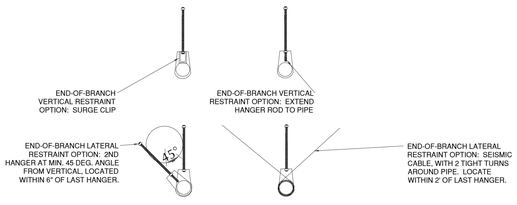
Lateral Seismic Brace Detail - Attach to Steel ONly



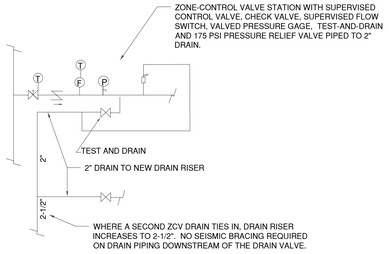
Longitudinal Seismic Brace Detail - Attach to Steel Only



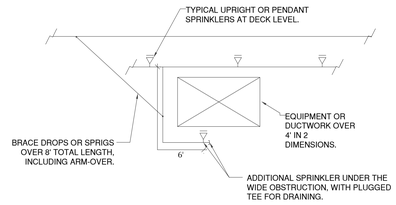
4-Way Seismic Brace Detail - Attach to Steel Only



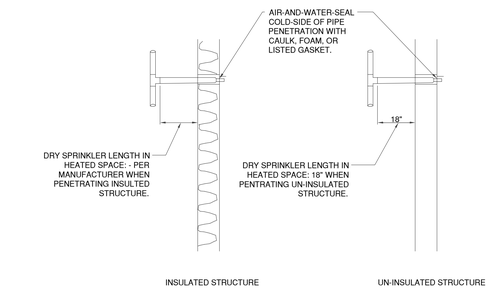
Branch-line Restraint Detail - Vertical and Horiz.



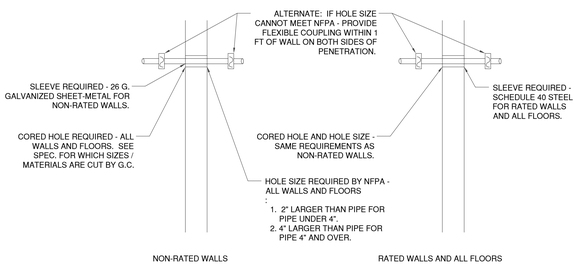
Zone Control Valve Station Detail



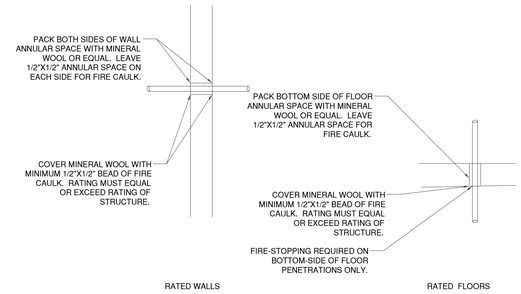
Added Sprinkler Under Obstruction over 4' Wide



Dry Sidewall Sprinkler Length Required Detail



Pipe Penetration Clearances Required Detail



Fire-Stopping Detail - Wall and Floor

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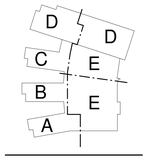
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Fire Protection Details

Locus Map

True North

Key Plan



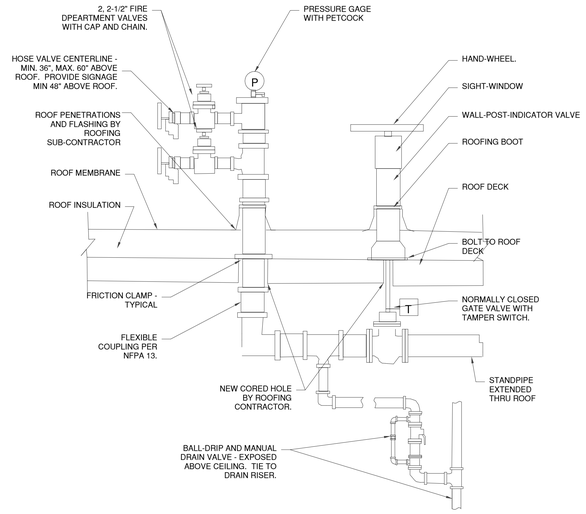
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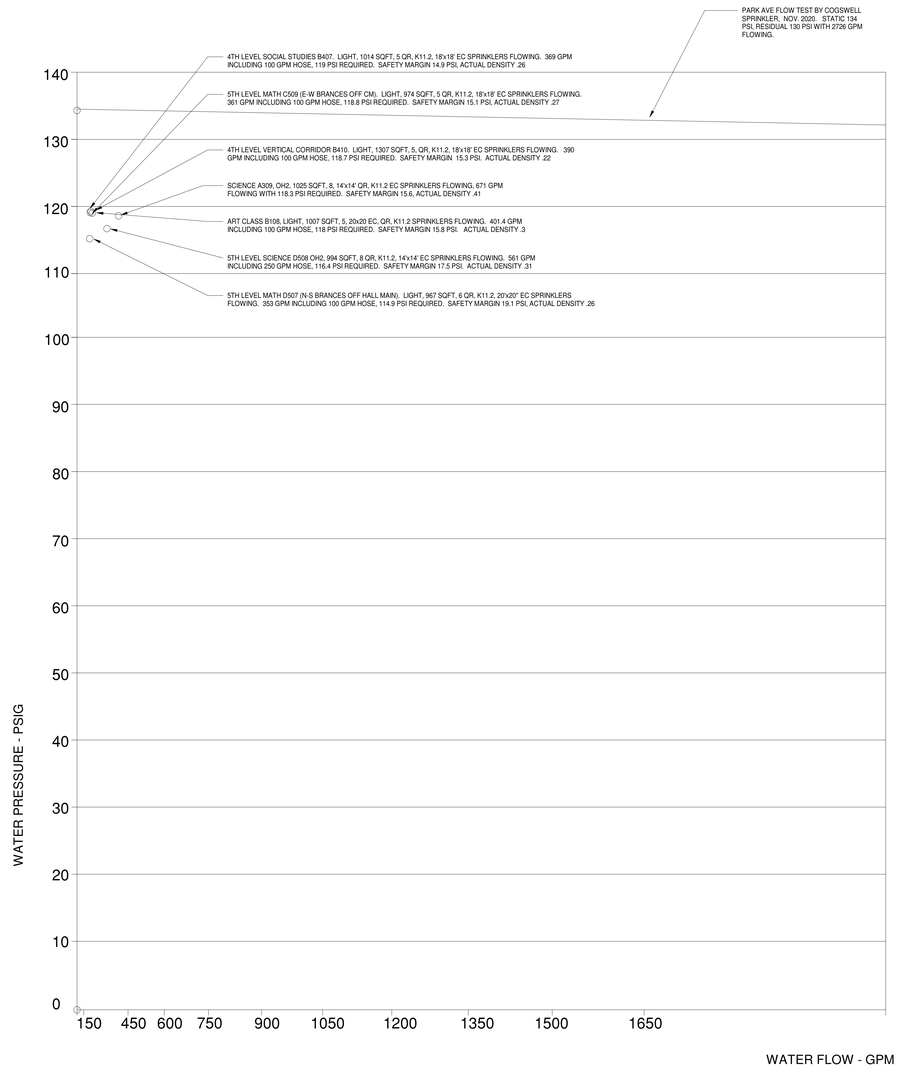
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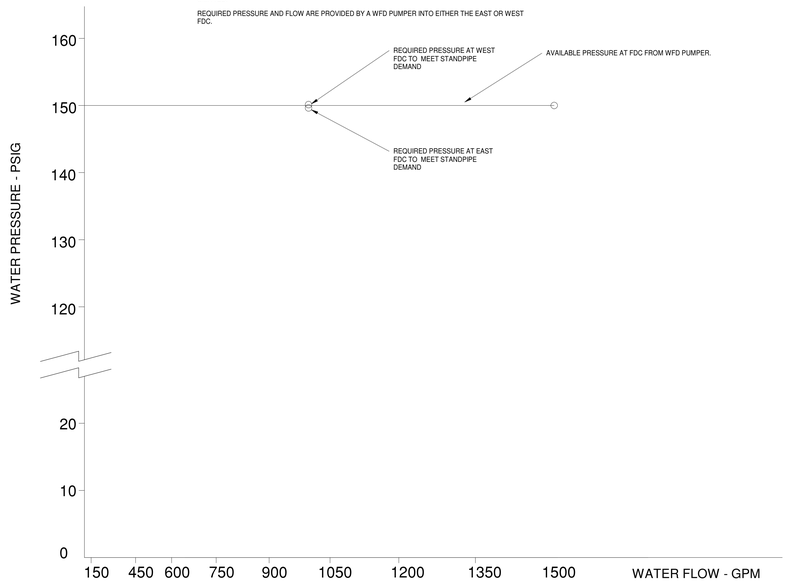
ROOF HYDRANT DETAIL



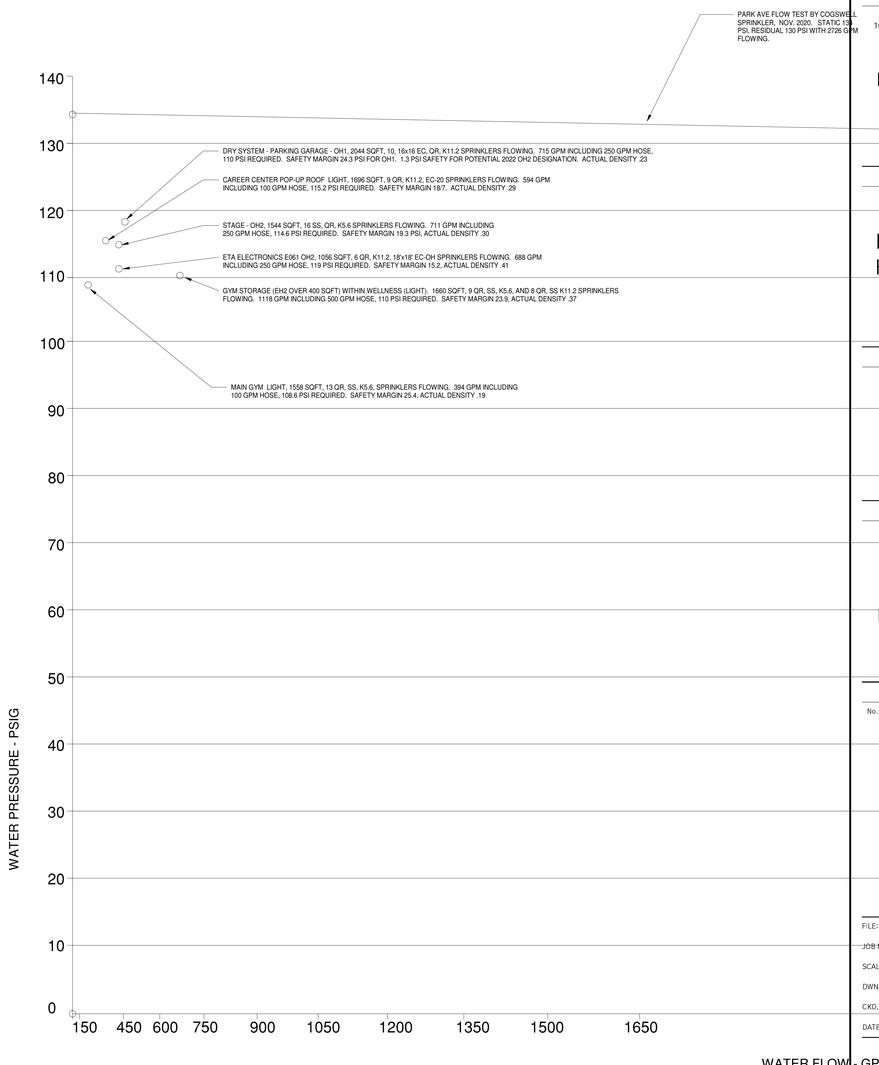
HYDRAULICS GRAPHS - ACADEMIC WING SPRINKLER

AS ALLOWED BY CMR 780 104.10, THE WORCESTER BUILDING DEPT. IS PERMITTING THE USE OF A MANUAL-WET STANDPIPE SYSTEM, AND PERMITTING THE FIRE PUMP PREVIOUSLY SHOWN TO BE OMITTED.

REQUIRED PRESSURE AND FLOW ARE PROVIDED BY A WFD PUMPER INTO EITHER THE EAST OR WEST FDC.



HYDRAULICS GRAPHS - STANDPIPE



HYDRAULICS GRAPHS - SUPPORT WING SPRINKLER

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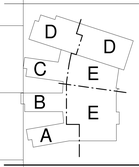
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Fire Protection Hydraulics and Details

Locus Map

True North

Key Plan



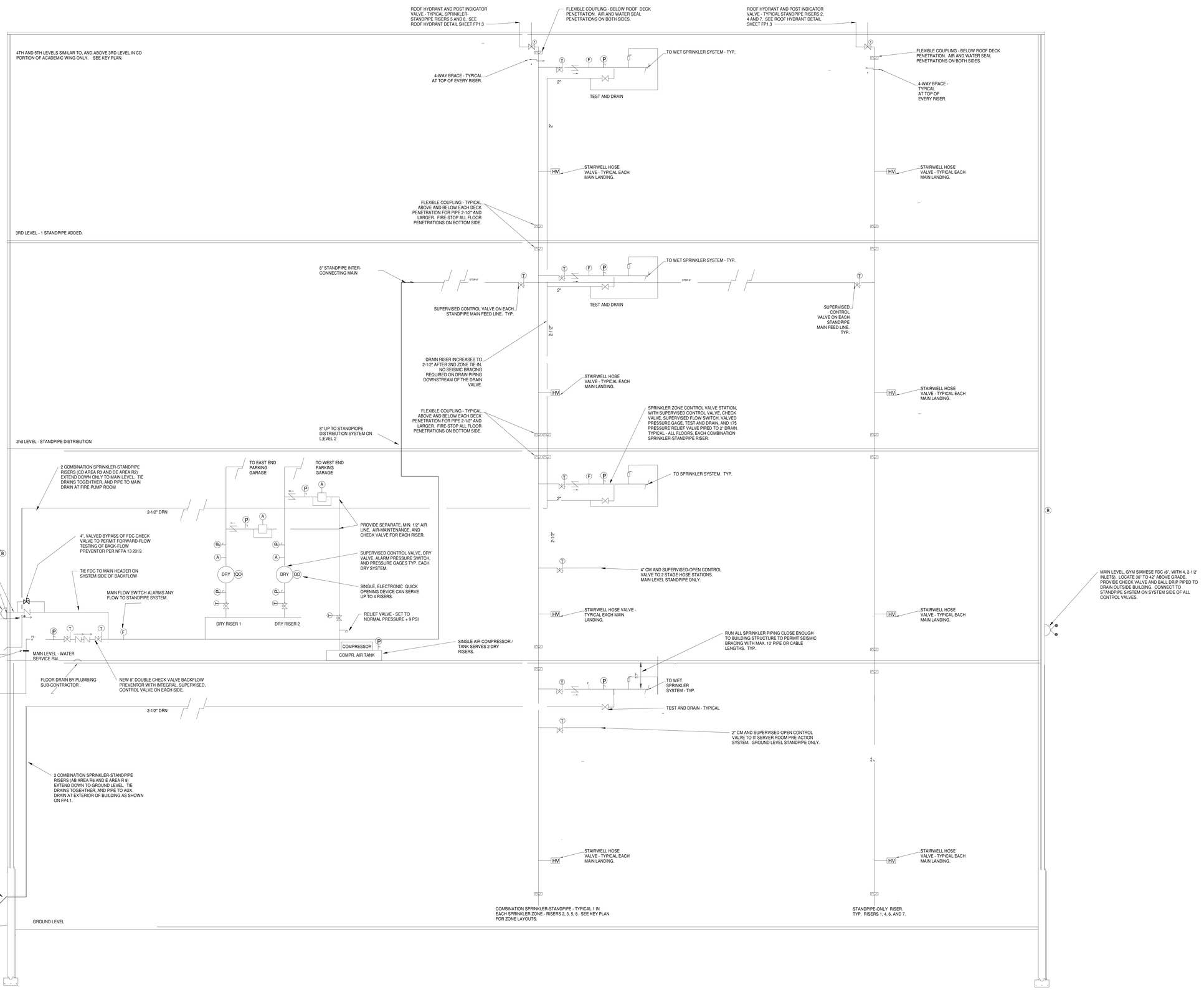
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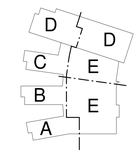
DRAWING TITLE

Fire Protection Schematics

Locus Map

True North

Key Plan



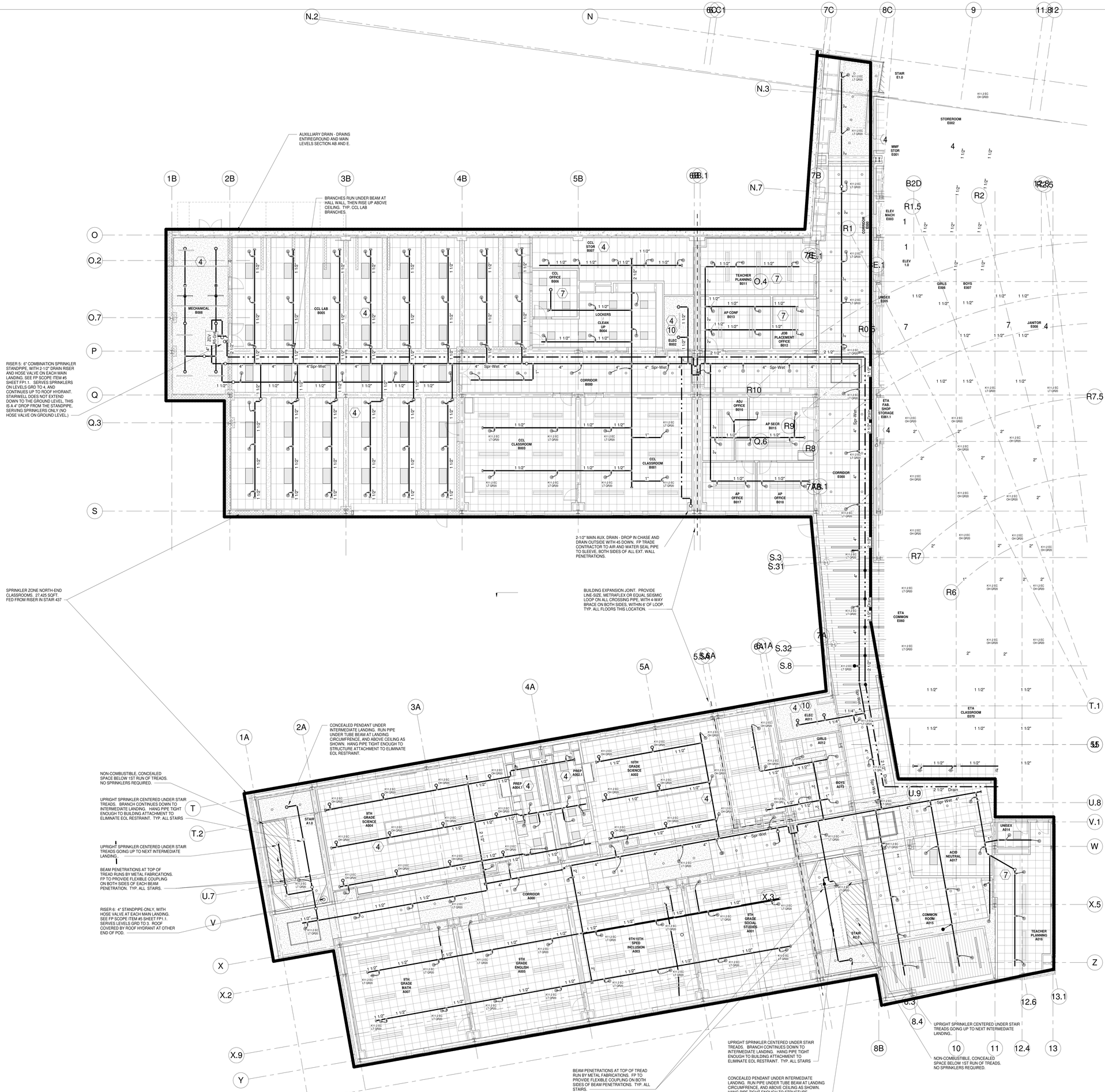
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DRAWING TITLE

Fire Protection Ground Level Reflected Ceiling Plan Section AB

Locus Map

True North

Key Plan

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NON-COMBUSTIBLE CONCEALED SPACE BELOW TREADS AND LANDING. NO SPRINKLERS REQUIRED.

SPACE CONTAINS PARTLY OBSTRUCTED CONSTRUCTION, AND PARTLY UNOBSTRUCTED CONSTRUCTION. WHERE BEAM BAYS EXCEED 7'6", PROVIDE 1 SPRINKLER PER BAY, MAX. 12" BELOW DECK.

IT SERVER ROOM ONLY:. PROVIDE ANSUL SAPPHIRE CLEAN-AGENT GAS SUPPRESSION SYSTEM WITH NOVEC 1230 GAS, TO AVOID FIRE OR WATER DAMAGE TO EQUIPMENT IN CASE OF FIRE.

LOCATE CLEAN AGENT SYSTEM MAIN AND AUXILLIARY TANKS, IN IT STORAGE ROOM.

ETA ELECTRONICS E061 OH2, 1056 SQFT, 6 QR, K11.2, 18'x18' EC-OH SPRINKLERS FLOWING. 688 GPM INCLUDING 250 GPM HOSE, 119 PSI REQUIRED. SAFETY MARGIN 15.2, ACTUAL DENSITY .41

RISER 8. 6" COMBINATION SPRINKLER STANDPIPE, FED DOWN FROM LEVEL 2, WITH HOSE VALVE AT EACH MAIN LANDING. SEE FP SCOPE ITEM #5 SHEET FP1.1. HAS 2-1/2" DRAIN RISER THAT DRAINS TO OUTSIDE ON THIS GROUND LEVEL. SERVES LEVELS GRD TO 2. CONTINUES UP TO ROOF HYDRANT ABOVE LEVEL 2.

STANDPIPE OFFSETS ON THIS FLOOR TO FEED 4" ZONE CONTROL VALVE STATION AND 2-1/2" STAIR HOSE VALVE. SEE FP1.1 SCOPE # 5 FOR MORE HOSE VALVE DETAILS.

NON-COMBUSTIBLE, CONCEALED SPACE BELOW BOTH RUNS OF TREADS AND 1ST INTERMEDIATE LANDING. NO SPRINKLERS REQUIRED.

SPRINKLER ZONE ETA. 41,815 SQFT. FED FROM RISER 8.

UPRIGHT SPRINKLER CENTERED UNDER STAIR TREADS GOING UP TO NEXT INTERMEDIATE LANDING..

NON-COMBUSTIBLE, CONCEALED SPACE BELOW 1ST RUN OF TREADS. NO SPRINKLERS REQUIRED.

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Fire Protection Ground Level Reflected Ceiling Plan Section E

Locus Map

True North

Key Plan

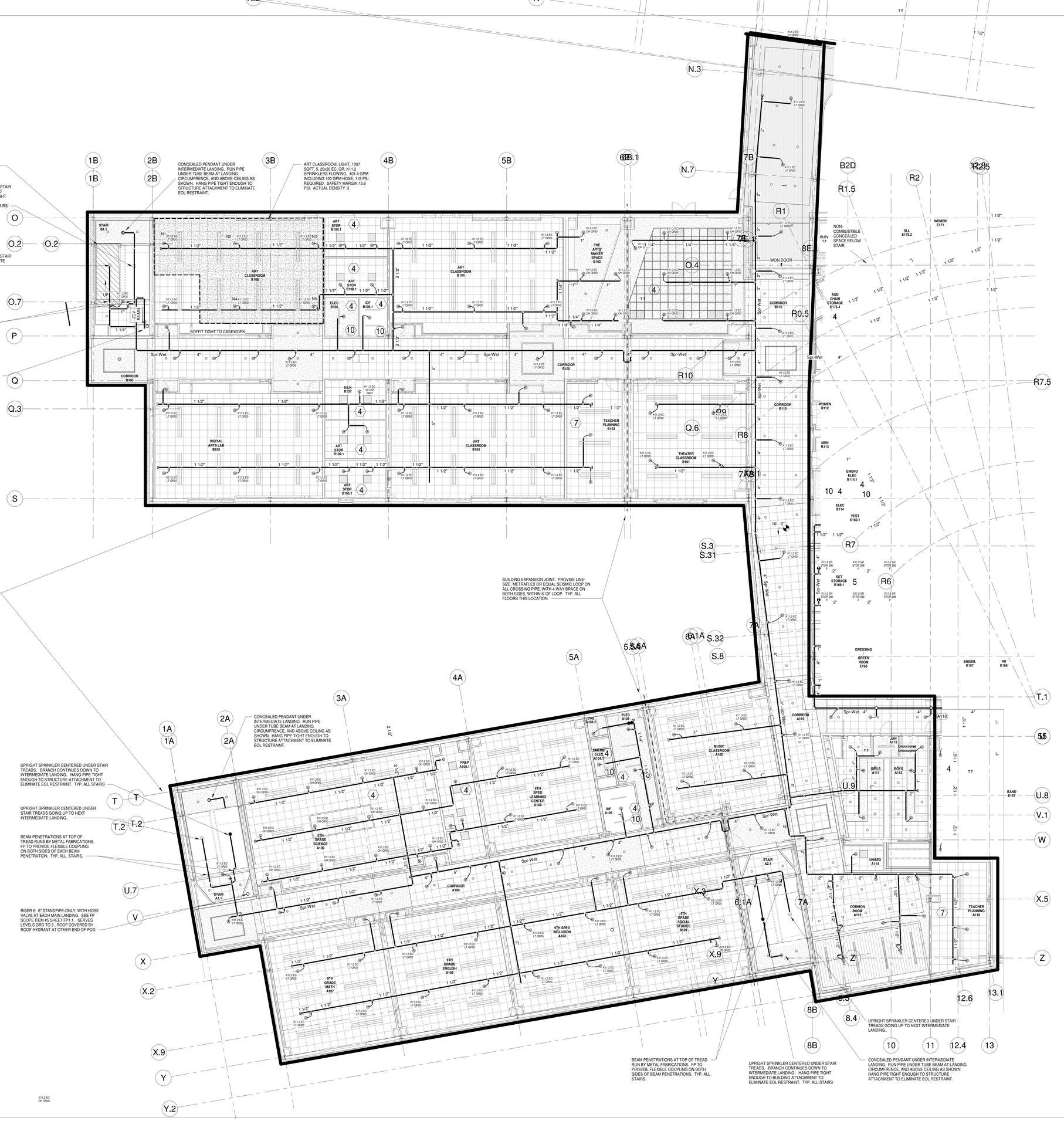
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DRAWING TITLE

Fire Protection Main Level Reflected Ceiling Plan Section AB

Locus Map

True North

Key Plan

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"OPEN-TO-ABOVE". THE MAIN LOBBY AND VESTIBULE ARE 2-STORY SPACES. ALL HIGH-DECK SPRINKLERS AND PIPING IN THIS AREA ARE TO BE FED FROM THE MAIN LEVEL ZONE CONTROL VALVE. SEE FP 4.8 FOR HIGH CEILING / DECK-LEVEL WORK.

CONCEALED PENDANT IN SLOPED CEILING UNDER STAIR.

NON-COMBUSTIBLE CONCEALED SPACE BELOW THIS SECTION OF STAIR. NO SPRINKLERS REQUIRED.

NON-COMBUSTIBLE CONCEALED SPACE BELOW STAIR

NON-COMBUSTIBLE CONCEALED SPACE BELOW STAIR

DROP IN WALL TO LOW CEILING AREA

8' SOFFIT IN 10' CEILING

3 DECK LEVEL UPRIGHTS COVER SOUND-ROOM EXCEPT "OPEN TO ABOVE" AREA OVER CIRCULAR STAIR (COVERED FROM ABOVE). STAIR RUNS FROM MAIN TO 3RD LEVEL.

"OPEN-TO-ABOVE". THE AUDITORIUM AND STAGE ARE 2+ STORY SPACES. ALL HIGH-DECK SPRINKLERS AND PIPING IN THIS AREA ARE TO BE FED FROM THE MAIN LEVEL ZONE CONTROL VALVE STATION (ZCV). SEE FP 4.8 - LEVEL 2-E PLAN FOR HIGH CEILING / DECK-LEVEL WORK.

4" STANDPIPE DROP FROM 2ND FLOOR, FEEDS 2, 2-1/2" HOSE VALVES (ONE BY EACH OF 2 STAGE DOORS.)

2-1/2" DROP TO HOSE VALVE - TYP. 2

3" UP TO 45'10" AFF MAIN LEVEL SEE FP4.8 FOR CONTINUATION.

UP TO 27' AFF MAIN LEVEL MUSIC-AREA CM HIGH-DECK SPRINKLERS.

2-1/2" UP TO CHORUS HIGH DECK SPRINKLERS

EC CONCEALED PENDANTS UNDER PERIMETER MEZZANINES. TYP.

"OPEN-TO-ABOVE". THE BLACK-BOX THEATER, PIANO LAB, BAND, AND CHORUS ROOMS ARE 2 STORY SPACES. ALL SPRINKLERS IN THESE SPACES ARE TO BE FED FROM THE MAIN LEVEL ZONE CONTROL VALVE STATION (ZCV). SEE FP 4.8 - LEVEL 2-E PLAN FOR HIGH CEILING / DECK-LEVEL WORK.

RISER 8: 6" COMBINATION SPRINKLER STANDPIPE. FED DOWN FROM LEVEL 2, WITH HOSE VALVE AT EACH MAIN LANDING. SEE FP SCOPE ITEM #5 SHEET FP1.1. HAS 2-1/2" DRAIN RISER THAT DRAINS TO OUTSIDE ON THE GROUND LEVEL. SERVES LEVELS GRD TO 2. CONTINUES UP TO ROOF HYDRANT AT LEVEL 2.

CONCEALED PIPE ABOVE SOFFIT OVER N-S TREADS.

OPEN TO ABOVE CENTER AREA COVERED FROM ABOVE.

CONCEALED PIPE ABOVE SOFFIT UNDER LANDING AND N-S TREADS

EXPOSED PIPE AND UPRIGHT BELOW E-W TREADS

UPRIGHT SPRINKLER CENTERED UNDER STAIR TREADS. BRANCH CONTINUES DOWN TO INTERMEDIATE LANDING. HANG PIPE TIGHT ENOUGH TO BUILDING ATTACHMENT TO ELIMINATE EOL RESTRAINT. TYP. ALL STAIRS

CONCEALED PENDANT UNDER INTERMEDIATE LANDING. RUN PIPE UNDER TUBE BEAM AT LANDING CIRCUMFRENCE, AND ABOVE CEILING AS SHOWN. HANG PIPE TIGHT ENOUGH TO STRUCTURE ATTACHMENT TO ELIMINATE EOL RESTRAINT.

UPRIGHT SPRINKLER CENTERED UNDER STAIR TREADS GOING UP TO NEXT INTERMEDIATE LANDING..

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DRAWING TITLE

Fire Protection Main Level Reflected Ceiling Plan Section E

Locus Map

True North

Key Plan

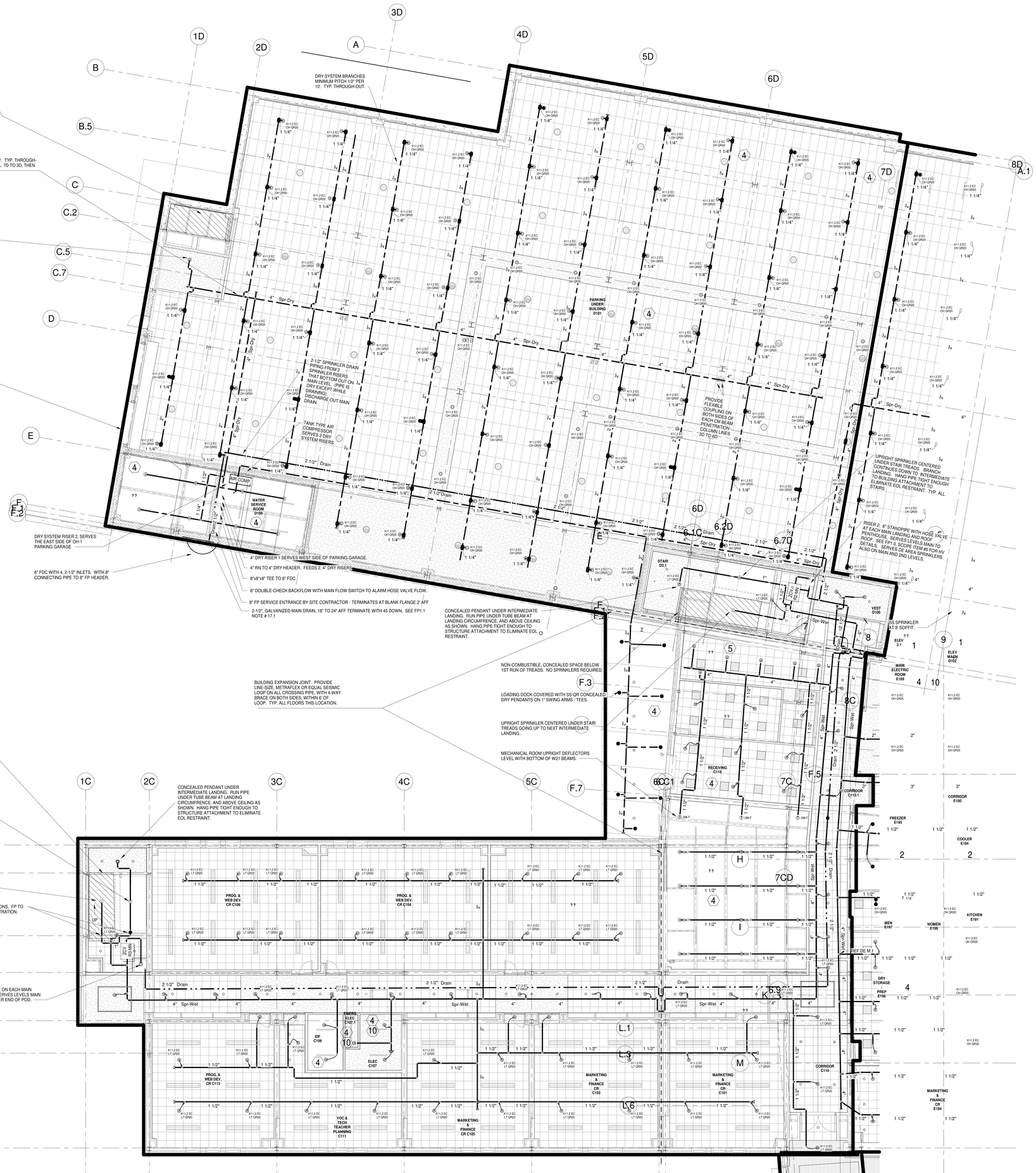
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Fire Protection Main Level Reflected Ceiling Plan Section CD

Locus Map

True North

Key Plan

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BUILDING EXPANSION JOINT. PROVIDE LINE-SIZE, METRAFLEX OR EQUAL SEISMIC LOOP ON ALL CROSSING PIPE, WITH 4-WAY BRACE ON BOTH SIDES, WITHIN 6' OF LOOP. TYP. ALL FLOORS THIS LOCATION.

3 SECTIONS OF FULL-HEIGHT WALL ON THIS COLUMN LINE. SPRINKLER COVERAGE COMPLETE WITH SPACING SHOWN.

ALL FP BRANCH PIPING TO BE RUN HIGH, THRU THE E-W BEAMS. ALL HOLES THRU BEAMS BY METAL FABRICATIONS. ALL HOLES SHALL BE 4" FOR THE 2" BRANCH PIPING. HOLES SHALL BE LOCATED WITHIN THE MIDDLE THIRD OF THE BEAM, AND SHALL PERMIT THE BRANCH PIPING TO SLOPE DOWN TOWARDS THE FP CROSS MAIN, 1/2" PER 10' OF RUN. TYPICAL THROUGH-OUT THE PARKING GARAGE.

DRY SYSTEM - PARKING GARAGE - OH1, 2044 SQFT, 10, 16x16 EC, OR, K11.2 SPRINKLERS FLOWING. 715 GPM INCLUDING 250 GPM HOSE. 110 PSI REQUIRED. SAFETY MARGIN 24.3 PSI FOR OH1. 1.3 PSI SAFETY FOR POTENTIAL 2022 OHD DESIGNATION. ACTUAL DENSITY .23

UPRIGHT SPRINKLER CENTERED UNDER STAIR TREADS. BRANCH CONTINUES DOWN TO INTERMEDIATE LANDING. TANG PIPE TIGHT ENOUGH TO BUILDING ATTACHMENT TO ELIMINATE EOL RESTRAINT. TYP. ALL STAIRS

RISER 2: 6" STANDPIPE WITH HOSE VALVE AT EACH MAIN LANDING AND ROOF. PENTHOUSE. SERVES LEVELS MAIN TO ROOF. SEE FP1.0 SCOPE ITEM #5 FOR HV DETAIL. SERVES DE AREA SPRINKLERS ALSO ON MAIN AND 2ND LEVELS.

DRY SYSTEM CM MINIMUM PITCH 1/4" PER 10'. TYP. THROUGH-OUT. WEST SIDE CM RUNS ENTIRELY UNDER BEAMS.

DRY SYSTEM BRANCHES MINIMUM PITCH 1/2" PER 10'. TYP. THROUGH-OUT.

6" FDC WITH 4, 2-1/2" INLETS. FED BY 8" DROP FROM DECK. LEVEL HORIZONTAL STANDPIPE.

3" RISER TO CAFETERIA HIGH CEILING AND DECK-/ LEVEL SPRINKLERS. SEE FP4.10 FOR CONTINUATION.

"OPEN-TO-ABOVE". THE CAFETERIA IS A 2-STORY SPACE. ALL CAFETERIA SPRINKLERS ARE TO BE FED FROM THE MAIN LEVEL ZONE CONTROL VALVE STATION (ZCV). SEE FP.4.10 - LEVEL 2 DE PLAN FOR HIGH CEILING / DECK WORK.

EC CONCEALED PENDANT IN SLOPED CEILING UNDER RISER SEATING AREA. TYP. 2

CAFETERIA LOW CEILING UNDER MEDIA CENTER CAFE.

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Fire Protection Main Level Reflected Ceiling Plan Section DE

Locus Map

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Key Plan

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Fire Protection Level 2 Reflected Ceiling Plan Section AB

Locus Map

True North

Key Plan

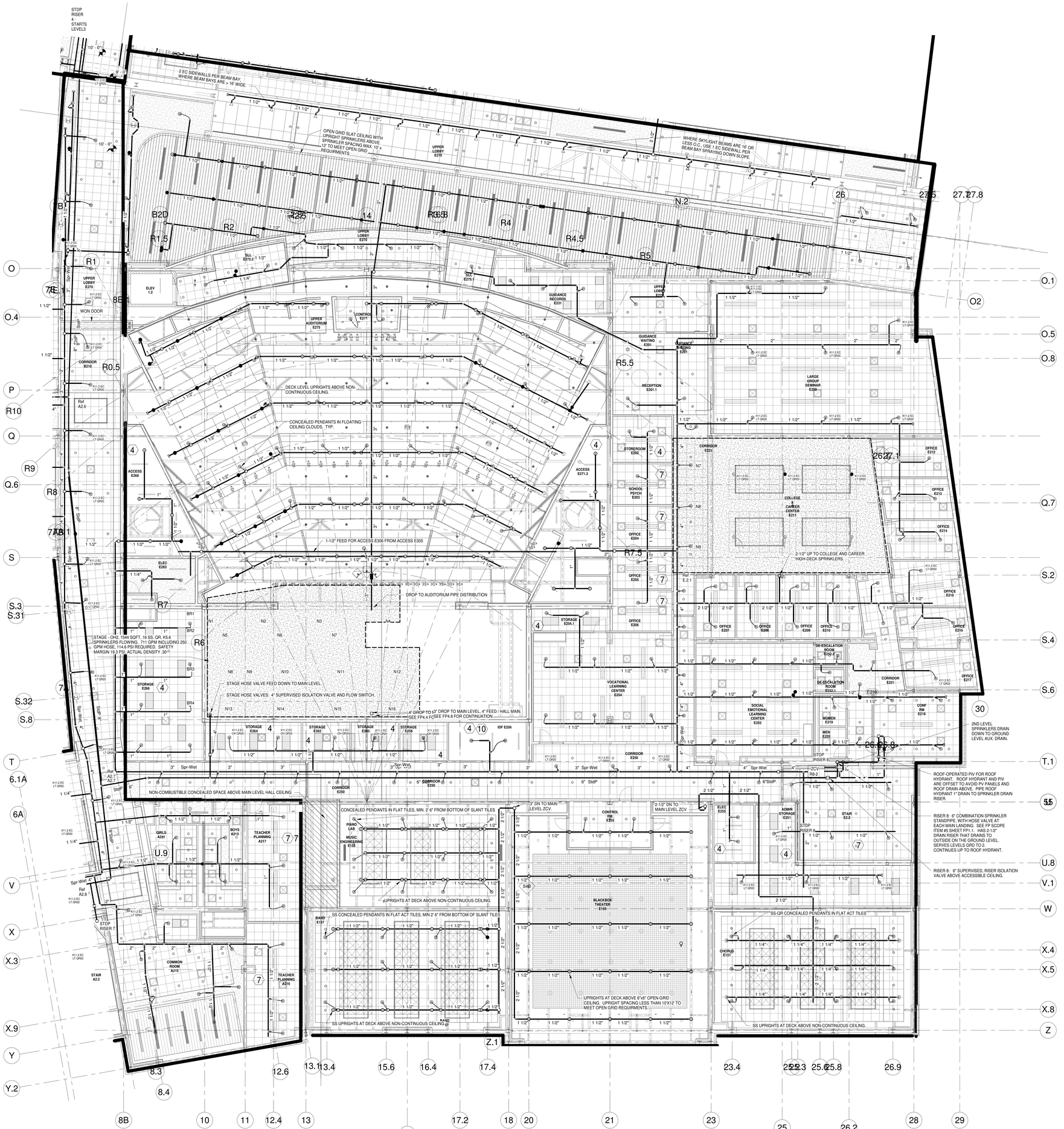
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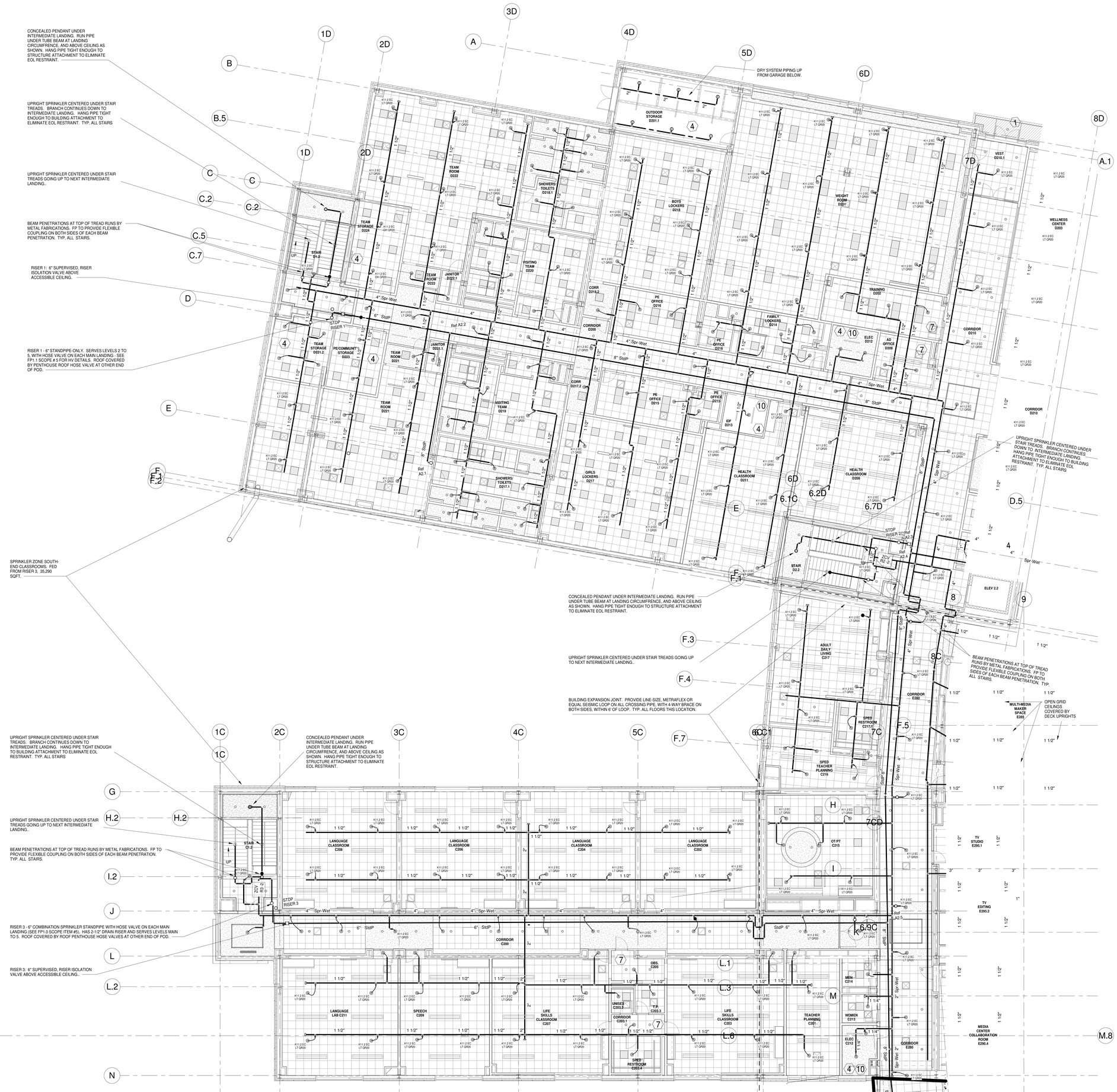
No.	Description	Date

FILE:	DoHS FP 100% CD 1-17-22
JOB NO:	#1904
SCALE:	1/8" = 1'-0"
DWN. BY:	Author
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2 EC SIDEWALLS PER BEAM BAY, WHERE BEAM BAYS ARE > 16' WIDE
OPEN GRID SLAT CEILING WITH UPRIGHT SPRINKLERS ABOVE. SPRINKLER SPACING MAX. 10' ⊥ 12' TO MEET OPEN GRID REQUIRMENTS.
WHERE SKYLIGHT BEAMS ARE 16' OR LESS O.C., USE 1 EC SIDEWALL PER BEAM BAY SPRAYING DOWN SLOPE.
UPPER LOBBY E270
GUIDANCE RECORDS E231
CONTROL E271
UPPER AUDITORIUM E275
GUIDANCE WAITING E201
RECEPTION E201.1
LARGE GROUP SEMINAR E230
DECK LEVEL UPRIGHTS ABOVE NON-CONTINUOUS CEILING.
CONCEALED PENDANTS IN FLOATING CEILING CLOUDS. TYP.
1-1/2" FEED FOR ACCESS E306 FROM ACCESS E305
DROP TO AUDITORIUM PIPE DISTRIBUTION
STAGE - OH2, 1544 SQFT, 16 SS, OR, K5.6 SPRINKLERS FLOWING. 711 GPM INCLUDING 250 GPM HOSE, 114.6 PSI REQUIRED. SAFETY MARGIN 19.3 PSI, ACTUAL DENSITY .30
STAGE HOSE VALVE FEED DOWN TO MAIN LEVEL.
STAGE HOSE VALVES: 4" SUPERVISED ISOLATION VALVE AND FLOW SWITCH.
4" DROP TO 3" DROP TO MAIN LEVEL, 4" FEED / HALL MAIN. SEE FP4.4 FOSEE FP4.8 FOR CONTINUATION
NON-COMBUSTIBLE CONCEALED SPACE ABOVE MAIN LEVEL HALL CEILING
CONCEALED PENDANTS IN FLAT TILES, MIN. 2' 6" FROM BOTTOM OF SLANT TILES
↓UPRIGHTS AT DECK ABOVE NON-CONTINUOUS CEILING.
↓SS CONCEALED PENDANTS IN FLAT ACT TILES, MIN 2' 6" FROM BOTTOM OF SLANT TILES
↓SS UPRIGHTS AT DECK ABOVE NON-CONTINUOUS CEILING.
↓UPRIGHTS AT DECK ABOVE 5'x6' OPEN-GRID CEILING. UPRIGHT SPACING LESS THAN 10'X12' TO MEET OPEN GRID REQUIRMENTS.
2-1/2" UP TO COLLEGE AND CAREER HIGH-DECK SPRINKLERS.
SS-OR CONCEALED PENDANTS IN FLAT ACT TILES
SS UPRIGHTS AT DECK ABOVE NON-CONTINUOUS CEILING.
2ND LEVEL SPRINKLERS DRAIN DOWN TO GROUND LEVEL AUX. DRAIN.
ROOF-OPERATED PIV FOR ROOF HYDRANT. ROOF HYDRANT AND PIV ARE OFFSET TO AVOID PV PANELS AND ROOF DRAIN ABOVE. PIPE ROOF HYDRANT 1" DRAIN TO SPRINKLER DRAIN RISER.
RISER 8: 6" COMBINATION SPRINKLER STANDPIPE. WITH HOSE VALVE AT EACH MAIN LANDING. SEE FP SCOPE ITEM #5 SHEET FP1.1. HAS 2-1/2" DRAIN RISER THAT DRAINS TO OUTSIDE ON THE GROUND LEVEL. SERVES LEVELS GRD TO 2. CONTINUES UP TO ROOF HYDRANT.
RISER 8: 6" SUPERVISED, RISER ISOLATION VALVE ABOVE ACCESSIBLE CEILING.
UPPER LOBBY E270
ELEV 1.2
CORRIDOR B210
ACCESS E308
ACCESS E271.3
ELEC E263
STORAGE E266
STORAGE E264
STORAGE E262
STORAGE E260
STORAGE E258
IDF E256
STORAGE E254.1
VOCATIONAL LEARNING CENTER E254
CORRIDOR E250
ELEC E253
ADMIN STORAGE E251
STAIR E2.2
STOREROOM E202
SCHOOL PSYCH E203
OFFICE E204
OFFICE E205
OFFICE E206
CORRIDOR E221
COLLEGE & CAREER CENTER E211
OFFICE E212
OFFICE E213
OFFICE E214
OFFICE E215
OFFICE E216
OFFICE E217
OFFICE E207
OFFICE E208
OFFICE E209
OFFICE E210
DE-ESCALATION ROOM E252.2
DE-ESCALATION ROOM E252.1
SOCIAL EMOTIONAL LEARNING CENTER E252
WOMEN E219
MEN E220
CONF RM E218
BOYS A213
GIRLS A211
TEACHER PLANNING A217
TEACHER PLANNING A216
COMMON ROOM A215
STAIR A2.2
PIANO LAB
MUSIC ENGINEERING E156
BAND E157
CONTROL RM E255
BLACKBOX THEATER E155
CHORUS E151
BAND
STORAGE E254.1
Ref A2.6
Ref A2.7
Ref A2.8
Ref E.2.1
STDP RISER 7
STDP RISER 8
Spr-Wet
Spr-Wet
Spr-Wet



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Worcester Public Schools

PROJECT

100% CD FINAL BID PACKAGE #4

Doherty Memorial High School

Highland Street, Worcester, MA. 01600

DRAWING TITLE

Fire Protection Level 2 Reflected Ceiling Plan Section CD

Locus Map

True North

Key Plan

REVISIONS

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DRAWING TITLE

Fire Protection Level 2 Reflected Ceiling Plan Section DE

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UPRIGHT SPRINKLER CENTERED UNDER STAIR TREADS. BRANCH CONTINUES DOWN TO INTERMEDIATE LANDING. HANG PIPE TIGHT ENOUGH TO BUILDING ATTACHMENT TO ELIMINATE EOL RESTRAINT. TYP. ALL STAIRS

BEAM PENETRATION AT TOP OF TREAD RUNS BY METAL FABRICATIONS. FP TO PROVIDE FLEXIBLE COUPLING ON BOTH SIDES OF EACH BEAM PENETRATION. TYP. ALL STAIRS.

RISER 5: 6" COMBINATION SPRINKLER STANDPIPE, WITH HOSE VALVE ON EACH MAIN LANDING - SEE FP1.1 SCOPE #5 FOR DETAILS. 2-1/2" DRAIN RISER. SERVES LEVELS GRD TO 4, AND CONTINUES UP TO ROOF HYDRANT.

CONCEALED PENDANT UNDER INTERMEDIATE LANDING. RUN PIPE UNDER TUBE BEAM AT LANDING CIRCUMFRENCE, AND ABOVE CEILING AS SHOWN. HANG PIPE TIGHT ENOUGH TO STRUCTURE ATTACHMENT TO ELIMINATE EOL RESTRAINT.

RISER 4 - CD SERVICE AREA INCLUDES SMALL PORTION OF "E" ROOMS. E-AREA HAS NO 3RD FLOOR, SO HAS NO LEVEL 3 ZCV.

LEVEL 3 AB SPRINKLER ZONE INCLUDES A SMALL NUMBER OF "E" ROOMS. E-AREA HAS NO LEVEL 3 ZCV. WEST OF THE AREA IS 2-STORY SPACE WITH ROOM LEVEL 2.

DROP TO 4'11" ABOVE L3, TO PASS UNDER AUD. GIRDERS AND FEED ACCESS A305. SEE FP4.8 FOR PIPING ACROSS AUDITORIUM.

BUILDING EXPANSION JOINT - PROVIDE LINE-SIZE METRAFLEX OR EQUAL SEISMIC LOOP ON ALL CROSSING PIPE, WITH 4-WAY BRACE ON BOTH SIDES, WITHIN 6' OF LOOP. TYP. ALL FLOORS THIS LOCATION.

SPRINKLER ZONE - NORTH-END CLASSROOMS. FED FROM RISER 5. 30,420 SQFT.

SCIENCE A309, OH2, 1025 SQFT, 8, 14'x14' OR, K11.2 EC SPRINKLERS FLOWING, 671 GPM WITH 118.3 PSI REQUIRED. SAFETY MARGIN 15.6, ACTUAL DENSITY .41

RISER 6: 4" STANDPIPE-ONLY, WITH HOSE VALVE ON EACH MAIN LANDING - SEE FP1.1 SCOPE #5 FOR DETAILS. SERVES LEVELS GRD TO 3. ROOF COVERED BY ROOF HYDRANT AT OTHER END OF POD.

ROOF-CONTROLLED, POST-INDICATOR-VALVE (PIV) FOR ROOF HYDRANT.

RISER 7: 4" STANDPIPE-ONLY - NO HOSE VALVES IN NON-REQUIRED STAIR. OFFSETS UP TO ROOF HYDRANT, WITH 1" DRAIN PIPED TO JAN. SINK IN A312.

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Doherty Memorial High School

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DRAWING TITLE

Fire Protection Level 3 Reflected Ceiling Plan Section AB

Locus Map

True North

Key Plan

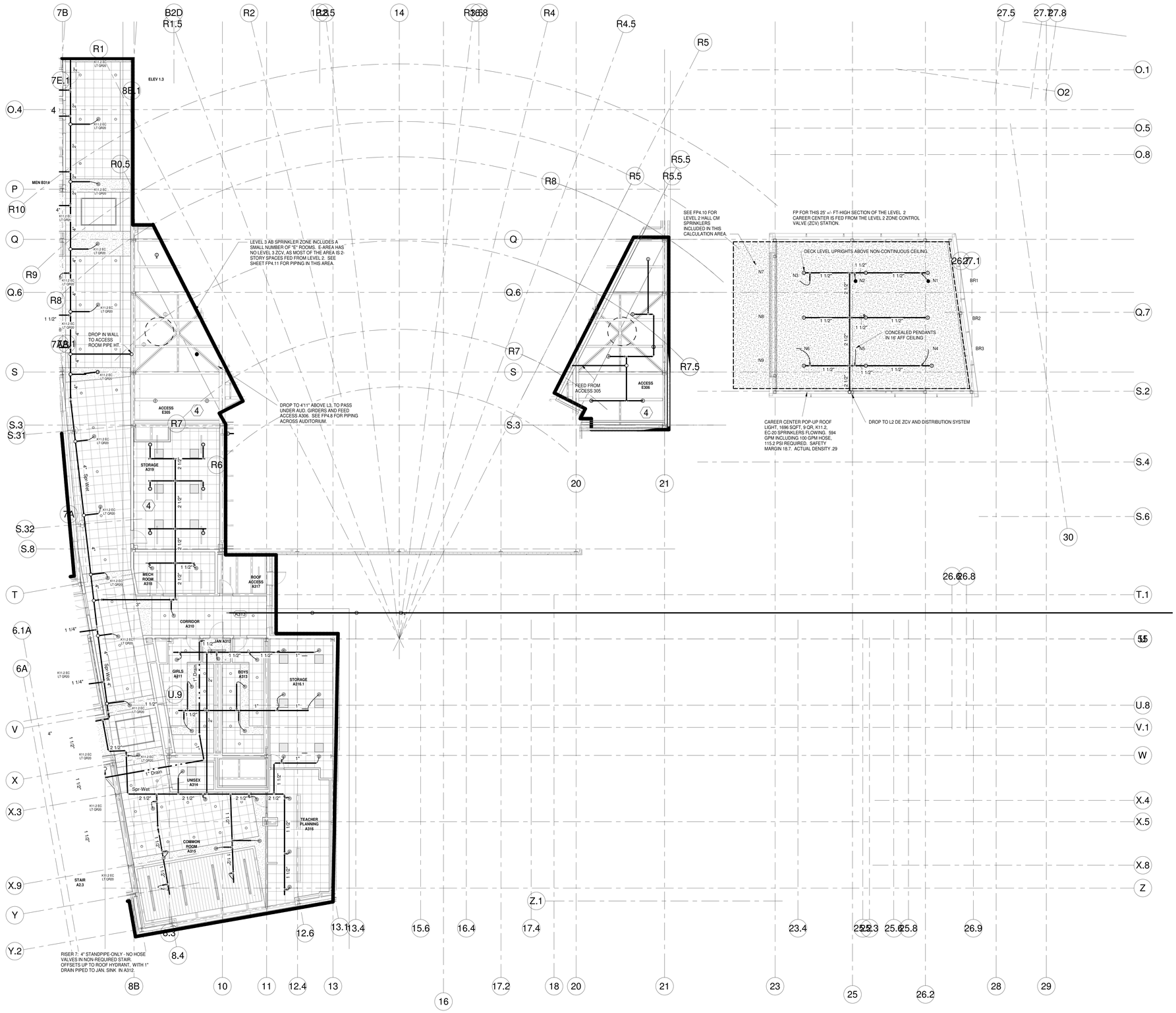
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Doherty Memorial High School

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DRAWING TITLE

Fire Protection Level 3 Reflected Ceiling Plan Section E

Locus Map

True North

Key Plan

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CONCEALED PENDANT UNDER INTERMEDIATE LANDING. RUN PIPE UNDER TUBE BEAM AT LANDING CIRCUMFRENCE, AND ABOVE CEILING AS SHOWN. HANG PIPE TIGHT ENOUGH TO STRUCTURE ATTACHMENT TO ELIMINATE EOL RESTRAINT.

UPRIGHT SPRINKLER CENTERED UNDER STAIR TREADS. BRANCH CONTINUES DOWN TO INTERMEDIATE LANDING. HANG PIPE TIGHT ENOUGH TO BUILDING ATTACHMENT TO ELIMINATE EOL RESTRAINT. TYP. ALL STAIRS

UPRIGHT SPRINKLER CENTERED UNDER STAIR TREADS GOING UP TO NEXT INTERMEDIATE LANDING..

BEAM PENETRATIONS AT TOP OF TREAD RUNS BY METAL FABRICATIONS. FP TO PROVIDE FLEXIBLE COUPLING ON BOTH SIDES OF EACH BEAM PENETRATION. TYP. ALL STAIRS.

STANDPIPE OFFSETS IN 3RD LEVEL CHASE.

RISER 1 - 6" STANDPIPE-ONLY. SERVES LEVELS 2 TO 5, WITH HOSE VALVE ON EACH MAIN LANDING - SEE FP1.1 SCOPE # 5 FOR HV DETAILS. ROOF COVERED BY PENTHOUSE ROOF HOSE VALVE AT OTHER END OF POD.

SPRINKLER ZONE SOUTH-END CLASSROOMS. FED FROM RISER 3. 36,883 SQFT.

CONCEALED PENDANT UNDER INTERMEDIATE LANDING. RUN PIPE UNDER TUBE BEAM AT LANDING CIRCUMFRENCE, AND ABOVE CEILING AS SHOWN. HANG PIPE TIGHT ENOUGH TO STRUCTURE ATTACHMENT TO ELIMINATE EOL RESTRAINT.

UPRIGHT SPRINKLER CENTERED UNDER STAIR TREADS GOING UP TO NEXT INTERMEDIATE LANDING..

BUILDING EXPANSION JOINT. PROVIDE LINE-SIZE, METRAFLEX OR EQUAL SEISMIC LOOP ON ALL CROSSING PIPE, WITH 4-WAY BRACE ON BOTH SIDES, WITHIN 6' OF LOOP. TYP. ALL FLOORS THIS LOCATION.

RISER 4 - 6" STANDPIPE-ONLY, WITH HOSE VALVE ON EACH MAIN LANDING (SEE FP1.1 SCOPE #5 FOR DETAILS). SERVES LEVELS 3 TO 5. OFFSETS AND CONTINUES UP TO ROOF HYDRANT.

UPRIGHT SPRINKLER CENTERED UNDER STAIR TREADS. BRANCH CONTINUES DOWN TO INTERMEDIATE LANDING. HANG PIPE TIGHT ENOUGH TO BUILDING ATTACHMENT TO ELIMINATE EOL RESTRAINT. TYP. ALL STAIRS

CONCEALED PENDANT UNDER INTERMEDIATE LANDING. RUN PIPE UNDER TUBE BEAM AT LANDING CIRCUMFRENCE, AND ABOVE CEILING AS SHOWN. HANG PIPE TIGHT ENOUGH TO STRUCTURE ATTACHMENT TO ELIMINATE EOL RESTRAINT.

UPRIGHT SPRINKLER CENTERED UNDER STAIR TREADS GOING UP TO NEXT INTERMEDIATE LANDING..

BEAM PENETRATIONS AT TOP OF TREAD RUNS BY METAL FABRICATIONS. FP TO PROVIDE FLEXIBLE COUPLING ON BOTH SIDES OF EACH BEAM PENETRATION. TYP. ALL STAIRS.

RISER 3 - 6" COMBINATION SPRINKLER STANDPIPE WITH HOSE VALVE ON EACH MAIN LANDING (SEE FP1.0 SCOPE ITEM #5). HAS 2-1/2" DRAIN RISER AND SERVES LEVELS MAIN TO 5. ROOF COVERED BY ROOF PENTHOUSE HOSE VALVES AT OTHER END OF POD.

RISER 4 - 6", SUPERVISED, RISER ISOLATION VALVE ABOVE ACCESSIBLE CEILING.

CONCEALED PIPE AND SPRINKLER CENTERED UNDER STAIR TREADS. HANG PIPE TIGHT ENOUGH TO BUILDING ATTACHMENT TO ELIMINATE EOL RESTRAINT. TYP. ALL STAIRS

NON-COMBUSTIBLE CONCEALED SPACE BELOW 1ST RUN OF TREADS AND 1ST LANDING. NO SPRINKLERS REQUIRED.

CONCEALED PENDANT AND PIPE CENTERED UNDER STAIR TREADS GOING UP TO 1st EVEL 4 INTERMEDIATE LANDING..

RUN PIPE UNDER BEAM AT HALL WALL.

RISER 4 - CD SERVICE AREA INCLUDES SMALL PORTION OF "E" ROOMS. E-AREA HAS NO 3RD FLOOR, SO HAS NO LEVEL 3 ZCV.

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Doherty Memorial High School

Highland Street, Worcester, MA. 01600

DRAWING TITLE

Fire Protection Level 3 Reflected Ceiling Plan Section CD

Locus Map

True North

Key Plan

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PROJECT

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Doherty Memorial High School

Highland Street, Worcester, MA. 01600

DRAWING TITLE

Fire Protection Level 3 Reflected Ceiling Plan Section DE

Locus Map

True North

Key Plan

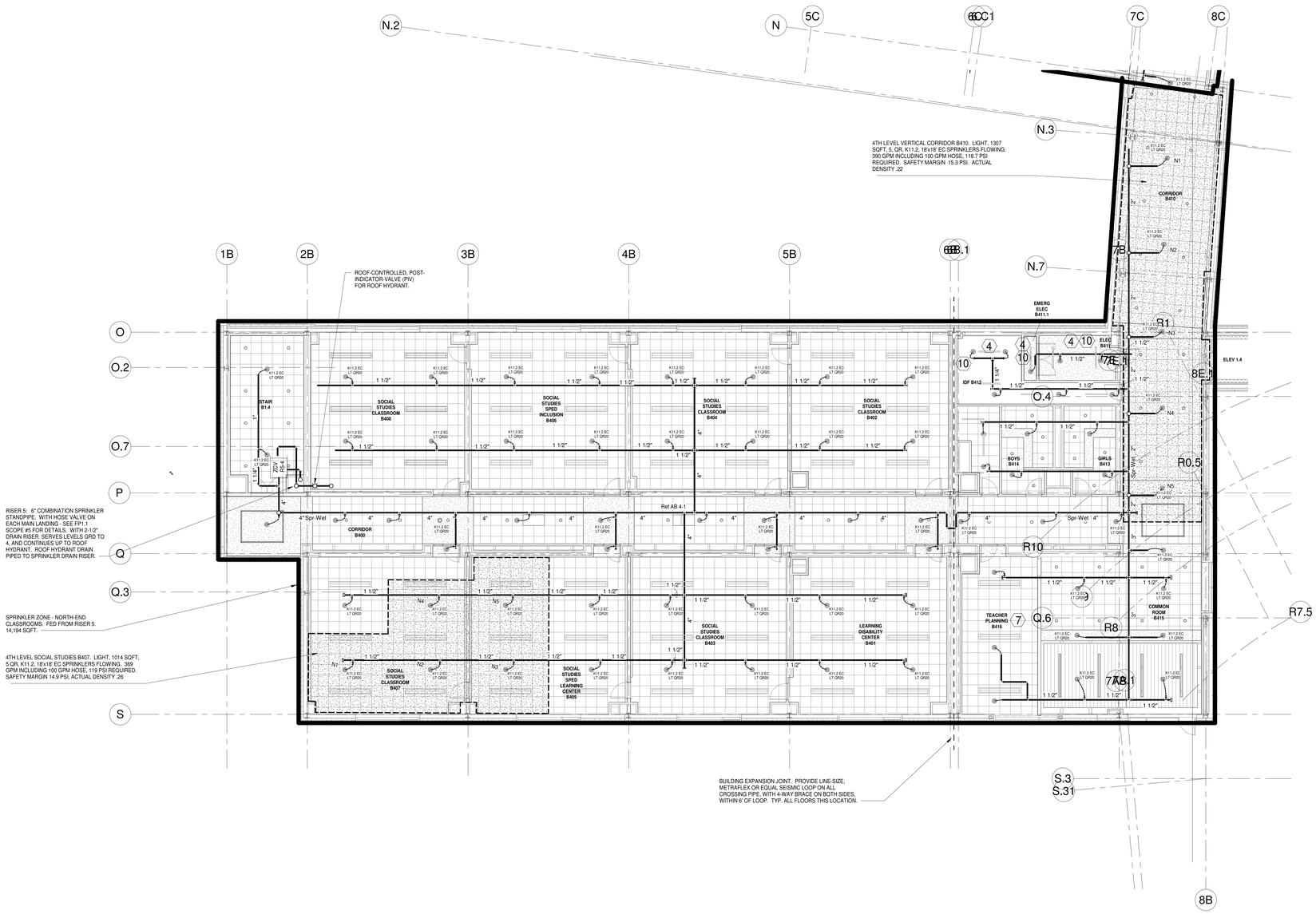
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Doherty Memorial High School

Highland Street, Worcester, MA. 01600

DRAWING TITLE

Fire Protection Level 4 Reflected Ceiling Plan Section B

Locus Map

True North

Key Plan

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CONCEALED PENDANT UNDER INTERMEDIATE LANDING. RUN PIPE UNDER TUBE BEAM AT LANDING CIRCUMFRENCE, AND ABOVE CEILING AS SHOWN. HANG PIPE TIGHT ENOUGH TO STRUCTURE ATTACHMENT TO ELIMINATE EOL RESTRAINT.

UPRIGHT SPRINKLER CENTERED UNDER STAIR TREADS. BRANCH CONTINUES DOWN TO INTERMEDIATE LANDING. HANG PIPE TIGHT ENOUGH TO BUILDING ATTACHMENT TO ELIMINATE EOL RESTRAINT. TYP. ALL STAIRS

BEAM PENETRATION AT TOP OF TREAD RUNS BY METAL FABRICATIONS. FP TO PROVIDE FLEXIBLE COUPLING ON BOTH SIDES OF EACH BEAM PENETRATION. TYP. ALL STAIRS.

RISER 1 - 6" STANDPIPE-ONLY. SERVES LEVELS 2 TO 5, WITH HOSE VALVE ON EACH MAIN LANDING - SEE FP1.1 SCOPE # 5 FOR HV DETAILS. ROOF COVERED BY PENTHOUSE ROOF HOSE VALVE AT OTHER END OF POD.

SPRINKLER ZONE - SOUTH-END CLASSROOMS. FED FROM RISER 3. 31,950 SQFT

CONCEALED PENDANT UNDER INTERMEDIATE LANDING. RUN PIPE UNDER TUBE BEAM AT LANDING CIRCUMFRENCE, AND ABOVE CEILING AS SHOWN. HANG PIPE TIGHT ENOUGH TO STRUCTURE ATTACHMENT TO ELIMINATE EOL RESTRAINT.

UPRIGHT SPRINKLER CENTERED UNDER STAIR TREADS GOING UP TO NEXT INTERMEDIATE LANDING..

BUILDING EXPANSION JOINT. PROVIDE LINE-SIZE, METRAFLEX OR EQUAL SEISMIC LOOP ON ALL CROSSING PIPE, WITH 4-WAY BRACE ON BOTH SIDES, WITHIN 6' OF LOOP. TYP. ALL FLOORS THIS LOCATION.

UPRIGHT SPRINKLER CENTERED UNDER STAIR TREADS. BRANCH CONTINUES DOWN TO INTERMEDIATE LANDING. HANG PIPE TIGHT ENOUGH TO BUILDING ATTACHMENT TO ELIMINATE EOL RESTRAINT. TYP. ALL STAIRS

CONCEALED PENDANT UNDER INTERMEDIATE LANDING. RUN PIPE UNDER TUBE BEAM AT LANDING CIRCUMFRENCE, AND ABOVE CEILING AS SHOWN. HANG PIPE TIGHT ENOUGH TO STRUCTURE ATTACHMENT TO ELIMINATE EOL RESTRAINT.

BEAM PENETRATIONS AT TOP OF TREAD RUNS BY METAL FABRICATIONS. FP TO PROVIDE FLEXIBLE COUPLING ON BOTH SIDES OF EACH BEAM PENETRATION. TYP. ALL STAIRS.

RISER 3 - 6" COMBINATION SPRINKLER STANDPIPE WITH HOSE VALVE ON EACH MAIN LANDING (SEE FP1.0 SCOPE ITEM #5), HAS 2-1/2" DRAIN RISER AND SERVES LEVELS MAIN TO 5. ROOF COVERED BY ROOF PENTHOUSE HOSE VALVES AT OTHER END OF POD.

RISER 2- 6" STANDPIPE WITH HOSE VALVE AT EACH MAIN LANDING AND ROOF PENTHOUSE. SERVES HV LEVELS MAIN TO ROOF. SEE FP1.0, SCOPE ITEM #5 FOR HV DETAILS. SERVES DE AREA SPRINKLERS ALSO ON MAIN AND 2ND LEVELS ONLY.

RISER 4 - 6" STANDPIPE-ONLY. SERVES LEVELS 3 TO 5. WITH ROOF HYDRANT.

CONCEALED PIPE AND SPRINKLER CENTERED UNDER STAIR TREADS GOING DOWN FROM LEVEL 5. PIPE CONTINUES DOWN TO CONCEALED PENDANT AT INTERMEDIATE LANDING, E-W TREADS, AND 2ND INTERMEDIATE LANDING. HANG PIPE TIGHT ENOUGH TO BUILDING ATTACHMENT TO ELIMINATE EOL RESTRAINT. TYP. ALL STAIRS

RUN PIPE UNDER BEAM AT HALL WALL.

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5TH LEVEL SCIENCE D508 OH2, 994 SQFT, 8 QR, K11.2, 14'x14' EC SPRINKLERS FLOWING. 561 GPM INCLUDING 250 GPM HOSE, 116.4 PSI REQUIRED. SAFETY MARGIN 17.5 PSI. ACTUAL DENSITY .31

RISER 1 - 6" STANDPIPE-ONLY. SERVES LEVELS 2 TO 5, WITH HOSE VALVE ON EACH MAIN LANDING - SEE FP1.1 SCOPE # 5 FOR HV DETAILS. ROOF COVERED BY PENTHOUSE ROOF HOSE VALVE AT OTHER END OF POD.

5TH LEVEL MATH D507 (N-S BRANCES OFF HALL MAIN). LIGHT, 967 SQFT, 6 QR, K11.2, 20'x20' EC SPRINKLERS FLOWING. 353 GPM INCLUDING 100 GPM HOSE, 114.9 PSI REQUIRED. SAFETY MARGIN 19.1 PSI, ACTUAL DENSITY .26

SPRINKLER ZONE - SOUTH-END CLASSROOMS. FED FROM RISER 3. 31,950 SQFT

RISER 3 - 6" COMBINATION SPRINKLER STANDPIPE, WITH HOSE VALVE AT EACH MAIN LANDING. SEE FP SCOPE ITEM #5 SHEET FP1.1. WITH 2-1/2" DRAIN RISER. SERVES LEVELS MAIN TO 5. ROOF COVERED BY HYDRANT AT OTHER END OF POD.

5TH LEVEL MATH C509 (E-W BRANCES OFF CM), LIGHT, 974 SQFT, 5 QR, K11.2, 18'x18' EC SPRINKLERS FLOWING. 361 GPM INCLUDING 100 GPM HOSE, 118.8 PSI REQUIRED. SAFETY MARGIN 15.1 PSI, ACTUAL DENSITY .27

5th LEVEL SCIENCE SWING ARMS 1-1/4" TYPICAL

2" DN IN STANDPIPE CHASE, CONNECT TO 4" HALL MAIN.

CONCEALED PENDANT UNDER INTERMEDIATE LANDING. RUN PIPE UNDER TUBE BEAM AT LANDING CIRCUMFRENCE, AND ABOVE CEILING AS SHOWN. HANG PIPE TIGHT ENOUGH TO STRUCTURE ATTACHMENT TO ELIMINATE EOL RESTRAINT.

2" UP TO PENTHOUSE SPRINKLERS

BUILDING EXPANSION JOINT. PROVIDE LINE-SIZE, METRAFLEX OR EQUAL SEISMIC LOOP ON ALL CROSSING PIPE, WITH 4-WAY BRACE ON BOTH SIDES, WITHIN 6' OF LOOP. TYP. ALL FLOORS THIS LOCATION.

UPRIGHT SPRINKLER CENTERED UNDER STAIR TREADS. BRANCH CONTINUES DOWN TO INTERMEDIATE LANDING. HANG PIPE TIGHT ENOUGH TO BUILDING ATTACHMENT TO ELIMINATE EOL RESTRAINT. TYP. ALL STAIRS

BEAM PENETRATION AT TOP OF TREAD RUNS BY METAL FABRICATIONS. FP TO PROVIDE FLEXIBLE COUPLING ON BOTH SIDES OF EACH BEAM PENETRATION. TYP. ALL STAIRS.

RISER 2 - 6" STANDPIPE WITH HOSE VALVE AT EACH MAIN LANDING AND ROOF PENTHOUSE. SERVES LEVELS MAIN TO ROOF. SEE FP1.0, SCOPE ITEM #5 FOR HV DETAILS. SERVES DE AREA SPRINKLERS ALSO ON MAIN AND 2ND LEVELS.

1", ROOF HYDRANT BALL-DRIP DRAIN. TIE TO SPRINKLER DRAIN RISER AT RISER 3.

RISER 4 - 6" STANDPIPE-ONLY, WITH HOSE VALVE ON EACH MAIN LANDING. SEE FP1.1 SCOPE #5 FOR HV DETAILS. SERVES LEVELS 3 TO 5. OFFSETS AND CONTINUES UP TO ROOF HYDRANT. WITH 1" BALL DRIP DRAIN PIPED TO RISER 3 SPRINKLER DRAIN.

STANDPIPE OFFSET, UP TO ROOF HYDRANT, WITH 1" BALL DRIP DRAIN PIPED TO RISER 3 SPRINKLER DRAIN.

ROOF-CONTROLLED, POST-INDICATOR-VALVE (PIV) FOR ROOF HYDRANT.

ROOF PENTHOUSE FP PART PLAN

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PROJECT

100% CD FINAL BID PACKAGE #4

Doherty Memorial High School

Highland Street, Worcester, MA. 01600

DRAWING TITLE

Fire Protection Level 5 Reflected Ceiling Plan Section CD

Locus Map

True North

Key Plan

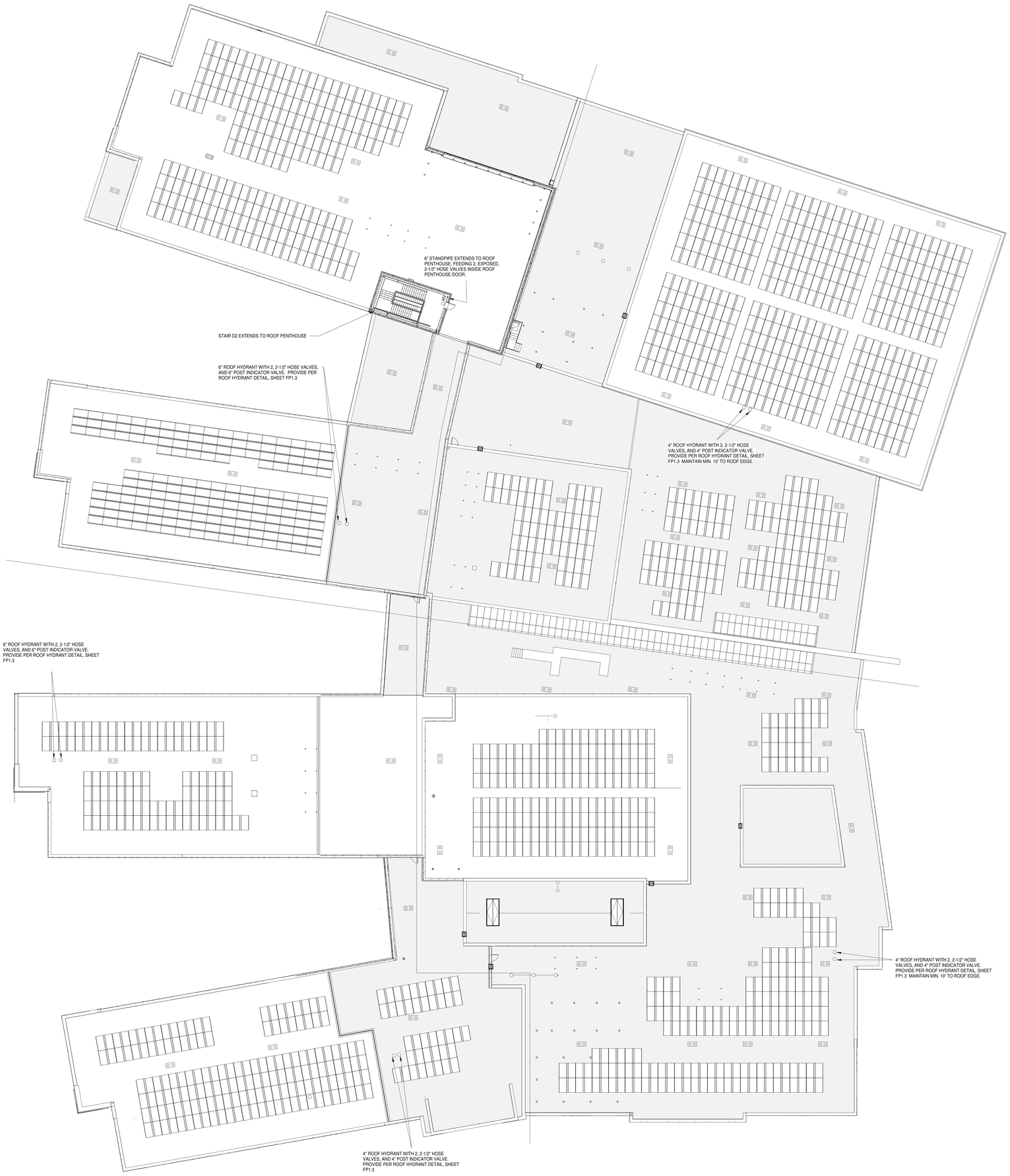
REVISIONS

No.	Description	Date

FILE:	DoHS FP 100% CD 1-17-22
JOB NO:	#1904
SCALE:	1/8" = 1'-0"
DWN. BY:	LKB
CKD. BY:	LKB
DATE:	January 20, 2022

FP-4.17

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Doherty Memorial
High School

Highland Street, Worcester, MA. 01600

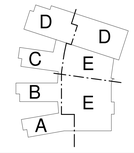
DRAWING TITLE

Fire Protection
Roof Level
1/16" Scale
Floor Plan

Locus Map

True North

Key Plan



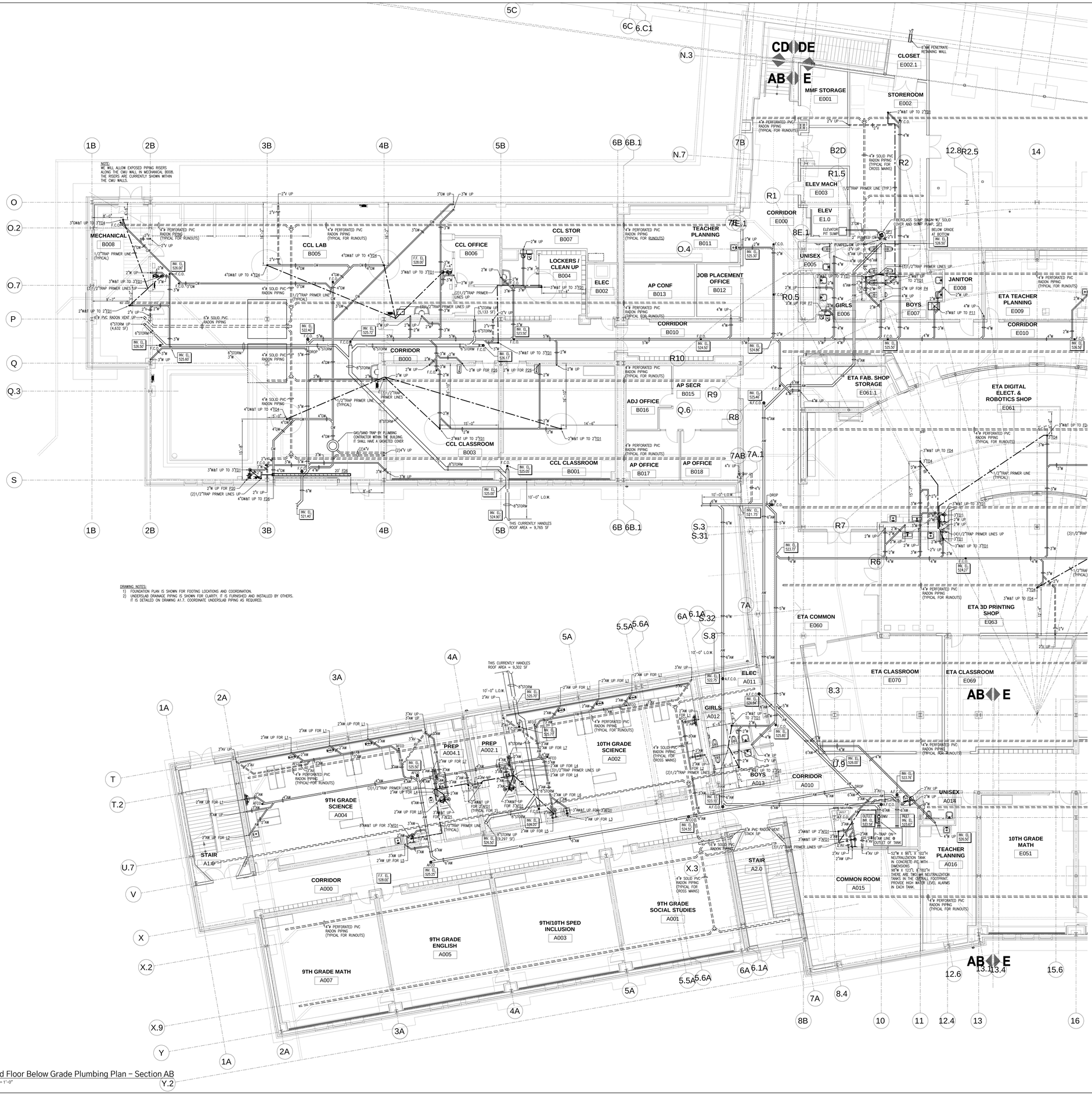
REVISIONS

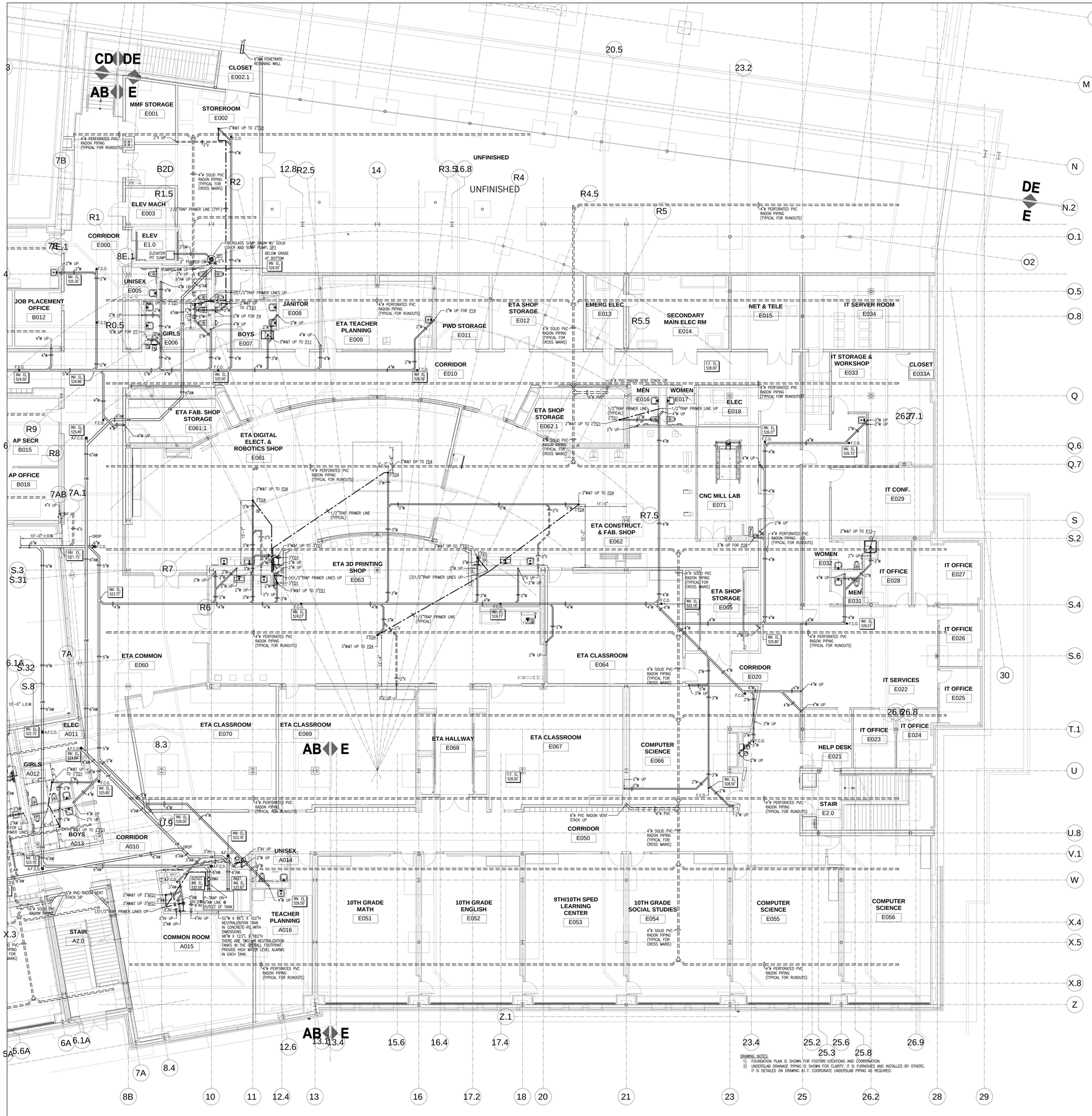
No.	Description	Date

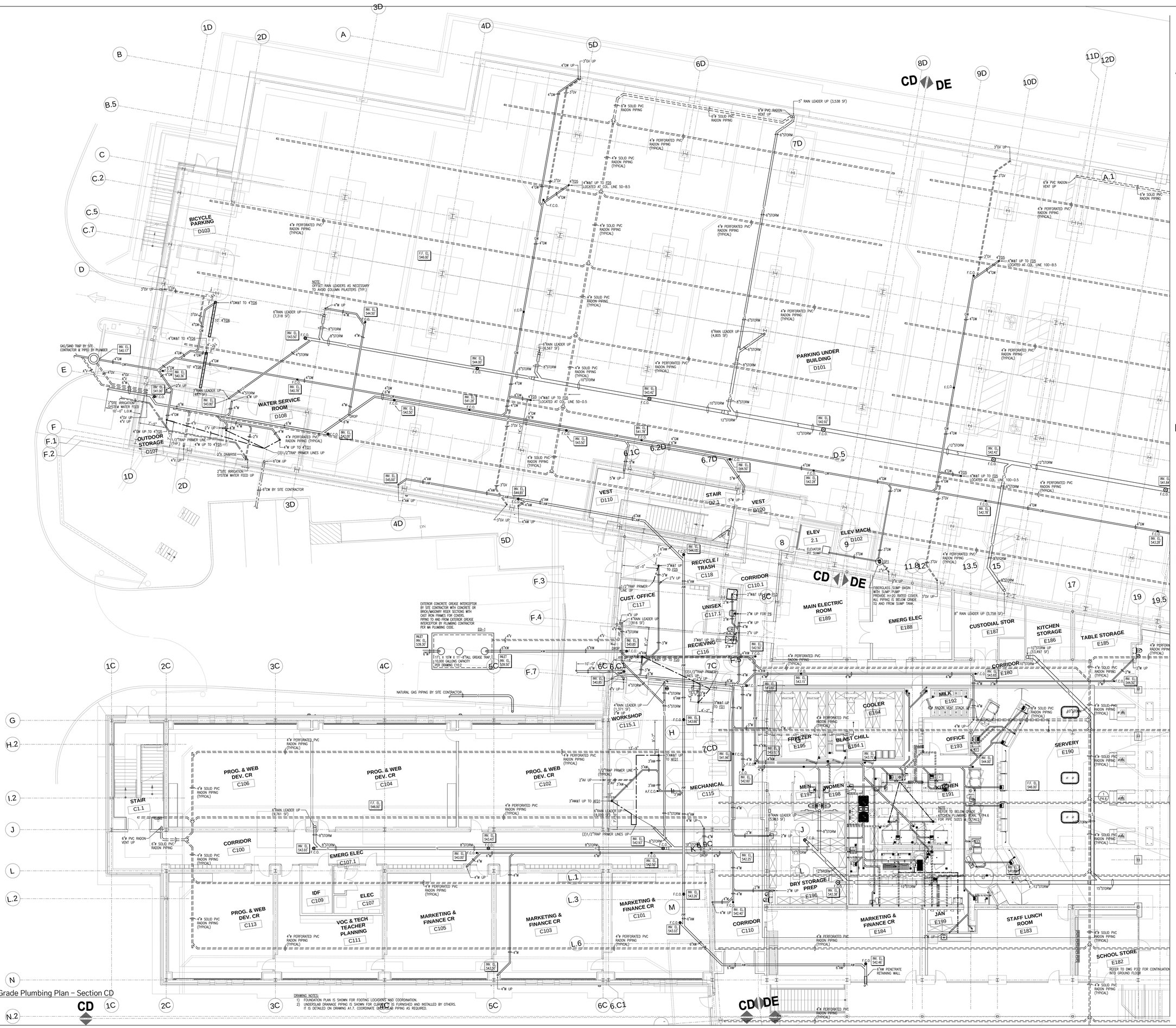
FILE:	DoHS FP 100% CD 1-17-22
JOB NO:	#1904
SCALE:	1/16" = 1'-0"
DWN. BY:	Author
CKD. BY:	Checker
DATE:	January 20, 2022

FP-4.18

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NOTE:
WE WILL ALLOW EXPOSED PIPING RISERS ALONG THE CMU WALL IN MECHANICAL ROOM. THE RISERS ARE CURRENTLY SHOWN WITHIN THE CMU WALLS.
MECHANICAL B008
CCL LAB B005
CCL OFFICE B006
CCL STOR B007
LOCKERS / CLEAN UP B004
ELEC B002
AP CONF B013
TEACHER PLANNING B011
JOB PLACEMENT OFFICE B012
CORRIDOR B010
CORRIDOR B000
AP SECR B015
ADJ OFFICE B016
CCL CLASSROOM B003
CCL CLASSROOM B001
AP OFFICE B017
AP OFFICE B018
CORRIDOR E000
MMF STORAGE E001
CLOSET E002.1
STOREROOM E002
ELEV MACH E003
ELEV E1.0
UNISEX E005
GIRLS E006
BOYS E007
JANITOR E008
ETA TEACHER PLANNING E009
CORRIDOR E010
ETA FAB. SHOP STORAGE E061.1
ETA DIGITAL ELECT. & ROBOTICS SHOP E061
ETA COMMON E060
ETA CLASSROOM E070
ETA CLASSROOM E069
ETA 3D PRINTING SHOP E063
ELEC A011
GIRLS A012
BOYS A013
CORRIDOR A010
UNISEX A014
TEACHER PLANNING A016
COMMON ROOM A015
STAIR A1.0
STAIR A2.0
CORRIDOR A000
PREP A004.1
PREP A002.1
9TH GRADE SCIENCE A004
10TH GRADE SCIENCE A002
9TH GRADE ENGLISH A005
9TH/10TH SPED INCLUSION A003
9TH GRADE SOCIAL STUDIES A001
9TH GRADE MATH A007
10TH GRADE MATH E051
4"ø PERFORATED PVC RADON PIPING (TYPICAL FOR RUNOUTS)
4"ø SOLID PVC RADON PIPING
6"ø SOLID PVC RADON VENT
1/2"TRAP PRIMER LINE (TYPICAL)
(2)1/2"TRAP PRIMER LINES UP
(3)1/2"TRAP PRIMER LINES UP
(4)1/2"TRAP PRIMER LINES UP
GAS/SAND TRAP BY PLUMBING CONTRACTOR WITHIN THE BUILDING. IT SHALL HAVE A GASKETED COVER
THIS CURRENTLY HANDLES ROOF AREA = 9,765 SF
THIS CURRENTLY HANDLES ROOF AREA = 9,302 SF
6"STORM UP (4,632 SF)
6"STORM UP (5,133 SF)
8"STORM UP (9,297 SF)
FIBERGLASS SUMP BASIN W/ SOLID COVER AND SUMP PUMP, SP1
BELOW GRADE AT BOTTOM
52"ø X 96"L X 102"H NEUTRALIZATION TANK IN CONCRETE PIT WITH DIMENSIONS 98"W X 123"L X 102"H. THERE ARE TWO (2) NEUTRALIZATION TANKS IN THE OVERALL FOOTPRINT. PROVIDE HIGH WATER LEVEL ALARMS IN EACH TANK.
P-TRAP ON 4"W LINE @ OUTLET OF TANK.
OUTLET INV. EL. 523.06'
INLET INV. EL. 523.62'
AIR GAP
ANTI-SIPHON VENT
ACID NEUTRAL
ACID WASTE
DROP
10'-0" L.O.W.
20' FD6
FD1
FD2
FD3
FD4
FD5
FD6
P1
P2
P3
P4
P5
P6
P7
P8
P9
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P35
P36
P37
P38
P39
P40


ETA FAB. SHOP STORAGE E061.1
ETA DIGITAL ELECT. & ROBOTICS SHOP E061
ETA 3D PRINTING SHOP E063
ETA CONSTRUCT. & FAB. SHOP E062
ETA SHOP STORAGE E062.1
ETA SHOP STORAGE E005
ETA SHOP STORAGE E012
ETA TEACHER PLANNING E009
PWD STORAGE E011
CORRIDOR E010
EMERG ELEC E013
SECONDARY MAIN ELEC RM E014
NET & TELE E015
IT SERVER ROOM E034
IT STORAGE & WORKSHOP E033
CLOSET E033A
MEN E016
WOMEN E017
ELEC E018
CNC MILL LAB E071
IT CONF. E029
WOMEN E032
MEN E031
IT OFFICE E028
IT OFFICE E027
IT OFFICE E026
IT OFFICE E025
IT OFFICE E024
IT OFFICE E023
IT SERVICES E022
HELP DESK E021
STAIR E2.0
CORRIDOR E020
ETA CLASSROOM E064
ETA CLASSROOM E070
ETA CLASSROOM E069
ETA HALLWAY E068
ETA CLASSROOM E067
COMPUTER SCIENCE E066
CORRIDOR E050
10TH GRADE MATH E051
10TH GRADE ENGLISH E052
9TH/10TH SPED LEARNING CENTER E053
10TH GRADE SOCIAL STUDIES E054
COMPUTER SCIENCE E055
COMPUTER SCIENCE E056
TEACHER PLANNING A016
UNISEX A014
CORRIDOR A010
BOYS A013
GIRLS A012
ELEC A011
STAIR A2.0
COMMON ROOM A015
ETA COMMON E060
JOB PLACEMENT OFFICE B012
AP SECR B015
AP OFFICE B018
CORRIDOR E000
ELEV E1.0
ELEV MACH E003
UNISEX E005
JANITOR E008
GIRLS E006
BOYS E007
MMF STORAGE E001
STOREROOM E002
CLOSET E002.1
UNFINISHED
UNFINISHED
CODE ABOVE
CODE ABOVE
CODE ABOVE



1 Main Floor Below Grade Plumbing Plan – Section CD
P2.3 Scale: 1/8" = 1'-0"

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299 Highland St
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PROJECT

100% CONSTRUCTION DOCUMENTS, FINAL BID PACKAGE #4

Doherty Memorial High School
299 Highland Street, Worcester, MA 01602

DRAWING TITLE

Main Floor Below Grade Plumbing Plan Section CD

Locus Map
True North

Key Plan

REVISIONS

No.	Description	Date

FILE:
JOB NO: #1904
SCALE: 1/8" = 1'-0"
DWN. BY: CDR
CKD. BY: KRS
DATE: JANUARY 20, 2022

P2.3

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1 Main Floor Below Grade Plumbing Plan – Section DE
P2.4 Scale: 1/8" = 1'-0"

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299 Highland St
Worcester MA 01602

PROJECT

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Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

DRAWING TITLE

Main Floor Below Grade Plumbing Plan Section DE

Locus Map

True North

Key Plan

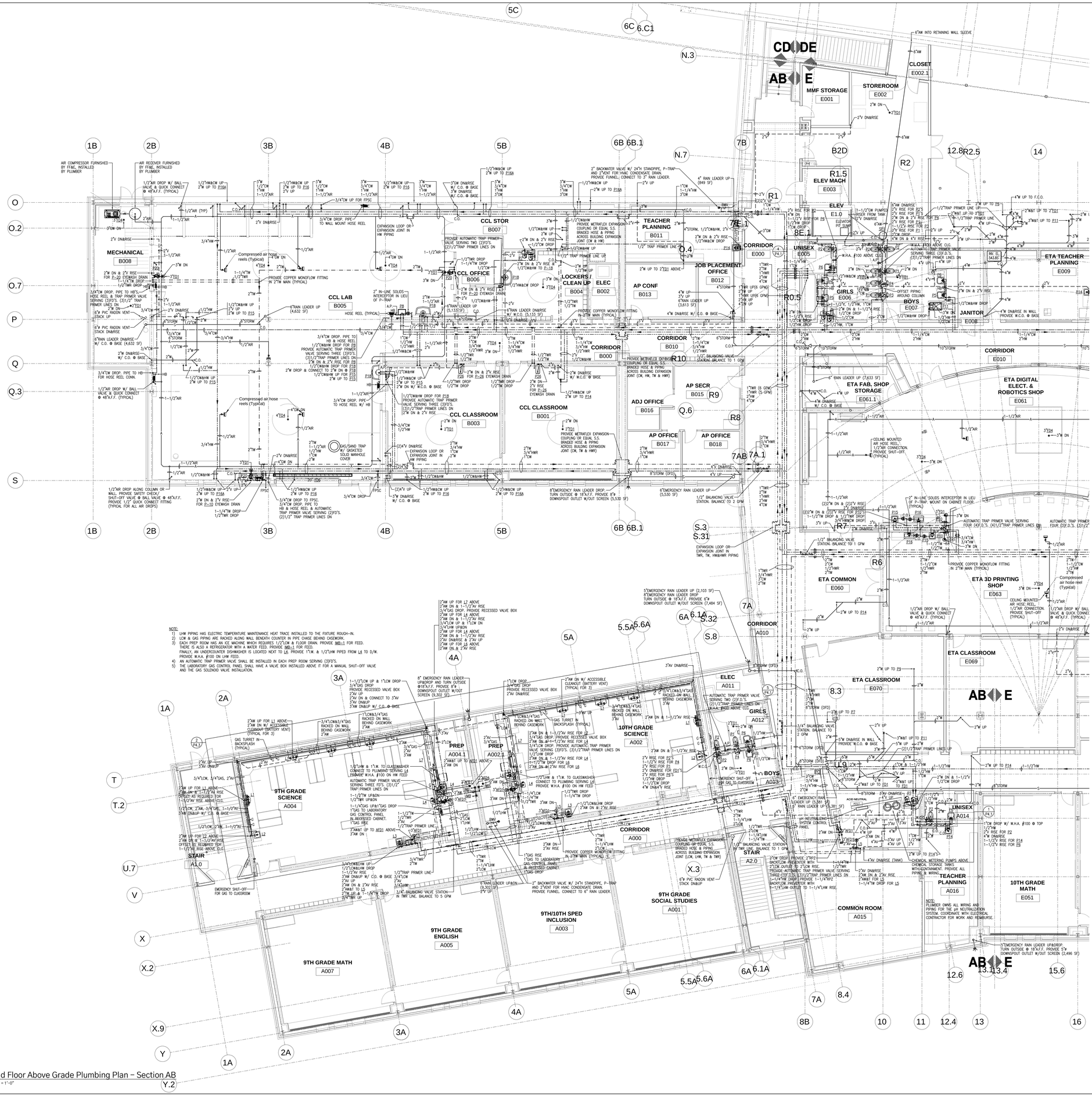
REVISIONS

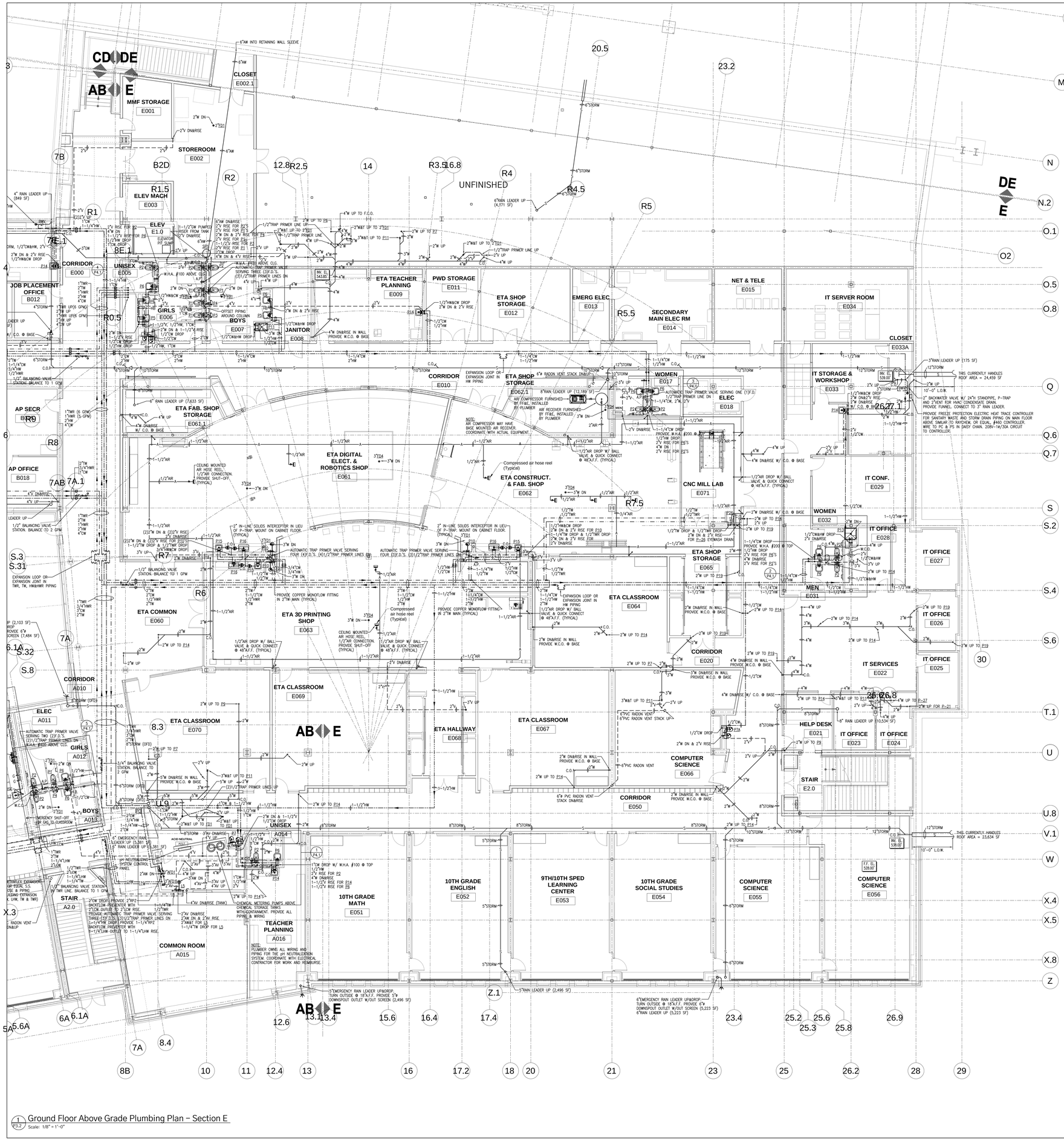
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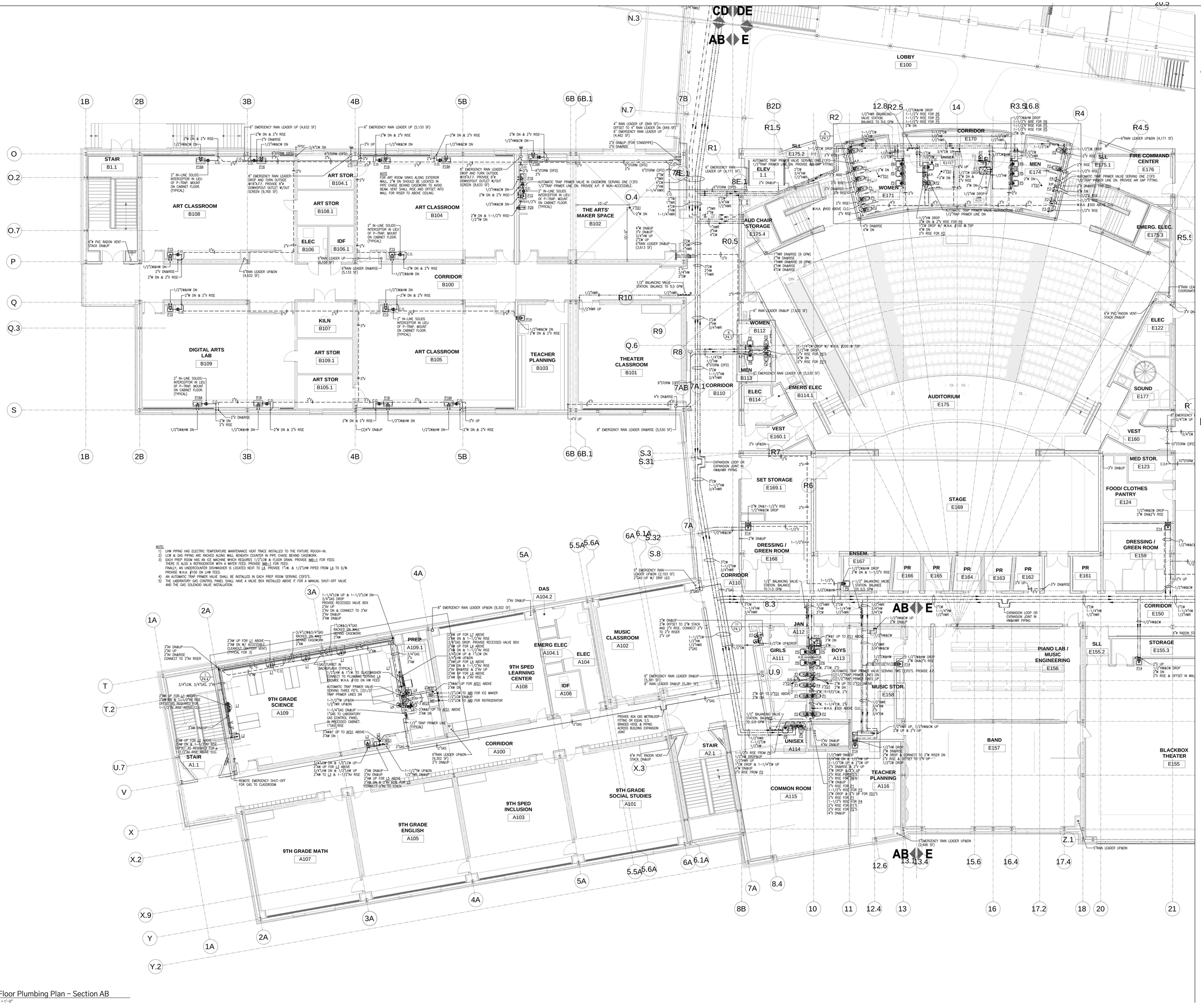
FILE:
JOB NO: #1904
SCALE: 1/8" = 1'-0"
DWN. BY: CDR
CKD. BY: KRS
DATE: JANUARY 20, 2022

P2.4

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NOTE:
1) LHW PIPING HAS ELECTRIC TEMPERATURE MAINTENANCE HEAT TRACE INSTALLED TO THE FIXTURE ROUGH-IN.
2) LCW & GAS PIPING ARE RACKED ALONG WALL BENEATH COUNTER IN PIPE CHASE BEHIND CASEWORK.
3) EACH PREP ROOM HAS AN ICE MACHINE WHICH REQUIRES 1/2"LCW & FLOOR DRAIN. PROVIDE MB-1 FOR FEED. THERE IS ALSO A REFRIGERATOR WITH A WATER FEED. PROVIDE MB-1 FOR FEED. FINALLY, AN UNDERCOUNTER DISHWASHER IS LOCATED NEXT TO L6. PROVIDE 1"LW & 1/2"LHW PIPED FROM L4 TO D/W. PROVIDE W.H.A. #100 ON LHW FEED.
4) AN AUTOMATIC TRAP PRIMER VALVE SHALL BE INSTALLED IN EACH PREP ROOM SERVING (3)FD'S.
5) THE LABORATORY GAS CONTROL PANEL SHALL HAVE A VALVE BOX INSTALLED ABOVE IT FOR A MANUAL SHUT-OFF VALVE AND THE GAS SOLENOID VALVE INSTALLATION.
CCL STOR B007
CCL OFFICE B006
CCL LAB B005
CCL CLASSROOM B001
CCL CLASSROOM B003
MECHANICAL B008
LOCKERS / CLEAN UP B004
ELEC B002
CORRIDOR B000
TEACHER PLANNING B011
JOB PLACEMENT OFFICE B012
AP CONF B013
CORRIDOR B010
AP SECR B015
ADJ OFFICE B016
AP OFFICE B017
AP OFFICE B018
CORRIDOR E000
UNISEX E005
GIRLS E006
BOYS E007
JANITOR E008
ETA TEACHER PLANNING E009
CORRIDOR E010
ETA FAB, SHOP STORAGE E061.1
ETA DIGITAL ELECT. & ROBOTICS SHOP E061
ETA COMMON E060
ETA 3D PRINTING SHOP E063
ETA CLASSROOM E069
ETA CLASSROOM E070
MMF STORAGE E001
STOREROOM E002
CLOSET E002.1
ELEV MACH E003
ELEV E1.0
CORRIDOR A010
ELEC A011
GIRLS A012
BOYS A013
UNISEX A014
TEACHER PLANNING A016
COMMON ROOM A015
STAIR A1.0
STAIR A2.0
9TH GRADE SCIENCE A004
PREP A004.1
PREP A002.1
10TH GRADE SCIENCE A002
CORRIDOR A000
9TH GRADE SOCIAL STUDIES A001
9TH/10TH SPED INCLUSION A003
9TH GRADE ENGLISH A005
9TH GRADE MATH A007
10TH GRADE MATH E051
AIR COMPRESSOR FURNISHED BY FF&E, INSTALLED BY PLUMBER
AIR RECEIVER FURNISHED BY FF&E, INSTALLED BY PLUMBER
Compressed air hose reels (Typical)
GAS TURRET IN BACKSPLASH (TYPICAL)
EMERGENCY SHUT-OFF FOR GAS TO CLASSROOM
GAS/SAND TRAP W/ GASKETED SOLID MANHOLE COVER
EXPANSION LOOP OR EXPANSION JOINT IN HW PIPING
EXPANSION LOOP OR EXPANSION JOINT IN TWR, TW, HW&WHR PIPING
PROVIDE COPPER MONOFLOW FITTING IN 2"TW MAIN (TYPICAL)
2" IN-LINE SOLIDS INTERCEPTOR IN LIEU OF P-TRAP
6"RAIN LEADER UP
6"RAIN LEADER DN&RISE W/ C.O. @ BASE (4,632 SF)
6"RAIN LEADER DN&RISE W/ C.O. @ BASE (5,133 SF)
6"RAIN LEADER UP&DN (9,302 SF)
6"EMERGENCY RAIN LEADER UP (5,530 SF)
6"EMERGENCY RAIN LEADER UP (2,103 SF)
6"EMERGENCY RAIN LEADER DROP. TURN OUTSIDE @ 18"A.F.F. PROVIDE 6"Ø DOWNSPOUT OUTLET W/OUT SCREEN (7,484 SF)
8"EMERGENCY RAIN LEADER DROP. TURN OUTSIDE @ 18"A.F.F. PROVIDE 8"Ø DOWNSPOUT OUTLET W/OUT SCREEN (9,302 SF)
6"EMERGENCY RAIN LEADER UP&DROP. TURN OUTSIDE @ 18"A.F.F. PROVIDE 6"Ø DOWNSPOUT OUTLET W/OUT SCREEN (2,496 SF)
2" BACKWATER VALVE W/ 24"H STANDPIPE, P-TRAP AND 2"VENT FOR HVAC CONDENSATE DRAIN. PROVIDE FUNNEL, CONNECT TO 3" RAIN LEADER.
4" RAIN LEADER UP (849 SF)
1/2" BALANCING VALVE STATION. BALANCE TO 1 GPM
1/2" BALANCING VALVE STATION. BALANCE TO 2 GPM
1/2" BALANCING VALVE STATION. BALANCE TO 5 GPM
1/2" BALANCING VALVE STATION. BALANCE TO 7 GPM
1/2" BALANCING VALVE STATION. BALANCE TO 9 GPM
1/2" BALANCING VALVE STATION. BALANCE TO 10 GPM
1/2" BALANCING VALVE STATION. BALANCE TO 11 GPM
1/2" BALANCING VALVE STATION. BALANCE TO 12 GPM
1/2" BALANCING VALVE STATION. BALANCE TO 13 GPM
1/2" BALANCING VALVE STATION. BALANCE TO


CDDE
ABE
DE
E
MMF STORAGE
E001
CLOSET
E002.1
STOREROOM
E002
UNFINISHED
ELEV MACH
E003
ELEV
E1.0
CORRIDOR
E000
UNISEX
E005
GIRLS
E006
BOYS
E007
JANITOR
E008
JOB PLACEMENT OFFICE
B012
ETA TEACHER PLANNING
E009
PWD STORAGE
E011
ETA SHOP STORAGE
E012
EMERG ELEC
E013
SECONDARY MAIN ELEC RM
E014
NET & TELE
E015
IT SERVER ROOM
E034
CLOSET
E033A
IT STORAGE & WORKSHOP
E033
CORRIDOR
E010
ETA SHOP STORAGE
E062.1
WOMEN
E017
ELEC
E018
AP SECR
B009
ETA FAB. SHOP STORAGE
E061.1
AP OFFICE
B018
ETA DIGITAL ELECT. & ROBOTICS SHOP
E061
ETA CONSTRUCT. & FAB. SHOP
E062
CNC MILL LAB
E071
IT CONF.
E029
WOMEN
E032
IT OFFICE
E028
IT OFFICE
E027
ETA SHOP STORAGE
E065
MEN
E031
ETA CLASSROOM
E064
ETA COMMON
E060
ETA 3D PRINTING SHOP
E063
CORRIDOR
E020
IT SERVICES
E022
IT OFFICE
E026
IT OFFICE
E025
CORRIDOR
A010
ETA CLASSROOM
E069
ETA CLASSROOM
E070
ETA HALLWAY
E068
ETA CLASSROOM
E067
HELP DESK
E021
IT OFFICE
E023
IT OFFICE
E024
ELEC
A011
GIRLS
A012
COMPUTER SCIENCE
E066
STAIR
E2.0
CORRIDOR
E050
BOYS
A013
UNISEX
A014
STAIR
A2.0
10TH GRADE ENGLISH
E052
9TH/10TH SPED LEARNING CENTER
E053
10TH GRADE SOCIAL STUDIES
E054
COMPUTER SCIENCE
E055
COMPUTER SCIENCE
E056
10TH GRADE MATH
E051
TEACHER PLANNING
A016
COMMON ROOM
A015
CORRIDOR
E002
R1
R1.5
R2
R2.5
R3.5
R4
R4.5
R5
R5.5
R0.5
R7
R7.5
R8
R9
R6
12.8
14
16.8
20.5
23.2
26.8
26.7.1
K
M
N
N.2
O.1
O2
O.5
O.8
Q
Q.6
Q.7
S
S.2
S.4
S.6
T.1
U
U.8
V.1
W
X.4
X.5
X.8
Z
Z.1
30
6"AW INTO RETAINING WALL SLEEVE
4" RAIN LEADER UP (649 SF)
6"RAIN LEADER UP (4,471 SF)
3"RAIN LEADER UP (175 SF)
6" RAIN LEADER UP (7,633 SF)
5" EMERGENCY RAIN LEADER UP (5,301 SF)
5" RAIN LEADER UP (5,301 SF)
5"EMERGENCY RAIN LEADER UP&DROP, TURN OUTSIDE @ 18"A.F.F. PROVIDE 5"ø DOWNSPOUT OUTLET W/OUT SCREEN (2,496 SF)
5"RAIN LEADER UP (2,496 SF)
6"EMERGENCY RAIN LEADER UP&DROP, TURN OUTSIDE @ 18"A.F.F. PROVIDE 6"ø DOWNSPOUT OUTLET W/OUT SCREEN (5,223 SF)
6"RAIN LEADER UP (5,223 SF)
8"RAIN LEADER UP (12,189 SF)
8" RAIN LEADER UP (10,534 SF)
THIS CURRENTLY HANDLES ROOF AREA = 24,459 SF
THIS CURRENTLY HANDLES ROOF AREA = 23,634 SF
10'-0" L.O.W.
2" BACKWATER VALVE W/ 24"H STANDPIPE, P-TRAP AND 2"vENT FOR HVAC CONDENSATE DRAIN. PROVIDE FUNNEL. CONNECT TO 3" RAIN LEADER.
PROVIDE FREEZE PROTECTION ELECTRIC HEAT TRACE CONTROLLER FOR SANITARY WASTE AND STORM DRAIN PIPING ON MAIN FLOOR ABOVE SIMILAR TO RAYCHEM, OR EQUAL, #460 CONTROLLER. WIRE TO PC & PS IN DAISY CHAIN. 208V-1Ø/30A CIRCUIT TO CONTROLLER.
UNFINISHED
ELEVATOR PIT SUMP
OFFSET PIPING AROUND COLUMN
EMERGENCY SHUT-OFF FOR GAS TO CLASSROOM
AUTOMATIC TRAP PRIMER VALVE SERVING TWO (2)F.D.'S. (2)1/2"TRAP PRIMER LINES ON W.H.A. #100 ABOVE CLG.
AUTOMATIC TRAP PRIMER VALVE SERVING THREE (3)F.D.'S. (3)1/2"TRAP PRIMER LINES ON W.H.A. #100 ABOVE CLG.
AUTOMATIC TRAP PRIMER VALVE SERVING FOUR (4)F.D.'S. (4)1/2"TRAP PRIMER LINES ON
AUTOMATIC TRAP PRIMER VALVE SERVING ONE (1)F.D.
AUTOMATIC TRAP PRIMER VALVE SERVING THREE (3)F.D.'S. (3)1/2"TRAP PRIMER LINES ON
AUTOMATIC TRAP PRIMER VALVE SERVING FOUR (4)F.D.'S. (4)1/2"TRAP PRIMER LINES ON
AIR COMPRESSOR FURNISHED BY FF&E, INSTALLED BY PLUMBER
AIR RECEIVER FURNISHED BY FF&E, INSTALLED BY PLUMBER
NOTE: AIR COMPRESSOR MAY HAVE BASE MOUNTED AIR RECEIVER. COORDINATE WITH ACTUAL EQUIPMENT.
8"RAN LEADER UP (7,633 SF)
8"RAIN LEADER UP (10,534 SF)
8"RAIN LEADER UP (5,301 SF)
8"RAIN LEADER UP (2,496 SF)
8"RAIN LEADER UP (5,223 SF)
CEILING MOUNTED AIR HOSE REEL, 1/2"AIR CONNECTION. PROVIDE SHUT-OFF (TYPICAL)
Compressed air hose reel (Typical)
1/2"AIR DROP W/ BALL VALVE & QUICK CONNECT @ 48"A.F.F. (TYPICAL)
1/2" BALANCING VALVE STATION. BALANCE TO 2 GPM
1/2" BALANCING VALVE STATION. BALANCE TO 1 GPM
3/4" BALANCING VALVE STATION. BALANCE TO 2 GPM
EXPANSION LOOP OR EXPANSION JOINT IN TWW, TW, HW&WR PIPING
EXPANSION LOOP OR EXPANSION JOINT IN HW PIPING
2" IN-LINE SOLIDS INTERCEPTOR IN LIEU OF P-TRAP, MOUNT ON CABINET FLOOR. (TYPICAL)
PROVIDE COPPER MONOFLOW FITTING IN 2"HW MAIN (TYPICAL)
PROVIDE COPPER MONOFLOW FITTING IN 2"TW MAIN (TYPICAL)
Compressed air hose reel (Typical)
CHEMICAL METERING PUMPS ABOVE. CHEMICAL STORAGE TANKS WITH CONTAINMENT. PROVIDE ALL PIPING & WIRING
pH NEUTRALIZING SYSTEM CONTROL PANEL
ACID NEUTRAL
NOTE: PLUMBER OWNS ALL WIRING AND PIPING FOR THE pH NEUTRALIZATION SYSTEM. COORDINATE WITH ELECTRICAL CONTRACTOR FOR WORK AND REIMBURSE.
W.H.A. #200 @ TOP
W.H.A. #100 @ TOP
W.H.A. #100 ABOVE CLG.
W.H.A. #100 ABOVE C.O.
W.H.A. #100 ABOVE CLG.
W.H.A. #100 ABOVE C.O.
W.H.A. #200 @ TOP
W.H.A. #100 @ TOP
W.H.A. #100 ABOVE CLG.
W.H.A. #100 ABOVE C.O.



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PROJECT

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Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

DRAWING TITLE

Main Floor Plumbing Plan Section AB

Locus Map

True North

Key Plan

REVISIONS

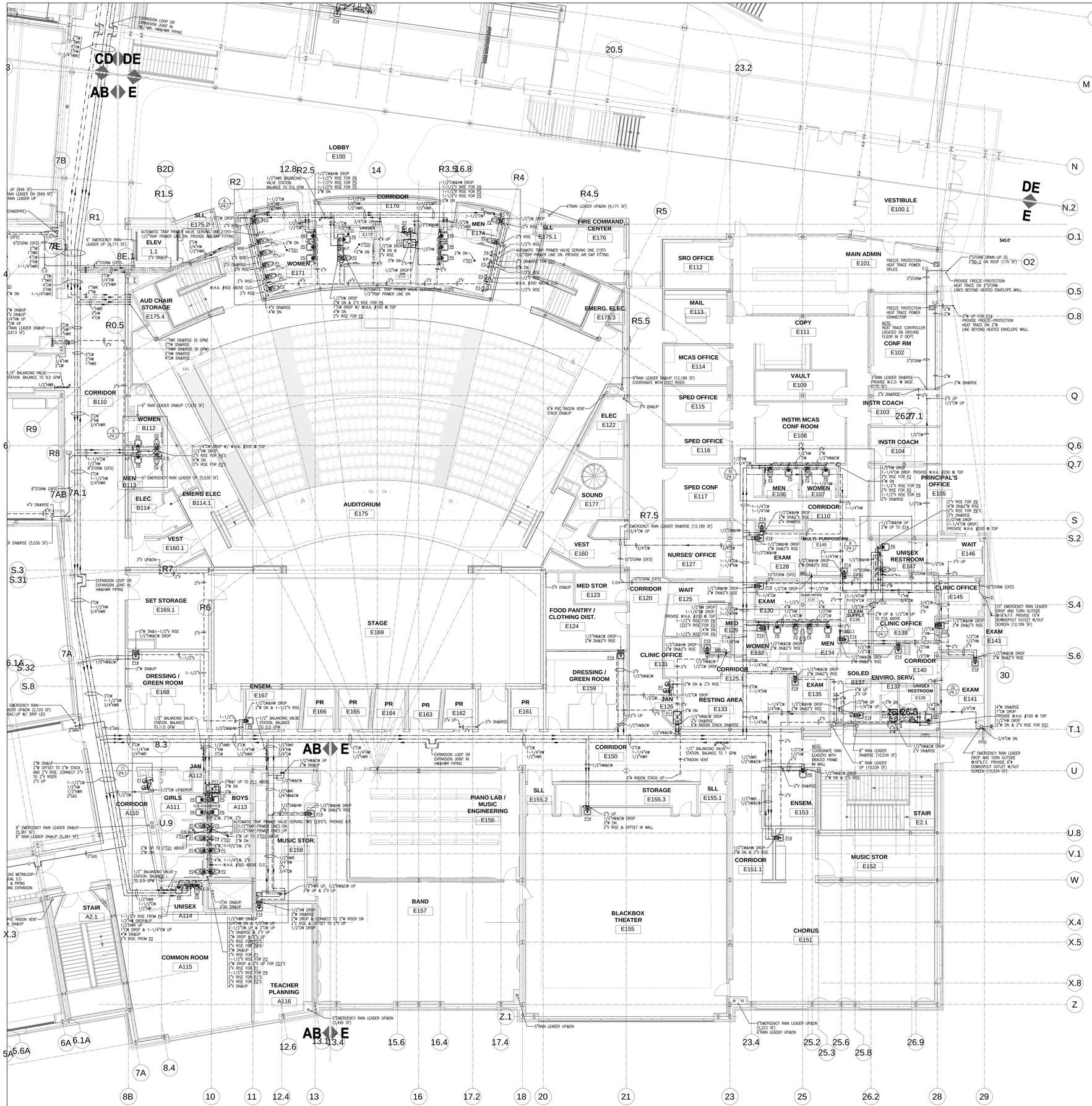
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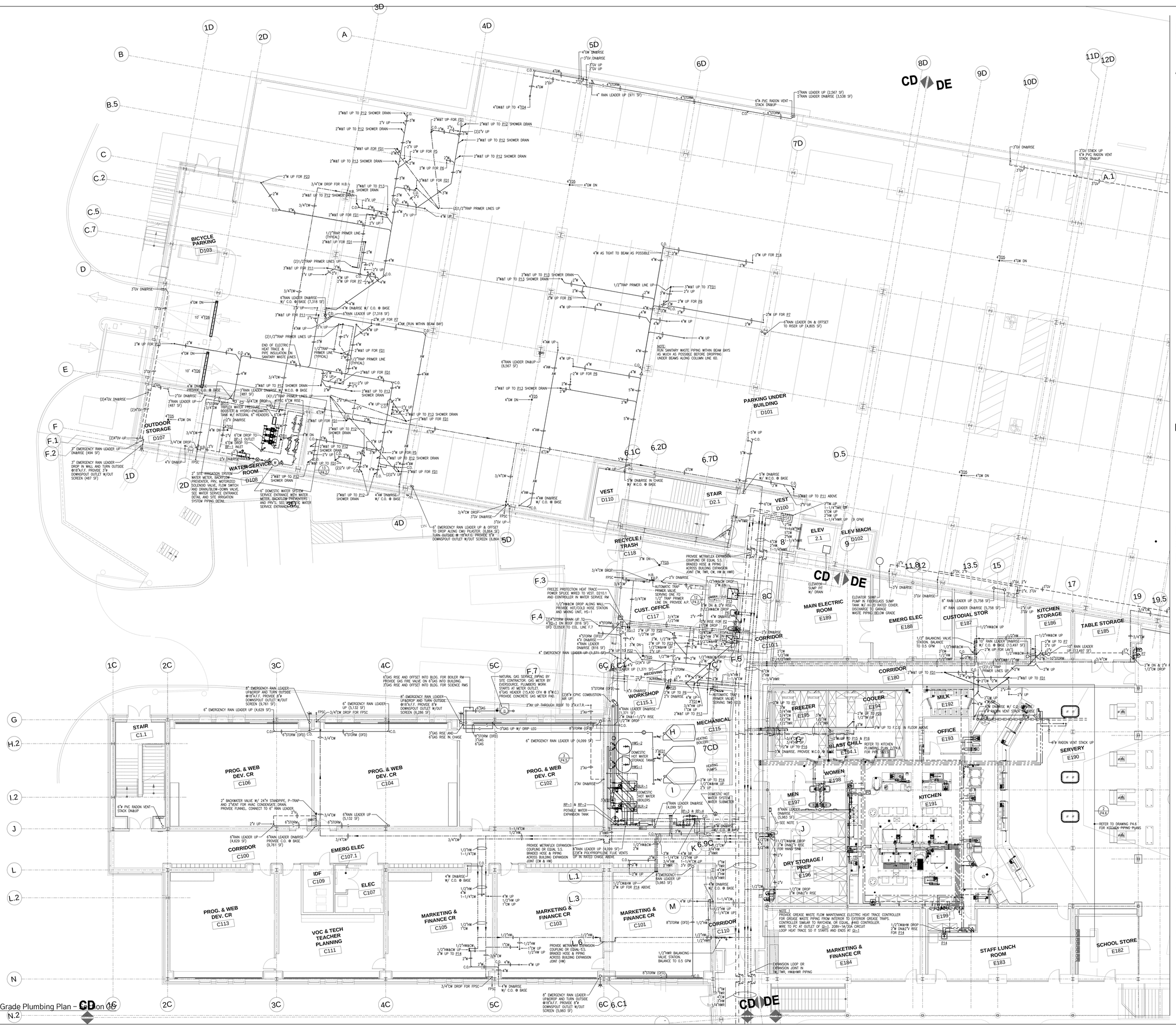
FILE:

JOB NO:	#1904
SCALE:	1/8" = 1'-0"
DWN. BY:	CDR
CKD. BY:	KRS
DATE:	JANUARY 20, 2022

P3.3

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LOBBY
E100
CORRIDOR
E170
SLL
E175.2
MEN
E174
WOMEN
E171
UNISEX
E172
FIRE COMMAND CENTER
E176
SLL
E175.1
EMERG. ELEC.
E175.3
AUD CHAIR STORAGE
E175.4
AUDITORIUM
E175
VESTIBULE
E100.1
MAIN ADMIN
E101
SRO OFFICE
E112
MAIL
E113
COPY
E111
CONF RM
E102
MCAS OFFICE
E114
VAULT
E109
SPED OFFICE
E115
INSTR MCAS CONF ROOM
E108
INSTR COACH
E103
SPED OFFICE
E116
INSTR COACH
E104
SPED CONF
E117
MEN
E106
WOMEN
E107
PRINCIPAL'S OFFICE
E105
CORRIDOR
E110
MULTI-PURPOSE
E149
NURSES' OFFICE
E127
EXAM
E128
UNISEX RESTROOM
E147
WAIT
E146
CORRIDOR
E120
WAIT
E125
MED STOR
E123
FOOD PANTRY / CLOTHING DIST.
E124
MED
E126
CLEAN SUPPLY
E136
CLINIC OFFICE
E145
CLINIC OFFICE
E131
CORRIDOR
E125.1
WOMEN
E132
MEN
E134
CLINIC OFFICE
E138
EXAM
E143
EXAM
E130
CORRIDOR
E140
SOILED
E137
ENVIRO. SERV.
E137
UNISEX RESTROOM
E139
EXAM
E135
EXAM
E141
JAN
E126
RESTING AREA
E133
DRESSING / GREEN ROOM
E159
DRESSING / GREEN ROOM
E168
ENSEM.
E167
PR
E166
PR
E165
PR
E164
PR
E163
PR
E162
PR
E161
STAGE
E169
SET STORAGE
E169.1
CORRIDOR
E150
STORAGE
E155.3
SLL
E155.2
SLL
E155.1
PIANO LAB / MUSIC ENGINEERING
E156
ENSEM.
E153
STAIR
E2.1
CORRIDOR
E151.1
MUSIC STOR
E152
CHORUS
E151
BLACKBOX THEATER
E155
BAND
E157
MUSIC STOR.
E158
CORRIDOR
A110
GIRLS
A111
JAN
A112
BOYS
A113
UNISEX
A114
STAIR
A2.1
COMMON ROOM
A115
TEACHER PLANNING
A116
CORRIDOR
B110
WOMEN
B112
MEN
B113
ELEC
B114
EMERG ELEC
B114.1
VEST
E160.1
VEST
E160
SOUND
E177
ELEC
E122
AUTOMATIC TRAP PRIMER VALVE SERVING ONE (1)FD. 1/2"TRAP PRIMER LINE DN. PROVIDE AIR GAP FITTING.
ELEV
1.1
2"CW DN&UP
2"W DN&UP
2"HWR
2"CW
3/4"HWR
3/4"CW
1-1/4"HWR
1-1/4"CW
1-1/2"CW
1/2"CW
1/2"HWR
1/2"HW&CW
1/2"HW&CW DROP
2"W DN & 1-1/2"V RISE FOR P5
1-1/2"V RISE FOR P5
1-1/2"V RISE FOR P5
2"W DN
1/2"HWR BALANCING VALVE STATION. BALANCE TO 0.5 GPM
1-1/2"CW DROP
2"V RISE
2"V DN&RISE
2"W DN
2"TDI
W.H.A. #300 ABOVE CLG.
1/2"TRAP PRIMER LINE DN
1/2"CW DROP
2"W DN & 2"V RISE FOR P6
1"CW DROP W/ W.H.A. #100 @ TOP
2"V RISE FOR P2
6"RAIN LEADER UP&ON (4,171 SF)
6"RAIN LEADER DN&UP (12,189 SF) COORDINATE WITH DUCT RISER
6" PVC RADON VENT STACK DN&UP
3"V DN&UP
6" RAIN LEADER DN&UP (7,433 SF)
6" EMERGENCY RAIN LEADER UP (5,530 SF)
8" EMERGENCY RAIN LEADER UP (12,189 SF)
1-1/4"CW DROP
1-1/4"V RISE FOR P5
1-1/4"W DN
1-1/4"V RISE FOR P2
1/2"CW&HW DROP
2"W DN&2"V RISE
2"V DN&RISE
3"V UP&ON
3"V UP
3"CW
3"HWR
3/4"HWR
3/4"CW
1-1/2"CW
1-1/2"HWR
1-1/4"CW
1-1/4"HWR
1/2"CW
1/2"HWR
1/2"HW&CW
2"W DN&UP
2"CW
2"HWR
2"W DN
2"V DN&RISE
2"V UP
2"W UP
2"CW UP
2"HW&CW UP
2"W UP & 2"V UP
1/2"CW UP&DROP
1/2"HW&CW UP
1/2"HW&CW DROP
2"W DN & 2"V RISE
2"W DN&RISE
2"V RISE & OFFSET IN WALL
2"V UP
1/2"HW&CW DROP
2"W DN
2"V RISE & OFFSET IN WALL
1/2"HW&CW DROP
2"W DN & 2"V RISE
2"W DN&RISE
2"V DN&RISE



1 Main Floor Above Grade Plumbing Plan – Section CD
P3.5 Scale: 1/8" = 1'-0"

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True North

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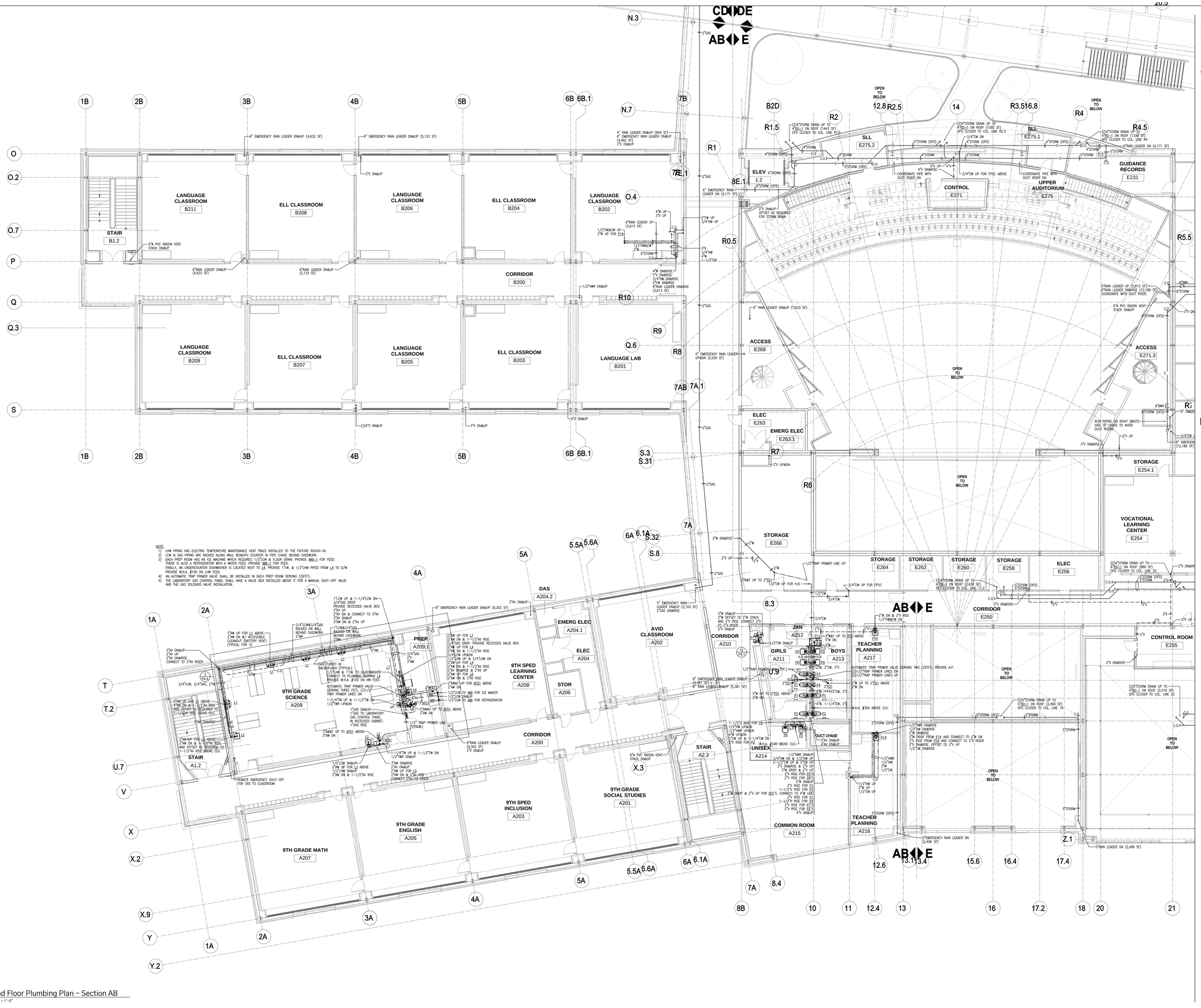
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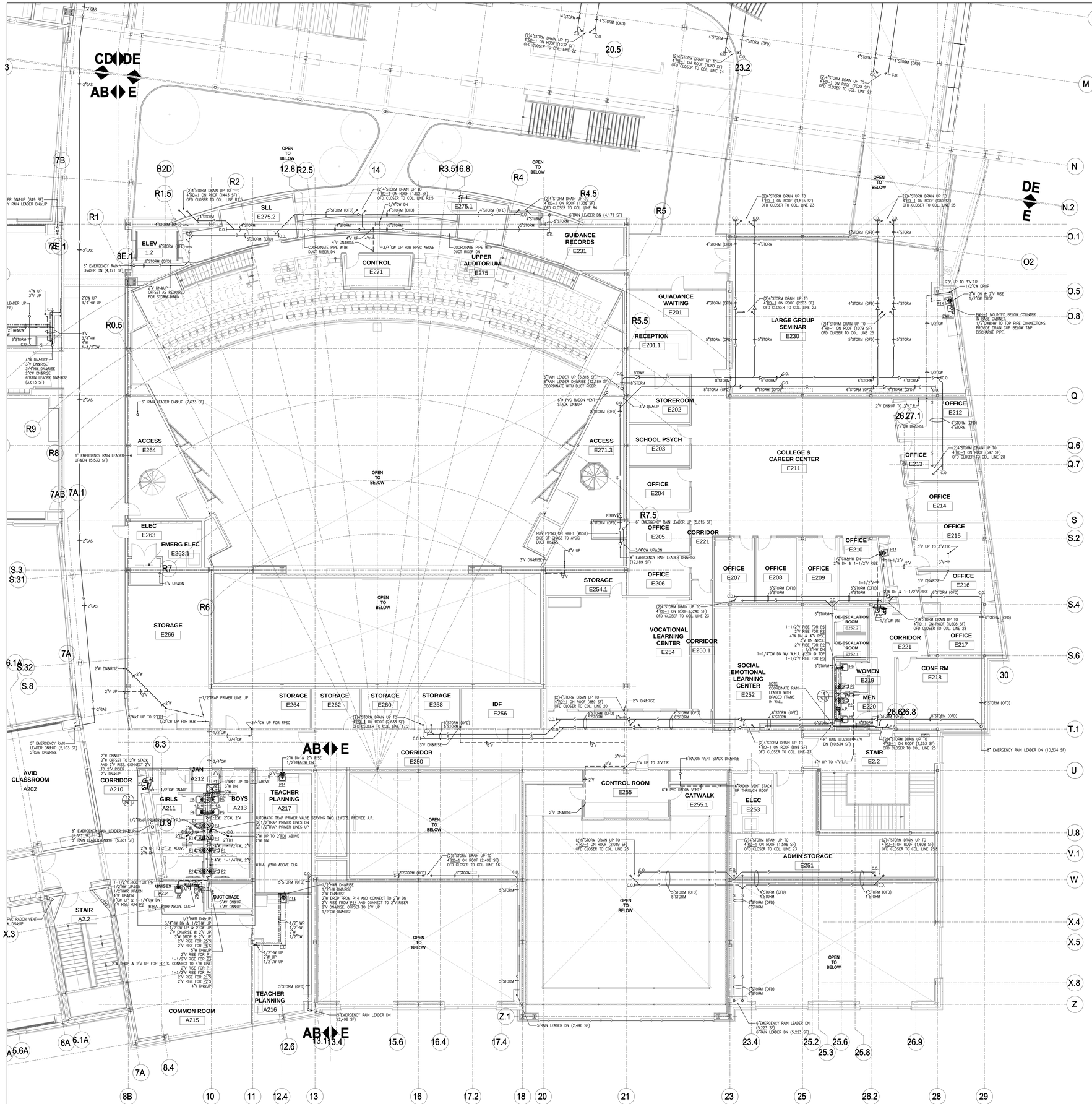
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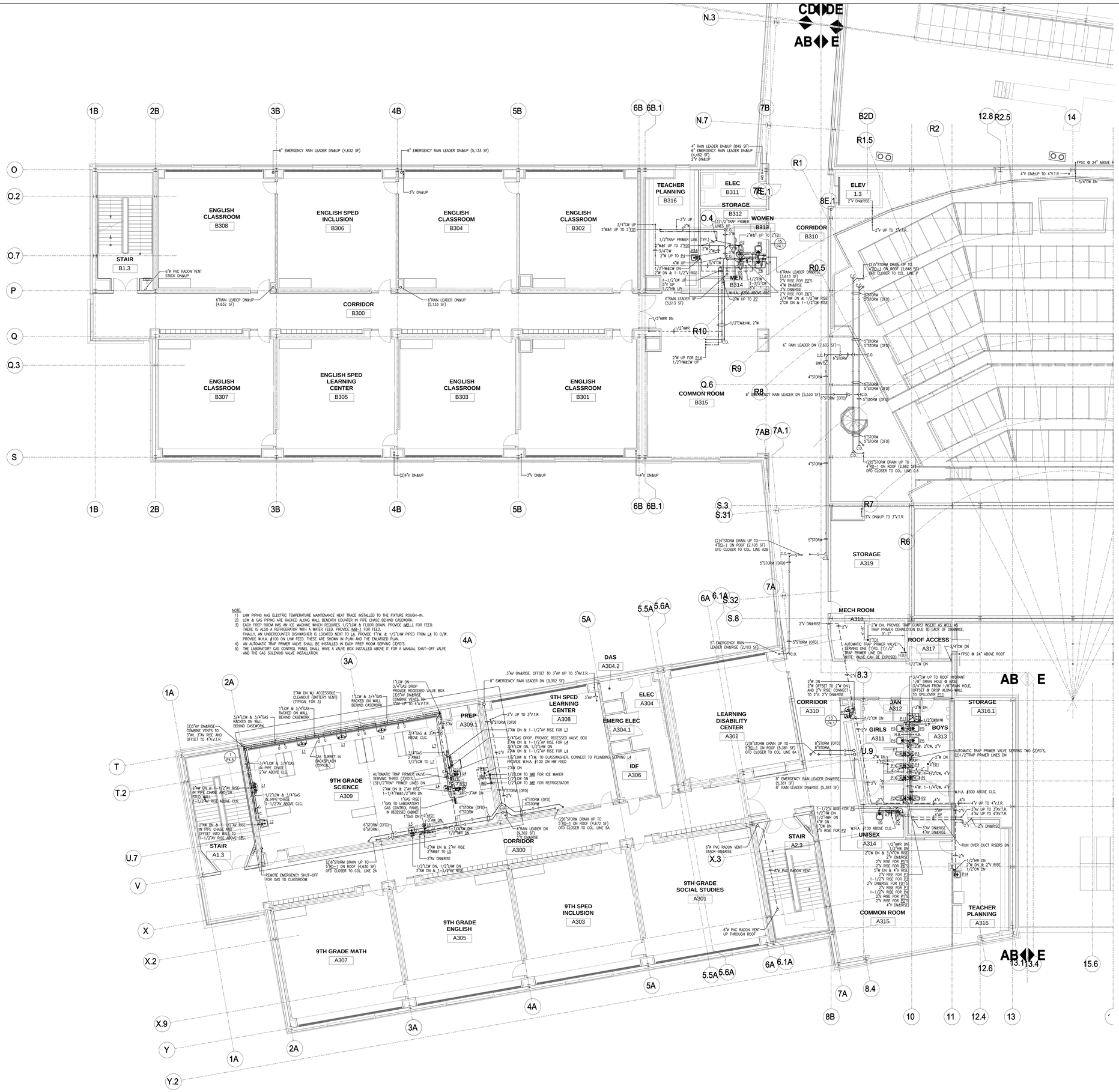

CD DE
PARKING UNDER BUILDING D101
OUTDOOR STORAGE D103
STAIR D2.1
VEST D100
ELEV 2.1
ELEV MACH D102
RECYCLE / TRASH C118
CUST. OFFICE C117
RECIEVING C116
MAIN ELECTRIC ROOM E189
EMERG ELEC E188
CUSTODIAL STOR E187
KITCHEN STORAGE E186
TABLE STORAGE E185
CORRIDOR C110.1
CORRIDOR E180
MECHANICAL C115
WORKSHOP C115.1
FREEZER E195
COOLER E194
MILK E192
OFFICE E193
BLAST CHILL E194.1
SERVERY E190
MEN E197
WOMEN E198
KITCHEN E191
DRY STORAGE / PREP E196
CORRIDOR C110
MARKETING & FINANCE CR C101
MARKETING & FINANCE CR E184
STAFF LUNCH ROOM E183
SCHOOL STORE E182
CAFETERIA E181
LOBBY E100
VESTIBULE E100.1
ELEVATOR SUMP PIT W/ DRAIN
ELEVATOR SUMP PUMP IN FIBERGLASS SUMP TANK W/ H-20 RATED COVER. DISCHARGE TO GARAGE WASTE PIPING BELOW GRADE
5"RAIN LEADER UP (2,567 SF)
5"RAIN LEADER DN&RISE (3,538 SF)
6"ø PVC RADON VENT STACK DN&UP
4" RAIN LEADER UP (971 SF)
6" RAIN LEADER UP&ON (9,370 SF)
6"RAIN LEADER DN & OFFSET TO RISER UP (4,805 SF)
8" RAIN LEADER UP (5,758 SF)
8" RAIN LEADER DN&RISE (5,758 SF)
10" RAIN LEADER DN&RISE W/ C.O. @ BASE (13,497 SF)
10" RAIN LEADER UP (13,497 SF)
6" EMERGENCY RAIN LEADER UP (4,099 SF)
6" EMERGENCY RAIN LEADER UP (1,371 SF)
8" EMERGENCY RAIN LEADER UP (5,983 SF)
8" EMERGENCY RAIN LEADER UP&DROP AND TURN OUTSIDE @18"A.F.F. PROVIDE 8"ø DOWNSPOUT OUTLET W/OUT SCREEN (5,983 SF)
8" EMERGENCY RAIN LEADER UP (9,355 SF)
12" EMERGENCY RAIN LEADER DROP (22,852 SF) TURN OUTSIDE @ 18"A.F.C. PROVIDE 12"ø DOWNSPOUT OUTLET W/OUT SCREEN (22,852 SF)
8" RAIN LEADER UP&ON (9,355 SF)
10" EMERGENCY RAIN LEADER UP (13,497 SF)
NOTE: RUN SANITARY WASTE PIPING WITHIN BEAM BAYS AS MUCH AS POSSIBLE BEFORE DROPPING UNDER BEAMS ALONG COLUMN LINE 60.
NOTE 1 PROVIDE GREASE WASTE FLOW MAINTENANCE ELECTRIC HEAT TRACE CONTROLLER FOR GREASE WASTE PIPING FROM INTERIOR TO EXTERIOR GREASE TRAPS. CONTROLLER SIMILAR TO RAYCHEM, OR EQUAL, #460 CONTROLLER. WIRE TO PC AT OUTLET OF G-1 208V-1ø/30A CIRCUIT LOOP HEAT TRACE SO IT STARTS AND ENDS AT G-1
FREEZE PROTECTION HEAT TRACE - POWER SPLICE WIRED TO VEST. D210.1 AND CONTROLLER IN WATER SERVICE RM
1/2"HW&CW DROP ALONG WALL - PROVIDE HOT/COLD HOSE STATION AND MIXING UNIT, HS-1
4"STORM DRAIN UP TO 4"RD-1 ON ROOF (816 SF) OFD CLOSER TO COL. LINE F.7
4" EMERGENCY RAIN LEADER UP (1,371 SF)
PROVIDE METRAFLEX EXPANSION COUPLING OR EQUAL S.S. BRAIDED HOSE & PIPING ACROSS BUILDING EXPANSION JOINT (TW, TWR, CW, HW & HWR)
EXPANSION LOOP OR EXPANSION JOINT IN TW, TWR, HW&HWR PIPING
1/2"HWR BALANCING VALVE STATION, BALANCE TO 0.5 GPM
1/2" BALANCING VALVE STATION, BALANCE TO 0.5 GPM
REFER TO KITCHEN PLUMBING PLAN 2/P4.6 FOR PIPE SIZES
REFER TO DRAWING P4.6 FOR KITCHEN PIPING PLANS
LABEL SHUT-OFF VALVE ABOVE CLG. TO STATE "SHUT-OFF FOR COLD MONTHS AND DRAIN DOWN FPSC"
4"W AS TIGHT TO BEAM AS POSSIBLE
1/2"TRAP PRIMER LINE UP
4"W DN&RISE W/ W.C.O. @ BASE
4"W DN&RISE IN CHASE W/ W.C.O. @ BASE
4"W DN&RISE W/ C.O. @ BASE
5"W DN&RISE W/ W.C.O. @ BASE
3"W DN&RISE
2"W DN&RISE
2"W DN&RISE W/ C.O. @ BASE
3"W DROP
3"W UP
3"W STACK UP
3"W DN&RISE
3"W STACK UP
6"ø PVC RADON VENT STACK DN&UP
4"DS
4"CW DN
4"W UP
4"W DN
2"W UP
2"W DN
2"W UP FOR P14
2"W UP FOR P5
2"W UP FOR P7
3"W&T UP TO 3"D1
2"V UP
3"W&T UP TO P13 SHOWER DRAIN
2"W UP FOR P6
2"W UP FOR P2
3"W&T UP TO P11 ABOVE
2"W UP 1-1/4"HWR UP (9 GPM)
2"W UP 1-1/4"HWR UP
2"W UP 1-1/4"HWR UP
2"W UP 1-1/4"HWR UP


LANGUAGE CLASSROOM B211
ELL CLASSROOM B208
LANGUAGE CLASSROOM B206
ELL CLASSROOM B204
LANGUAGE CLASSROOM B202
STAIR B1.2
CORRIDOR B200
LANGUAGE CLASSROOM B209
ELL CLASSROOM B207
LANGUAGE CLASSROOM B205
ELL CLASSROOM B203
LANGUAGE LAB B201
6" EMERGENCY RAIN LEADER DN&UP (4,632 SF)
6" EMERGENCY RAIN LEADER DN&UP (5,133 SF)
4" RAIN LEADER DN&UP (849 SF)
6" EMERGENCY RAIN LEADER DN&UP (4,462 SF)
2"V DN&UP
6"ø PVC RADON VENT STACK DN&UP
6"RAIN LEADER DN&UP (4,632 SF)
6"RAIN LEADER DN&UP (5,133 SF)
6"RAIN LEADER UP (3,613 SF)
6"RAIN LEADER DN&RISE (3,613 SF)
6" RAIN LEADER DN&UP (7,633 SF)
6" EMERGENCY RAIN LEADER UP&ON (5,530 SF)
6" EMERGENCY RAIN LEADER DN (4,171 SF)
5" EMERGENCY RAIN LEADER DN&UP (2,103 SF)
8" EMERGENCY RAIN LEADER DN&UP (9,302 SF)
6"RAIN LEADER DN&UP (9,302 SF)
6"RAIN LEADER UP (5,815 SF)
8"RAIN LEADER DN&RISE (12,189 SF)
6"RAIN LEADER DN (2,496 SF)
8" EMERGENCY RAIN LEADER DN (12,189 SF)
5"EMERGENCY RAIN LEADER DN (2,496 SF)
ACCESS E268
ELEC E263
EMERG ELEC E263.1
STORAGE E266
STORAGE E264
STORAGE E262
STORAGE E260
STORAGE E258
ELEC E256
VOCATIONAL LEARNING CENTER E254
STORAGE E254.1
ELEV 1:2
CONTROL E271
GUIDANCE RECORDS E231
UPPER AUDITORIUM E275
SLL E275.2
SLL E275.1
ACCESS E271.3
CORRIDOR E250
CONTROL ROOM E255
OPEN TO BELOW
RUN PIPING ON RIGHT (WEST) SIDE OF CHASE TO AVOID DUCT RISERS
COORDINATE PIPE WITH DUCT RISER ON
COORDINATE WITH DUCT RISER
3/4"CW UP FOR FPSC ABOVE
3/4"CW UP FOR FPSC
2"V DN&UP OFFSET AS REQUIRED FOR STORM DRAIN
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1443 SF) OFD CLOSER TO COL. LINE R1.5
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1392 SF) OFD CLOSER TO COL. LINE R2.5
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1338 SF) OFD CLOSER TO COL. LINE R4
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (889 SF) OFD CLOSER TO COL. LINE 20
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (2,638 SF) OFD CLOSER TO COL. LINE 17.2
(2)5"STORM DRAIN UP TO 4"SD=1 ON ROOF (2,496 SF) OFD CLOSER TO COL. LINE 16
(2)5"STORM DRAIN UP TO 4"SD=1 ON ROOF (2,019 SF) OFD CLOSER TO COL. LINE 23
9TH GRADE SCIENCE A209
PREP A209.1
9TH SPED LEARNING CENTER A208
CORRIDOR A200
STAIR A1.2
9TH GRADE ENGLISH A205
9TH GRADE MATH A207
9TH SPED INCLUSION A203
9TH GRADE SOCIAL STUDIES A201
STAIR A2.2
DAS A204.2
EMERG ELEC A204.1
ELEC A204
STOR A206
AVID CLASSROOM A202
CORRIDOR A210
JAN A212
GIRLS A211
BOYS A213
UNISEX A214
TEACHER PLANNING A217
TEACHER PLANNING A216
COMMON ROOM A215
DUCT CHASE
AUTOMATIC TRAP PRIMER VALVE SERVING TWO (2)FD'S. PROVIDE A.P.
(2)1/2"TRAP PRIMER LINES DN
(2)1/2"TRAP PRIMER LINES UP
W.H.A. #300 ABOVE CLG.
W.H.A. #100 ABOVE CLG.
AUTOMATIC TRAP PRIMER VALVE SERVING THREE FD'S. (3)1/2" TRAP PRIMER LINES DN
1-1/4"CW UP & 1-1/2"TW DN
1-1/2"HWR DN&UP
2"GAS DN&UP
2"GAS TO LABORATORY GAS CONTROL PANEL IN RECESSED CABINET.
1"GAS RISE
REMOTE EMERGENCY SHUT-OFF FOR GAS TO CLASSROOM
1"LOW UP & 1-1/4"LOW DN
3/4"GAS DROP
PROVIDE RECESSED VALVE BOX
2"AW UP
2"AW DN & CONNECT TO 3"AV
3"AW DN&UP
3"AW DN & 2"AW UP
1"LCW&3/4"GAS RACKED ON WALL BEHIND CASEWORK
1"LCW&3/4"GAS BACKED ON WALL BEHIND CASEWORK
2"AW
GAS TURRET IN BACKSPLASH (TYPICAL)
1/2"LHW & 1"LW TO GLASSWASHER CONNECT TO PLUMBING SERVING L4
PROVIDE W.H.A. #100 ON HW FEED
2"AW UP FOR L1 ABOVE
2"AW DN & 1-1/2"AV RISE AND OFFSET AS REQUIRED TO 1-1/2"AV RISE ABOVE CLG
2"AW UP FOR L2 ABOVE
2"AW DN & 1-1/2"AV RISE AND OFFSET AS REQUIRED TO 1-1/2"AV RISE ABOVE CLG
2"AW UP FOR L3 ABOVE
2"AW DN & 1-1/2"AV RISE
2"AW UP FOR L5 ABOVE
2"AW DN & 2"AV RISE CONNECT 2"AV TO STACK
2"AW UP FOR L7
2"AW DN & 1-1/2"AV RISE
3/4"GAS DROP. PROVIDE RECESSED VALVE BOX
2"AW UP FOR L6
2"AW DN & 1-1/2"AV RISE
3/4"LCW UP&DN
1/2"LHW UP & 3/4"LHW DN
2"AW UP FOR L4
2"AW DN & 1-1/2"AV RISE
2"AV DN&RISE & 2"AV UP
2"AW UP FOR L6
2"AW DN & 2"AV RISE
2"AW&T UP FOR AFD1 ABOVE
2"AW DN
1/2"LCW TO IMB FOR ICE MAKER
1/2"LCW DN&UP
1/2"LCW TO IMB FOR REFRIGERATOR
3"AW&T UP TO AFD1 ABOVE
3"AW DN
1/2" TRAP PRIMER LINE (TYPICAL)
6"RAIN LEADER DN&UP (9,302 SF)
2"V DN&UP
3"AW DN&RISE
3"AW DN&UP
2"AW DN&UP
2"AW OFFSET TO 2"W STACK AND 2"V RISE. CONNECT 2"V TO 2"V RISER
2"V DN&UP
2"W DN & 2"V RISE
1/2"HW&CW DN
2"W UP TO 2"D1 ABOVE
2"W DN
2"W UP TO 2"D1 ABOVE
2"W DN
1-1/2"V RISE FOR P5
1/2"HW UP&DN
1/2"HWR UP&DN
4"W UP&DN
1"CW UP & 1-1/4"CW DN
1"V RISE FOR P2
2"W DROP & 2"V UP FOR FD1'S. CONNECT TO 4"W LINE
1-1/2"V RISE FOR P4
2"V RISE FOR P1'S
2"V RISE FOR P2'S
4"V DN&UP
3/4"HW DN & 1/2"HW UP
2-1/2"CW UP & 2"CW UP
2"V DN&RISE & 2"V UP
3"W DROP & 2"V UP
2"V RISE FOR P5'S
2"V RISE FOR P6'S
5"W DN&UP
2"V RISE FOR P1
1-1/2"V RISE FOR P3
2"V RISE FOR P4'S
4"V DN&UP
1/2"HWR DN&RISE
1/2"CW DN&RISE
2"W DN&RISE
2"W DROP FROM P14 AND CONNECT TO 2"W DN
2"V RISE FROM P14 AND CONNECT TO 2"V RISER
2"V DN&RISE, OFFSET TO 2"V UP
1/2"CW DN&RISE
1/2"HWR
1/2"HW
1/2"CW
1/2"HW UP
2"W UP
1/2"CW UP
3"W DN&RISE
3"V UP
3"V
3"V DN&RISE
3"V UP&DN
3/4"CW UP
3/4"CW
3/4"CW DN
2"W DN&RISE
2"W
2"V UP
2"V
3"W UP TO P3 ABOVE
3"W DN
4"W, 1-1/4"CW, 2"V
4"W, 1-1/4"CW, 2"V
3"W UP TO P3 ABOVE
3"W DN
1/2"CW DN&UP
1/2"CW UP
1/2"HW DN&UP
1/2"HW UP
1/2"CW DN&UP
1/2"CW UP
1/2"HW UP
2"W UP
1/2"CW UP
5"STORM (OFD)
5"STORM
4"STORM (OFD)
4"STORM
C.O.
6"STORM (OFD)
6"STORM
8"STORM (OFD)
8"STORM
3"V DN
3"V UP
3"V DN&RISE
3"V
3"V UP
2"V DN&RISE
2"V
2"V UP
3"V UP
3"V DN&RISE
3"V
3"V UP
3"V DN&RISE
3"V
3"V UP
3"V DN&RISE
3"V


ELEV 1.2
SLL E275.1
SLL E275.2
CONTROL E271
UPPER AUDITORIUM E275
GUIDANCE RECORDS E231
GUIADANCE WAITING E201
RECEPTION E201.1
LARGE GROUP SEMINAR E230
STOREROOM E202
SCHOOL PSYCH E203
COLLEGE & CAREER CENTER E211
OFFICE E212
OFFICE E213
OFFICE E214
OFFICE E215
OFFICE E216
OFFICE E217
OFFICE E204
OFFICE E205
OFFICE E206
OFFICE E207
OFFICE E208
OFFICE E209
OFFICE E210
CORRIDOR E221
ACCESS E264
ACCESS E271.3
ELEC E263
EMERG ELEC E263.1
STORAGE E254.1
STORAGE E266
STORAGE E264
STORAGE E262
STORAGE E260
STORAGE E258
IDF E256
VOCATIONAL LEARNING CENTER E254
CORRIDOR E250.1
CORRIDOR E250
SOCIAL EMOTIONAL LEARNING CENTER E252
DE-ESCALATION ROOM E252.2
DE-ESCALATION ROOM E252.1
WOMEN E219
MEN E220
CONF RM E218
CORRIDOR E221
OFFICE E217
CONTROL ROOM E255
CATWALK E255.1
ELEC E253
STAIR E2.2
ADMIN STORAGE E251
AVID CLASSROOM A202
CORRIDOR A210
JAN A212
GIRLS A211
BOYS A213
TEACHER PLANNING A217
TEACHER PLANNING A216
COMMON ROOM A215
STAIR A2.2
UNISEX A214
DUCT CHASE
OPEN TO BELOW
6" EMERGENCY RAIN LEADER UP&DN (5,530 SF)
6" RAIN LEADER DN&UP (7,633 SF)
6" EMERGENCY RAIN LEADER UP (5,815 SF)
6" EMERGENCY RAIN LEADER DN&RISE (12,189 SF)
6" EMERGENCY RAIN LEADER DN (2,496 SF)
6"RAIN LEADER DN (2,496 SF)
6" EMERGENCY RAIN LEADER DN (5,223 SF)
6"RAIN LEADER DN (5,223 SF)
8" EMERGENCY RAIN LEADER DN (10,534 SF)
6" EMERGENCY RAIN LEADER DN (4,171 SF)
6"RAIN LEADER DN (4,171 SF)
6"RAIN LEADER UP (5,815 SF)
8"RAIN LEADER DN&RISE (12,189 SF)
8"RAIN LEADER DN&UP (5,381 SF)
5" EMERGENCY RAIN LEADER DN&UP (2,103 SF)
6"RAIN LEADER DN&UP (849 SF)
6"RAIN LEADER UP (5,381 SF)
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1443 SF) OFD CLOSER TO COL. LINE B1.4
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1382 SF) OFD CLOSER TO COL. LINE R2.5
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1336 SF) OFD CLOSER TO COL. LINE R4
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1237 SF) OFD CLOSER TO COL. LINE 22
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1080 SF) OFD CLOSER TO COL. LINE 24
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1028 SF) OFD CLOSER TO COL. LINE 27
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1,515 SF) OFD CLOSER TO COL. LINE 23
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (980 SF) OFD CLOSER TO COL. LINE 25
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (2203 SF) OFD CLOSER TO COL. LINE 23
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1079 SF) OFD CLOSER TO COL. LINE 25
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (597 SF) OFD CLOSER TO COL. LINE 28
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (3248 SF) OFD CLOSER TO COL. LINE 23
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (2,638 SF) OFD CLOSER TO COL. LINE 17.2
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (889 SF) OFD CLOSER TO COL. LINE 20
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1,253 SF) OFD CLOSER TO COL. LINE 25
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (898 SF) OFD CLOSER TO COL. LINE 23
(2)5"STORM DRAIN UP TO 4"SD=1 ON ROOF (2,496 SF) OFD CLOSER TO COL. LINE 16
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (2,019 SF) OFD CLOSER TO COL. LINE 23
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1,596 SF) OFD CLOSER TO COL. LINE 23
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1,608 SF) OFD CLOSER TO COL. LINE 25.8
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1,608 SF) OFD CLOSER TO COL. LINE 28
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (3248 SF) OFD CLOSER TO COL. LINE 23
EMH-1 MOUNTED BELOW COUNTER IN BASE CABINET. 1/2"CW&HW TO TOP PIPE CONNECTIONS. PROVIDE DRAIN CUP BELOW T&P DISCHARGE PIPE.
NOTE: COORDINATE RAIN LEADER WITH BRACED FRAME IN WALL
RUN PIPING ON RIGHT (WEST) SIDE OF CHASE TO AVOID DUCT RISERS.
AUTOMATIC TRAP PRIMER VALVE SERVING TWO (2)FD'S. PROVIDE A.P.
(2)1/2"TRAP PRIMER LINES DN
(2)1/2"TRAP PRIMER LINES UP
W.H.A. #300 ABOVE CLG.
W.H.A. #100 ABOVE CLG.
COORDINATE PIPE WITH DUCT RISER DN
COORDINATE PIPE WITH DUCT RISER ON
OFFSET AS REQUIRED FOR STORM DRAIN
6"Ø PVC RADON VENT STACK DN&UP
6"RADON VENT STACK UP THROUGH ROOF
6"Ø PVC RADON VENT
6"RADON VENT STACK DN&RISE
3/4"CW UP FOR FPSC
3/4"CW UP FOR H.B.
1/2"TRAP PRIMER LINE UP
2"W DN&UP
2"W OFFSET TO 2"W STACK AND 2"V RISE. CONNECT 2"V TO 2"V RISER
2"W DROP & 2"V UP FOR P3.1
2"W DROP & 2"V UP FOR P3.2
2"W DN & 2"V RISE
2"W DN & 2"V DROP
1/2"CW DROP
2"V DN&UP
2"V DN&RISE
2"V UP TO 3"V.T.R.
3"V DN&RISE
3"V UP
3"V UP&DN
3"V DN&UP
3"V UP TO 3"V.T.R.
4"V UP TO 4"V.T.R.
4"W UP
3"V UP
2"CW UP 3/4"HW UP
2"HW&CW
4"W DN&RISE
2"V DN&RISE
3/4"HW DN&RISE
2"CW DN&RISE
6"RAIN LEADER DN&RISE (3,613 SF)
3"V 3/4"HW 4"W 1-1/2"CW
1/2"HWR DN&UP
3/4"HW DN & 1/2"HW UP
1/2"CW UP & 2"CW UP
2"V DN&RISE & 2"V UP
3"W DROP & 2"V UP
2"V RISE FOR P5.3
2"V RISE FOR P3.3
5"W DN&UP
2"V RISE FOR P1
1-1/2"V RISE FOR P3
1-1/2"V RISE FOR P4
2"V RISE FOR P1.3
2"V RISE FOR P2.3
4"V DN&UP
1/2"HWR DN&RISE
1/2"HW DN&RISE
2"W DN&RISE
2"W DROP FROM P14 AND CONNECT TO 2"W DN
2"V RISE FROM P14 AND CONNECT TO 2"V RISER
2"V DN&RISE. OFFSET TO 2"V UP
1/2"CW DN&RISE
1/2"HW UP&DN
1/2"HWR UP&DN
4"W UP&DN
1/2"CW UP & 1-1/4"CW DN
2"V RISE FOR P2
1-1/2"V RISE FOR P2
4"W DN & 4"V RISE
3"V DN &RISE
2"V RISE FOR P2
1/2"HW DN
1-1/4"CW DN W/ W.H.A. #200 @ TOP
1-1/2"V RISE FOR P6
1-1/2"V RISE FOR P5
2"V RISE FOR P5
4"W DN & 4"V RISE
3"V DN &RISE
2"V RISE FOR P2
1/2"HW DN
1-1/2"CW DN
2"W DN & 1-1/2"V RISE
1-1/2"CW DN
1/2"CW&HW DN
2"W DN & 1-1/2"V RISE
1-1/2"V RISE FOR P5
2"V RISE FOR P3
4"W DN & 4"V RISE
3"V DN &RISE
2"V RISE FOR P2
1/2"HW DN
1-1/4"CW DN W/ W.H.A. #200 @ TOP
1-1/2"V RISE FOR P6
2"W DN & 1-1/2"V RISE
1-1/2"V RISE FOR P5
2"V RISE FOR P3
4"W DN & 4"V RISE
3"V DN &RISE
2"V RISE FOR P2
1/2"HW DN
1-1/4"CW DN W/ W.H.A. #200 @ TOP
1-1/2"V RISE FOR P6
2"W DN & 1-1/2"V RISE
2"W DN&RISE
2"W
2"V UP
2"W&T UP TO 2"D1
1/2"CW UP FOR H.B.
1/2"CW
3/4"CW
2"W DN&RISE
2"W
2"V UP
2"W&T UP TO 2"D1
1/2"CW UP FOR H.B.
1/2"CW
3/4"CW
2"W DN&UP
2"W OFFSET TO 2"W STACK AND 2"V RISE. CONNECT 2"V TO 2"V RISER
2"V DN&UP
2"W DN & 2"V RISE
2"W DN&UP
2"W OFFSET TO 2"W STACK AND 2"V RISE. CONNECT 2"V TO 2"V RISER
2"V DN&UP
2"W DN & 2"V RISE
2"W UP TO 2"D1 ABOVE
2"W DN
2"W UP TO 2"D1 ABOVE
2"W DN
4"W, 2"CW, 2"V
4"W, 1-1/2"CW, 2"V
4"W, 1-1/4"CW, 2"V
1-1/2"V RISE FOR P5
1/2"HW UP&DN
1/2"HWR UP&DN
4"W UP&DN
1/2"CW UP & 1-1/4"CW DN
1"V RISE FOR P2
1/2"HWR DN&UP
3/4"HW DN & 1/2"HW UP
2"-1/2"CW UP & 2"CW UP
2"V DN&RISE & 2"V UP
3"W DROP & 2"V UP
2"V RISE FOR P5.3
2"V RISE FOR P3.3
5"W DN&UP
2"V RISE FOR P1
1-1/2"V RISE FOR P3
1-1/2"V RISE FOR P4
2"V RISE FOR P1.3
2"V RISE FOR P2.3
4"V DN&UP
1/2"HW UP
2"W UP
1/2"CW UP
1/2"HWR
1/2"HW
2"W
1/2"CW
1/2"HWR DN&RISE
1/2"HW DN&RISE
2"W DN&RISE
2"W DROP FROM P14 AND CONNECT TO 2"W DN
2"V RISE FROM P14 AND CONNECT TO 2"V RISER
2"V DN&RISE. OFFSET TO 2"V UP
1/2"CW DN&RISE
2"W DROP & 2"V UP FOR P3.1
2"W DROP & 2"V UP FOR P3.2
2"W DN & 2"V RISE
2"W DN & 2"V DROP
1/2"CW DROP
2"V DN&UP
2"V DN&RISE
2"V UP TO 3"V.T.R.
3"V DN&RISE
3"V UP
3"V UP&DN
3"V DN&UP
3"V UP TO 3"V.T.R.
4"V UP TO 4"V.T.R.
4"W UP
3"V UP
2"CW UP 3/4"HW UP
2"HW&CW
4"W DN&RISE
2"V DN&RISE
3/4"HW DN&RISE
2"CW DN&RISE
6"RAIN LEADER DN&RISE (3,613 SF)
3"V 3/4"HW 4"W 1-1/2"CW
1/2"HWR DN&UP
3/4"HW DN & 1/2"HW UP


CD
DE
OUTDOOR STORAGE D201.1
WEIGHT ROOM D201
VEST D210.1
WELLNESS CENTER D203
TEAM STORAGE D224
TEAM ROOM D222
BOYS LOCKERS D218
STAIR D1.2
TEAM STORAGE D221.2
PE/COMMUNITY STORAGE D223
TEAM ROOM D221
VISITING TEAM D219
CORR D218.2
PE OFFICE D215
IDF D213
CORR D217.2
FAMILY LOCKERS D214
GIRLS LOCKERS D217
TRAINING D202
ELEC D212
AD OFFICE D209
CORRIDOR D210
GYM STORAGE D206.1
IDF D205.1
CORRIDOR D205
HEALTH CLASSROOM D208
HEALTH CLASSROOM D211
ADAPTIVE PE D204
STAIR D2.2
JAN D207
ELEV 2.2
ADULT DAILY LIVING C217
CORRIDOR E280
SPED RESTROOM C217.1
SPED TEACHER PLANNING C216
MULTI-MEDIA MAKER SPACE E285
WOMEN E284
MEN E283
GRAB'N GO E282
SMALL GROUP E293
SMALL GROUP E292
SMALL GROUP E291
TV STUDIO E295.1
TV EDITING E295.2
WORK ROOM E290.1
MEDIA CENTER E290
MEDIA CENTER COLLABORATION ROOM E290.4
MEDIA CENTER SEATING E281.1
UPPER LOBBY E270
STAIR C1.2
LANGUAGE CLASSROOM C208
LANGUAGE CLASSROOM C206
LANGUAGE CLASSROOM C204
LANGUAGE CLASSROOM C202
OT/PT C215
CORRIDOR C200
OBS. C205
LANGUAGE LAB C211
SPEECH C209
LIFE SKILLS CLASSROOM C207
UNISEX C203.2
T.P. C203.3
SPED RESTROOM C203.4
LIFE SKILLS CLASSROOM C203
TEACHER PLANNING C201
MEN C214
WOMEN C213
ELEC C212
6" EMERGENCY RAIN LEADER UP&DROP (3,694 SF)
TURN OUTSIDE @ 18"A.F.F. PROVIDE 6"ø DOWNSPOUT OUTLET W/OUT SCREEN (3,694 SF)
(2)3"dv UP
6" EMERGENCY RAIN LEADER UP&DROP (3,694 SF)
TURN OUTSIDE @ 18"A.F.F. PROVIDE 6"ø DOWNSPOUT OUTLET W/OUT SCREEN (3,694 SF)
(2)3"DV UP
3"DV&2"DV DN&RISE, COMBINE @ 24"A.F.F. TO 3"DV
4" RAIN LEADER DN&RISE (971 SF)
6" EMERGENCY RAIN LEADER DROP (4,285 SF)
TURN OUTSIDE @ 18"A.F.G. PROVIDE 6"ø DOWNSPOUT OUTLET W/OUT SCREEN (4,285 SF)
5" EMERGENCY RAIN LEADER UP (3,314 SF)
2"dv UP
6"ø PVC RADON VENT STACK DN&RISE
5" RAIN LEADER DN&RISE (2,567 SF)
6" EMERGENCY RAIN LEADER DROP (7,516 SF)
TURN OUTSIDE @ 18"A.F.G. PROVIDE 6"ø DOWNSPOUT OUTLET W/OUT SCREEN (7,516 SF)
(2)4"STORM DRAIN UP TO 4"DO-1 ON ROOF (971 SF) OFD CLOSER TO COL. LINE 5D
(2)5"STORM DRAIN UP TO 4"DO-1 ON ROOF (2,567 SF) OFD CLOSER TO COL. LINE 10D
PROVIDE FREEZE-PROTECTION HEAT TRACE ON 3"STORM LINES BEYOND HEATED ENVELOPE WALL
3"STORM DRAIN UP TO 3"DO-1 ON ROOF (144 SF)
FREEZE PROTECTION HEAT TRACE POWER SPLICE. PROVIDE LINE VOLTAGE WIRING BACK TO POWER SPLICE IN CUSTODIAN OFFICE C117
6"ø PVC RADON VENT STACK UP THROUGH ROOF
8" EMERGENCY RAIN LEADER UP&DROP (5,758 SF)
TURN OUTSIDE @ 18"A.F.E. PROVIDE 8"ø DOWNSPOUT OUTLET W/OUT SCREEN (5,758 SF)
4"DV STACK DN&UP
6"ø PVC RADON VENT STACK DN&UP
1/2"HW DROP W/ W.H.A. #100 @ TOP
1/2"CW DROP W/ W.H.A. #100 @ TOP
2"W&T STANDPIPE FOR P23
2"W DN & 2"V RISE
2"W DN FOR P12 DRAIN (TYP.)
2"V DN&RISE FOR P11
1/2"HW&CW DN
2"W DN & 2"V RISE FOR P5
3/4"HW&CW DROP
2"W DN FOR P11 DRAIN
2"V RISE FOR P2
2"V RISE FOR P1
2"V DN&RISE FOR P3
1-1/2"V RISE FOR P4
1-1/2"V DROP
1-1/4"CW DROP W/ W.H.A. #200 @ TOP
1/2"HW&CW DROP
2"V DN&RISE
AUTOMATIC TRAP PRIMER VALVE SERVING THREE (3)FD'S. (3)1/2" TRAP PRIMER LINES ON
AUTOMATIC TRAP PRIMER VALVE SERVING TWO (2)FD'S. (2)1/2" TRAP PRIMER LINES ON
AUTOMATIC TRAP PRIMER VALVE SERVING FOUR (4)FD'S. (4)1/2" TRAP PRIMER LINES ON
1/2" BALANCING VALVE STATION - BALANCE TO 0.5 GPM
1-1/4"GAS UP
2"W UP FOR L1
2"W UP FOR L2
2"W UP FOR L3
2"W UP FOR L4
2"W UP FOR L5
2"W UP FOR L6
2"W UP FOR L7
2"W UP FOR D/W
3"W&T UP FOR 3"FD1
1-1/2"W UP
1-1/2"HW UP
1-1/2"CW UP
2"W UP FOR L1'S
2"W UP FOR L3'S
2"W UP FOR L4'S
2"W UP FOR L5'S
2"W UP FOR L6'S
2"W UP FOR L7'S
2"W UP FOR L8'S
2"W UP FOR L9'S
2"W UP FOR L10'S
2"W UP FOR L11'S
2"W UP FOR L12'S
2"W UP FOR L13'S
2"W UP FOR L14'S
2"W UP FOR P-2"S
2"W UP FOR P-3"S
2"W UP FOR P-4"S
2"W UP FOR P-5"S
2"W UP FOR P-6"S
2"W UP FOR P-7"S
2"W UP FOR P-8"S
2"W UP FOR P-9"S
2"W UP FOR P-10"S
2"W UP FOR P-11"S
2"W UP FOR P-12"S
2"W UP FOR P-13"S
2"W UP FOR P-14"S
2"W UP FOR P-15"S
2"W UP FOR P-16"S
2"W UP FOR P-17"S
2"W UP FOR P-18"S
2"W UP FOR P-19"S
2"W UP FOR P-20"S
2"W UP FOR P-21"S
2"W UP FOR P-22"S
2"W UP FOR P-23"S
2"W UP FOR P-24"S
2"W UP FOR P-25"S
2"W UP FOR P-26"S
2"W UP FOR LAVATORIES
3/4"HW&CW UP
3/4"HW UP
3/4"CW UP
3/4"HWR UP (3.5 GPM)
1-1/2"HW UP
3"W&T UP TO P11 ABOVE
3"W UP
1-1/2"HW UP
3/4"HWR
3/4"CW&HW DROP
2"V DN&RISE
2"W DN&RISE
1-1/4"HWR DN&RISE (9 GPM)
5"CW DN&RISE
1-1/4"HWR DN&RISE (9 GPM) IN PIPE CHASE
2"W DN & 2"V RISE
2"W DN & 1-1/2"V RISE
2"W DN & 2"V RISE FOR P23
PROVIDE 2"W&T TO STANDPIPE
1/2"CW&HW DN W/ W.H.A. #100 @ TOP
2"V DN&RISE
2"W DN & 2"V RISE FOR P22
1/2"HW AND 1"LW TO DISHWASHER. CONNECT 1"LW TO DISPOSER & HW TO HW FEED FOR P22. PROVIDE W.H.A. #100 ON HW
4" EMERGENCY RAIN LEADER DN&RISE (1,371 SF)
1/2"CW TO MB-1 FOR REFRIG. ICE MAKER
4"V DN&RISE
2"W DN & 2"V RISE FOR P22
4" RAIN LEADER DN&RISE (1,371 SF)
(2)6"CPVC COMBUSTION AIR VENTS DN&RISE - CONNECT TO LOUVER PLENUM BELOW HVAC CONNECTIONS FOR HEATING BOILERS - COORDINATE WITH HVAC CONTRACTOR
6" EMERGENCY RAIN LEADER UP&DN (4,629 SF)
6" EMERGENCY RAIN LEADER UP&DN (5,132 SF)
6" EMERGENCY RAIN LEADER UP&DN (4,099 SF)
3"GAS DN&RISE
3"GAS
2"GAS
1-1/2"GAS
2-1/2"GAS
6"RAIN LEADER DN&UP (4,099 SF)
6"RAIN LEADER DN&UP (4,629 SF)
6"RAIN LEADER DN&UP (5,132 SF)
(2)6"ø POLYPROPYLENE FLUE VENTS DN&UP IN RATED CHASE
6"ø PVC RADON VENT
6"ø PVC RADON VENT STACK UP THROUGH ROOF
2"W DN & 1-1/2"V RISE FOR P26 EYEWASH DRAIN 1/2"W DN COORDINATE WITH DUCT RISER IN CHASE
2"W DN & 2"V RISE FOR P6
4"W DN
1"CW DROP W/ W.H.A. #100 @ TOP
2"W DN & 2"V RISE FOR P6
2"W DN & 2"V RISE FOR P5
1"CW DN. PROVIDE W.H.A. #100 @ TOP
3/4"HW DN
2"W DN & 2"V RISE FOR P14
2"V RISE FOR P2
1-1/2"V RISE FOR P14
2"V RISE FOR P15
2"W DN & 2"V RISE FOR P16
2"W DN & 2"V RISE FOR P17
2"W DN & 2"V RISE FOR P18
2"W DN & 2"V RISE FOR P19
2"W DN & 2"V RISE FOR


CD DE
WEIGHT ROOM D201
VEST D210.1
WELLNESS CENTER D203
TRAINING D202
FAMILY LOCKERS D214
ELEC D212
AD OFFICE D209
CORRIDOR D200
IDF D213
CORRIDOR D210
GYM STORAGE D206.1
IDF D205.1
CORRIDOR D205
GYMNASIUM D206
HEALTH CLASSROOM D208
HEALTH CLASSROOM D211
STORAGE D204.1
ADAPTIVE PE D204
JAN D207
STAIR D2.2
ELEV 2.2
ADULT DAILY LIVING C217
CORRIDOR E280
SPED RESTROOM C217.1
MULTI-MEDIA MAKER SPACE E285
WOMEN E284
MEN E283
GIRLS GO E282
SMALL GROUP E293
SMALL GROUP E292
SPED TEACHER PLANNING C216
LANGUAGE CLASSROOM C202
OT/PT C215
TV STUDIO E295.1
TV EDITING E295.2
WORK ROOM E290.1
MEDIA CENTER CAFE E281
MEDIA CENTER E290
MEDIA CENTER COLLABORATION ROOM E290.4
MEDIA CENTER SEATING E281.1
LIFE SKILLS CLASSROOM C203
MEN C214
WOMEN C213
ELEC C212
TEACHER PLANNING C201
UPPER LOBBY E270
OPEN TO BELOW
OPEN TO BELOW
CD DE
AB E
DE E
6" PVC RADON VENT STACK DN&RISE (2,567 SF)
5" RAIN LEADER DN&RISE (2,567 SF)
5" EMERGENCY RAIN LEADER DROP (7,516 SF)
TURN OUTSIDE @ 18"A.F.G. PROVIDE 6"ø DOWNSPOUT OUTLET W/OUT SCREEN (7,516 SF)
PROVIDE FREEZE-PROTECTION HEAT TRACE ON 3"STORM LINES BEYOND HEATED ENVELOPE WALL.
3"STORM DRAIN UP TO 3"RD-2 ON ROOF (144 SF)
FREEZE PROTECTION HEAT TRACE POWER SPLICE. PROVIDE LINE VOLTAGE WIRING BACK TO POWER SPLICE IN CUSTODIAN OFFICE C117
8" EMERGENCY RAIN LEADER UP&DROP (5,758 SF)
TURN OUTSIDE @ 18"A.F.G. PROVIDE 8"ø DOWNSPOUT OUTLET W/OUT SCREEN (5,758 SF)
8" RAIN LEADER UP&ON (9,370 SF)
8" EMERGENCY RAIN LEADER UP&DROP (9,370 SF)
TURN OUTSIDE @ 18"A.F.G. PROVIDE 8"ø DOWNSPOUT OUTLET W/OUT SCREEN (9,370 SF)
8" EMERGENCY RAIN LEADER UP&ON (9,355 SF)
8" RAIN LEADER UP&ON (9,355 SF)
10" RAIN LEADER DN&RISE (13,497 SF)DN
10" EMERGENCY RAIN LEADER DN&RISE (13,497 SF)
8" RAIN LEADER DN&UP (5,758 SF)
6"ø PVC RADON VENT STACK DN&UP
6"ø PVC RADON VENT STACK UP THROUGH ROOF
6" RAIN LEADER DN&RISE (4,805 SF)
6" EMERGENCY RAIN LEADER UP&DROP (4,805 SF)
6" RAIN LEADER UP&ON (4,809 SF)
8" RAIN LEADER DN&UP (5,983 SF)
8" EMERGENCY RAIN LEADER DN&RISE (5,983 SF)
8" EMERGENCY RAIN LEADER DN&UP (5,983 SF)
6" RAIN LEADER DN&UP (4,099 SF)
(2)6"ø POLYPROPYLENE FLUE VENTS DN&UP IN RATED CHASE
(2)6"PVC COMBUSTION AIR VENTS DN&RISE CONNECT TO LOUVER PLENUM BELOW HVAC CONNECTIONS FOR HEATING BOILERS. COORDINATE WITH HVAC CONTRACTOR
4" EMERGENCY RAIN LEADER UP&ON (4,099 SF)
4" RAIN LEADER DN&RISE (1,371 SF)
5" EMERGENCY RAIN LEADER UP (3,314 SF)
5" RAIN LEADER DN&RISE (971 SF)
6" EMERGENCY RAIN LEADER DROP (4,285 SF)
TURN OUTSIDE @ 18"A.F.G. PROVIDE 6"ø DOWNSPOUT OUTLET W/OUT SCREEN (4,285 SF)
(2)5"STORM DRAIN UP TO 4"SD=1 ON ROOF (1,371 SF) OFD CLOSER TO COL. LINE 6.10
(2)5"STORM DRAIN UP TO 4"SD=1 ON ROOF (971 SF) OFD CLOSER TO COL. LINE 5D
(2)5"STORM DRAIN UP TO 4"SD=1 ON ROOF (2,567 SF) OFD CLOSER TO COL. LINE 10D
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1,237 SF) OFD CLOSER TO COL. LINE 22
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1,080 SF) OFD CLOSER TO COL. LINE 24
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1,274 SF) OFD CLOSER TO COL. LINE 24
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (954 SF) OFD CLOSER TO COL. LINE 24
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1,028 SF) OFD CLOSER TO COL. LINE 27
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (914 SF) OFD CLOSER TO COL. LINE 27
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1,007 SF) OFD CLOSER TO COL. LINE 27
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (764 SF) OFD CLOSER TO COL. LINE 22
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (1,515 SF) OFD CLOSER TO COL. LINE 23
(2)4"STORM DRAIN UP TO 4"SD=1 ON ROOF (980 SF) OFD CLOSER TO COL. LINE 25
AUTOMATIC TRAP PRIMER VALVE - SERIOMY-ONE (1) CH. 1/2" TRAP PRIMER LINE DN
AUTOMATIC TRAP PRIMER VALVE SERVING TWO (2)FD'S, (2)1/2"TRAP PRIMER LINES DN
ITEM #123 HAND SINK IN BACK WORK COUNTER
ITEM #124 DUMP SINK IN BACK WORK COUNTER
3/4"CW TO WATER FILTER FOR COFFEE BREWER
3/8"FILTERED CW TO ITEM #130 COFFEE BREWER
1/4"CW TO WATER FILTER FOR HOT CHOCOLATE DISPENSER
1/4"FILTERED CW TO ITEM #134 HOT CHOCOLATE DISPENSER
2" IN-LINE SOLIDS INTERCEPTOR IN LIEU OF P-7045 MOUNT ON CABINET FLOOR, (TYPICAL)
2"W DN & 1-1/2"V RISE FOR P26 EYEWASH DRAIN 1/2"W DN COORDINATE WITH DIDT RISER IN CHASE
2"W DN & 1-1/2"V RISE FOR P27 EYEWASH DRAIN 1/2"W DN COORDINATE WITH DIDT RISER IN CHASE
2"W DN & 2"V RISE FOR P1
2"W DN & 2"V RISE FOR P2
2"W DN & 2"V RISE FOR P3
2"W DN & 2"V RISE FOR P4
2"W DN & 2"V RISE FOR P5
2"W DN & 2"V RISE FOR



1 P3.11 Third Floor Plumbing Plan – Section AB
Scale: 1/8" = 1'-0"

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PROJECT

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Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

DRAWING TITLE

Third Floor Plumbing Plan Section AB

Locus Map

True North

Key Plan

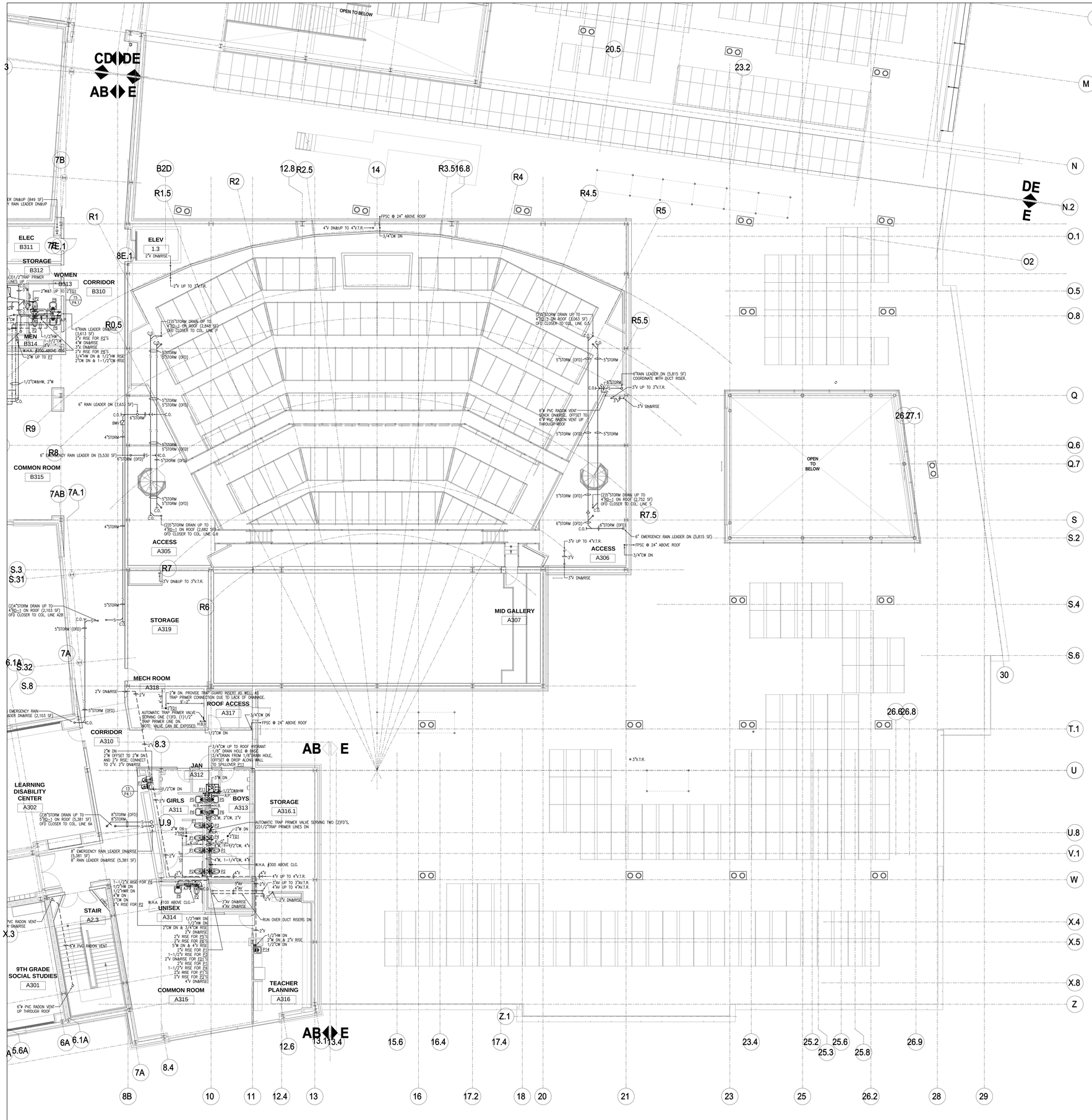
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No.	Description	Date

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JOB NO: #1904
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DWN. BY: CDR
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1 Third Floor Plumbing Plan – Section E
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Third Floor Plumbing Plan Section E

Locus Map

True North

Key Plan

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NOTE:
1) LHW PIPING HAS ELECTRIC TEMPERATURE MAINTENANCE HEAT TRACE INSTALLED TO THE FIXTURE ROUGH-IN.
2) LOW & GAS PIPING ARE RACKED ALONG WALL BENEATH COUNTER IN PIPE CHASE BEHIND CASEWORK.
3) EACH PREP ROOM HAS AN ICE MACHINE WHICH REQUIRES 1/2"CW & FLOOR DRAIN. PROVIDE MB-1 FOR EACH. THERE IS ALSO A REFRIGERATOR WITH A WATER FEED. PROVIDE MB-1 FOR FEED. FINALLY, AN UNDERCOUNTER DISHWASHER IS LOCATED NEXT TO L4. PROVIDE 1"LW. & 1/2"HW PIPED FROM L4 TO D/W. PROVIDE W.H.A. #100 ON LHW FEED. THESE ARE SHOWN IN PLAN AND THE ENLARGED PLAN.
4) AN AUTOMATIC TRAP PRIMER VALVE SHALL BE INSTALLED IN EACH PREP ROOM SERVING (3)FD'S.
5) THE LABORATORY GAS CONTROL PANEL SHALL HAVE A VALVE BOX INSTALLED ABOVE IT FOR A MANUAL SHUT-OFF VALVE AND THE GAS SOLENOID VALVE INSTALLATION.

1 P3.13 Third Floor Plumbing Plan – Section CD
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Third Floor Plumbing Plan Section CD

Locus Map

True North

Key Plan

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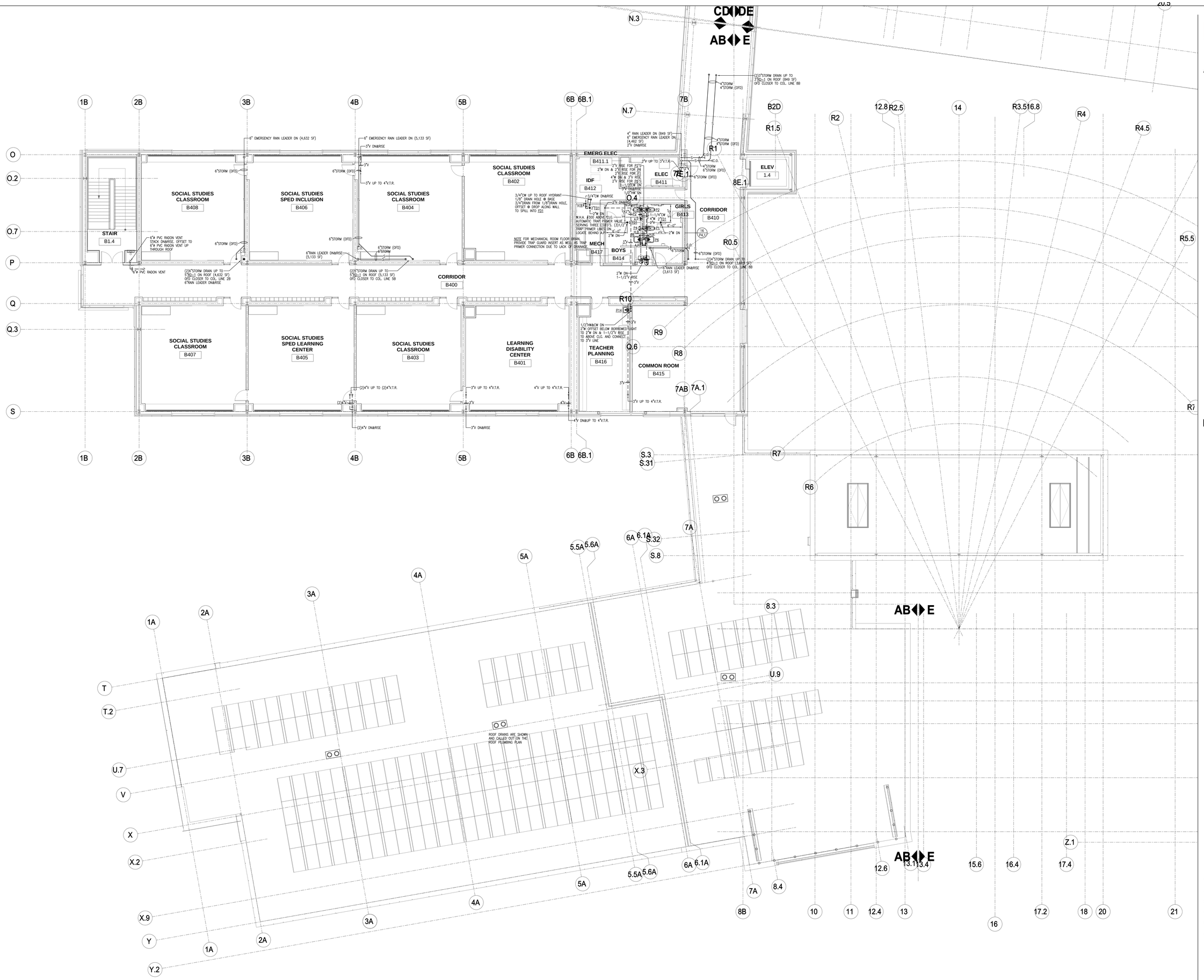
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SCIENCE SPED LEARNING CENTER D323
BIO PREP D304.2
CHEM STOR D322
ELEC D319
DAS D319.1
WOMEN D318
MEN D317
STEP CLINICIAN D302
CORRIDOR D300
COMMON ROOM D315
TEACHER PLANNING D316
DUCT CHASE
STORAGE D320
STEP CLASSROOM D301
GIRLS D312
CORRIDOR D310
BOYS D313
JAN D311
STAIR D2.3
ELEV 2.3
UPPER ADAPTIVE PE
UPPER WELLNESS
UPPER GYMNASIUM
CORRIDOR C310
ADJ OFFICE C316
AP OFFICE C314
AP OFFICE C312
CORRIDOR C315
AP SECR C311
ADJ OFFICE C313
EMERG ELEC C302.1
ELEC C302
STEP CLASSROOM C301
STAIR C2.3
ROOF ACCESS E304
MEDIA CENTER ARCHIVE E303
MECH E302
SECURITY E301
UPPER LOBBY E300
OPEN TO BELOW
OPEN TO BELOW
CORRIDOR C315
CD DE
AB E
DE E
F.P.
C.O.
FPSC @ 24" ABOVE ROOF
W.H.A. #200 ABOVE CLG AUTOMATIC TRAP PRIMER VALVE SERVING ONE (1)FD. 1/2" TRAP PRIMER LINE ON & 1/2" TRAP PRIMER LINE UP.
W.H.A. #300 ABOVE CLG. AUTOMATIC TRAP PRIMER VALVE SERVING ONE (1)FD. 1/2" TRAP PRIMER LINE ON & 1/2" TRAP PRIMER LINE UP.
W.H.A. #400 ABOVE CLG AUTOMATIC TRAP PRIMER VALVE SERVING ONE (1)FD. 1/2" TRAP PRIMER LINE ON & 1/2" TRAP PRIMER LINE UP. PROVIDE "A.P."
BALL VALVE W.H.A. #100 BEHIND A.P.
8" EMERGENCY RAIN LEADER DN&UP (3314 SF)
8" EMERGENCY RAIN LEADER DN&UP (4,805 SF)
8" EMERGENCY RAIN LEADER DN&UP (4,805 SF)
8" EMERGENCY RAIN LEADER DN&UP (4,099 SF)
8" EMERGENCY RAIN LEADER DN&RISE (5,758 SF)
8" RAIN LEADER DN&RISE (5,758 SF)
8" RAIN LEADER DN&RISE (5,983 SF)
8" EMERGENCY RAIN LEADER DN&RISE (5,983 SF)
6" EMERGENCY RAIN LEADER UP&ON (4,099 SF)
(2)5"STORM DRAINS UP TO 4"SQ=1 ON ROOF (1,873 SF) OFD CLOSER TO COL. LINE 10D
(2)5"STORM DRAIN UP TO 4"SQ=1 ON ROOF (3,265 SF) OFD CLOSER TO COL. LINE 13D
(2)5"STORM DRAIN UP TO 4"SQ=1 ON ROOF (2,864 SF) OFD CLOSER TO COL. LINE 18D
(2)5"STORM DRAIN UP TO 4"SQ=1 ON ROOF (3,241 SF) OFD CLOSER TO COL. LINE 21D
(2)5"STORM DRAINS UP TO 4"SQ=1 ON ROOF (2,071 SF) OFD CLOSER TO COL. LINE 10D
(2)5"STORM DRAINS UP TO 4"SQ=1 ON ROOF (2,838 SF) OFD CLOSER TO COL. LINE 12
(2)5"STORM DRAINS UP TO 4"SQ=1 ON ROOF (3,145 SF) OFD CLOSER TO COL. LINE 11D
(2)4"STORM DRAINS UP TO 4"SQ=1 ON ROOF (1,814 SF) OFD CLOSER TO COL. LINE 10D
(2)5"STORM DRAIN UP TO 4"SQ=1 ON ROOF (3,251 SF) OFD CLOSER TO COL. LINE 13D
(2)5"STORM DRAIN UP TO 4"SQ=1 ON ROOF (2,862 SF) OFD CLOSER TO COL. LINE 18D
(2)5"STORM DRAIN UP TO 4"SQ=1 ON ROOF (3,342 SF) OFD CLOSER TO COL. LINE 21D
6" PVC RADON VENT STACK UP THROUGH ROOF
6"ø PVC RADON VENT
8"STORM (OFD)
5"STORM (OFD)
5"STORM
4"STORM (OFD)
4"STORM
COORDINATE STORM DRAIN PIPING WITH DUCT RISER IN CHASE
8" RAIN LEADER DN (9,370 SF)
8" EMERGENCY RAIN LEADER DN (9,370 SF)
STORM DRAIN AND DUCT CROSSING HERE. COORDINATE WITH HVAC CONTRACTOR
8" EMERGENCY RAIN LEADER DN (9,355 SF)
8" RAIN LEADER DN (9,355 SF)
2"W DN&UP
2"W DN&RISE
2"V DN&UP
2"V DN&RISE
3"V DN&UP
3"V DN&RISE
4"W DN&UP
4"W DN&RISE
4"V DN&RISE
4"V UP TO 4"V.T.R.
3"OV UP TO 4"OV.T.R.
2"V UP TO 3"V.T.R.
3"OV, 2"V
2"V DN&RISE 3"OV DN&RISE
3/4"CW DN&UP
3/4"HW DN&UP
1/2"HW DN&UP
1/2"CW DN&UP
1/2"HWR DN&UP
3/4"CW DN & 1/2"CW UP
3/4"HW DN & 1/2"HW UP
1/2"HW UP
1/2"CW UP
3/4"HWR DN&UP (3.5 GPM)
1/2"HW DN&UP
3/4"CW DN&UP
1/2"HWR DN&UP
1/2"HW DN&RISE
1/2"CW DN&RISE
1/2"HW UP
1/2"CW UP
1/2"HW UP TO 1/2"CW UP
1/2"HW UP TO 1/2"HW DROP
1/2"HW&LCW DROP
1/2"HW&LCW UP
1/2"HW DROP
1/2"CW UP
1/2"HW UP
1/2"CW DROP
1/2"HW DROP
1/2"CW DROP
1/2"HW DROP
1/2"CW UP
1/2"HW UP
1/2"CW UP
1/2"HW UP
1/2"CW UP
1/2"HW U



1 P3.15 Fourth Floor Plumbing Plan – Section AB
Scale: 1/8" = 1'-0"

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DRAWING TITLE

Fourth Floor Plumbing Plan Section AB

Locus Map

True North

Key Plan

REVISIONS

No.	Description	Date

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NOTE:
1) LHW PIPING HAS ELECTRIC TEMPERATURE MAINTENANCE HEAT TRACE INSTALLED TO THE FIXTURE ROUGH-IN.
2) LOW & GAS PIPING ARE RACKED ALONG WALL BENEATH COUNTER IN PIPE CHASE BEHIND CASEWORK.
3) EACH PREP ROOM HAS AN ICE MACHINE WHICH REQUIRES 1/2"CW & FLOOR DRAIN. PROVIDE MB-1 FOR FEED. THERE IS ALSO A REFRIGERATOR WITH A WATER FEED. PROVIDE MB-1 FOR FEED. FINALLY, AN UNDERCOUNTER DISHWASHER IS LOCATED NEXT TO L4. PROVIDE 1"LW. & 1/2"HW PIPED FROM L4 TO D/W. PROVIDE W.H.A. #100 ON LHW FEED. THESE ARE SHOWN IN PLAN AND THE ENLARGED PLAN.
4) AN AUTOMATIC TRAP PRIMER VALVE SHALL BE INSTALLED IN EACH PREP ROOM SERVING (3)FD'S.
5) THE LABORATORY GAS CONTROL PANEL SHALL HAVE A VALVE BOX INSTALLED ABOVE IT FOR A MANUAL SHUT-OFF VALVE AND THE GAS SOLENOID VALVE INSTALLATION.

1 P3.16 Fourth Floor Plumbing Plan – Section CD
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DRAWING TITLE

Fourth Floor Plumbing Plan Section CD

Locus Map

True North

Key Plan

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NOTE:
1) LHW PIPING HAS ELECTRIC TEMPERATURE MAINTENANCE HEAT TRACE INSTALLED TO THE FIXTURE ROUGH-IN.
2) LCW & GAS PIPING ARE RACKED ALONG WALL BENEATH COUNTER IN PIPE CHASE BEHIND CASEWORK.
3) EACH PREP ROOM HAS AN ICE MACHINE WHICH REQUIRES 1/2"LCW & FLOOR DRAIN. PROVIDE IMB-1 FOR FEED. THERE IS ALSO A REFRIGERATOR WITH A WATER FEED. PROVIDE IMB-1 FOR FEED. FINALLY, AN UNDERCOUNTER DISHWASHER IS LOCATED NEXT TO L4. PROVIDE 1"LW, & 1/2"LHW PIPED FROM L4 TO D/W. PROVIDE W.H.A. #100 ON LHW FEED. THESE ARE SHOWN IN PLAN AND THE ENLARGED PLAN.
4) AN AUTOMATIC TRAP PRIMER VALVE SHALL BE INSTALLED IN EACH PREP ROOM SERVING (3)FD'S.
5) THE LABORATORY GAS CONTROL PANEL SHALL HAVE A VALVE BOX INSTALLED ABOVE IT FOR A MANUAL SHUT-OFF VALVE AND THE GAS SOLENOID VALVE INSTALLATION.

NOTE:
PROVIDE TEMPERATURE MAINTENANCE ELECTRIC HEAT TRACE ON THE LHW PIPING FROM THE RPZ BACKFLOW PREVENTER TO THE LAB SINKS.

1 Fifth Floor Plumbing Plan – Section CD
P3.17 Scale: 1/8" = 1'-0"

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Fifth Floor Plumbing Plan Section CD

Locus Map

True North

Key Plan

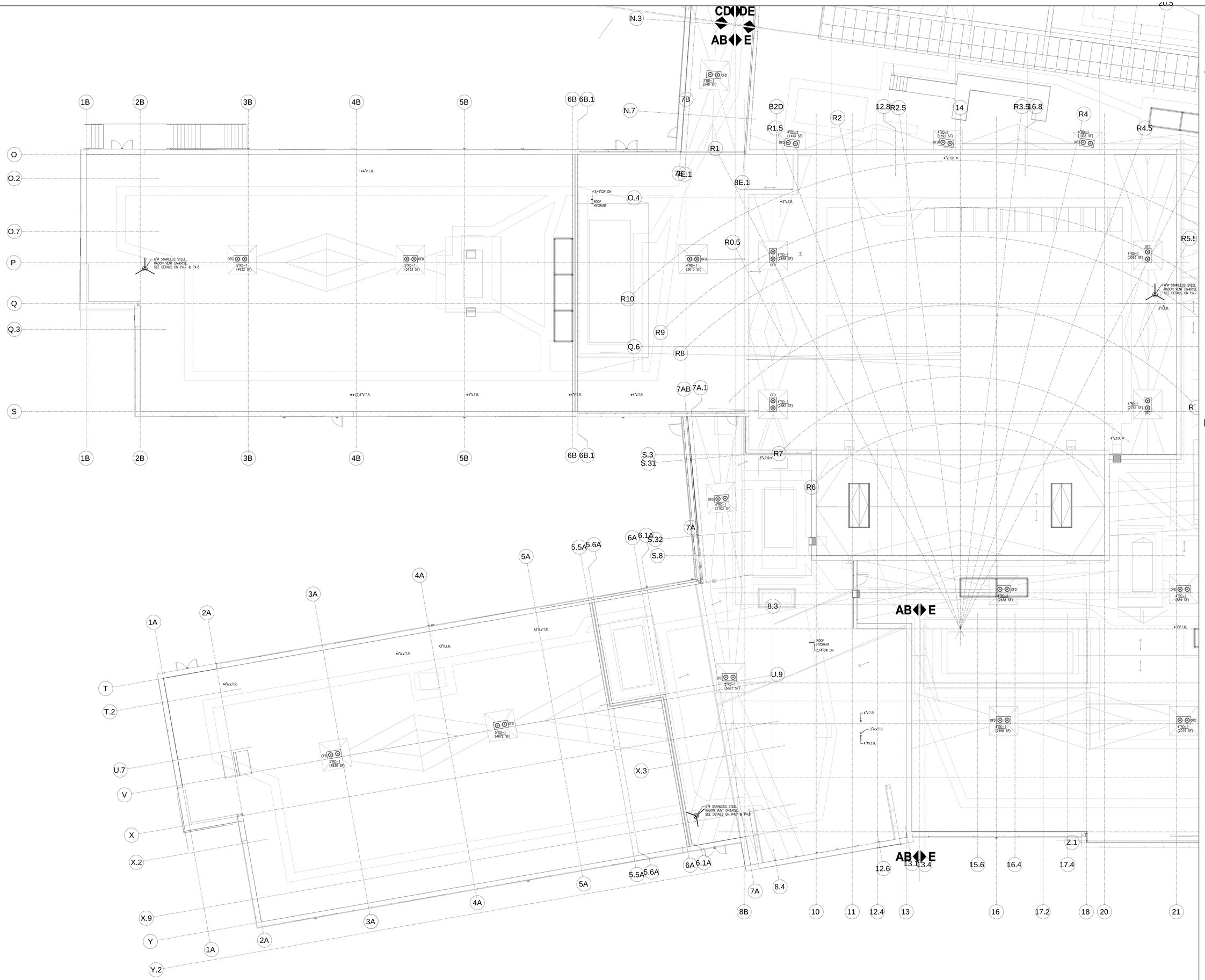
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1 P3.18 Roof Plumbing Plan – Section AB
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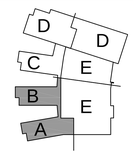
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Roof Plumbing Plan Section AB

Locus Map

True North

Key Plan



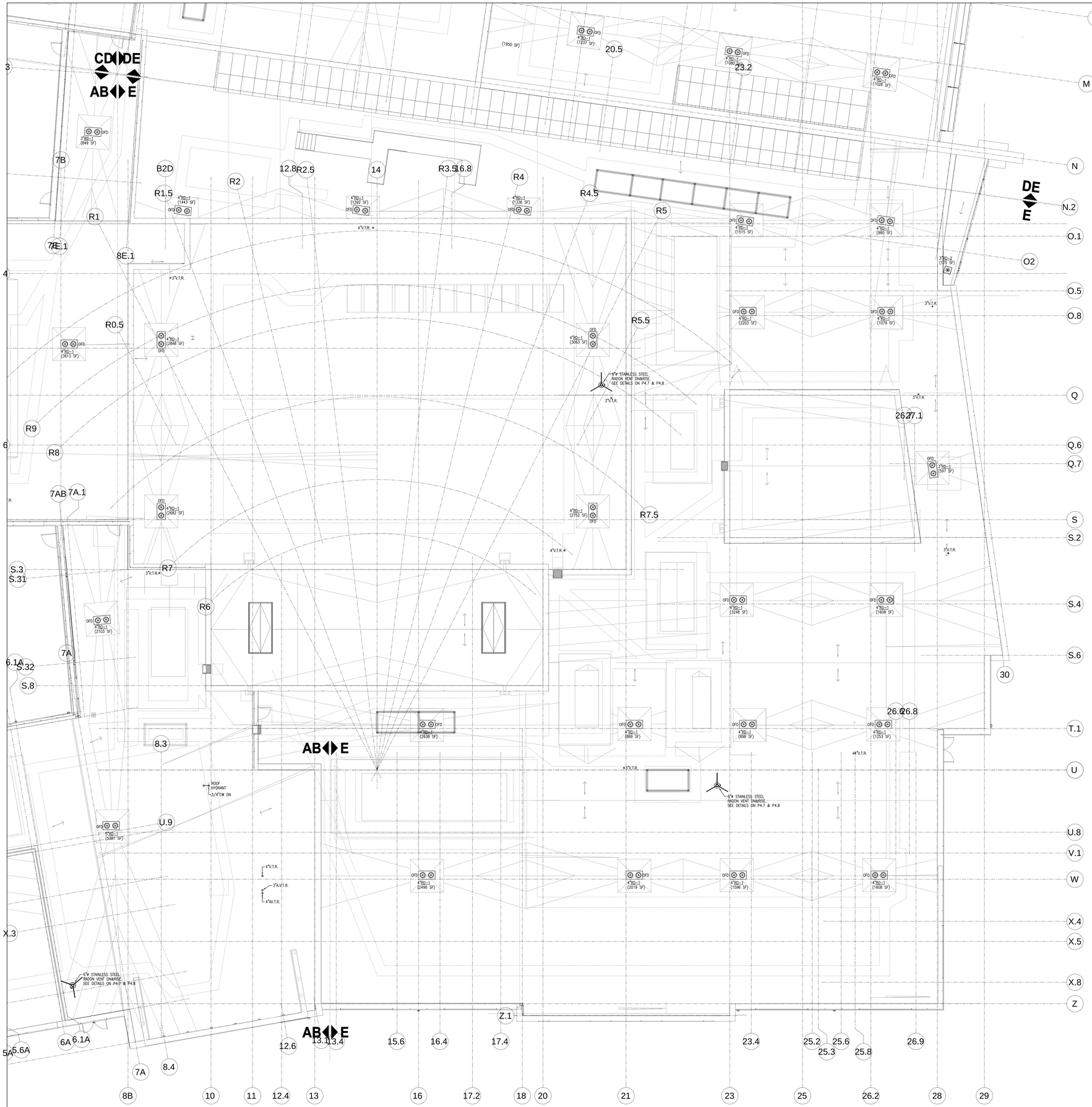
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1 P3.19 Roof Plumbing Plan – Section E
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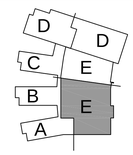
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True North

Key Plan



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No.	Description	Date

FILE:	
JOB NO:	#1904
SCALE:	1/8" = 1'-0"
DWN. BY:	CDR
CKD. BY:	KRS
DATE:	JANUARY 20, 2022

P3.19

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1 / 3.20 Roof Plumbing Plan – Section CD
Scale: 1/8" = 1'-0"

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Worcester MA 01602

PROJECT

100% CONSTRUCTION DOCUMENTS, FINAL BID PACKAGE #4

Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

DRAWING TITLE

Roof Plumbing Plan Section CD

Locus Map

True North

Key Plan

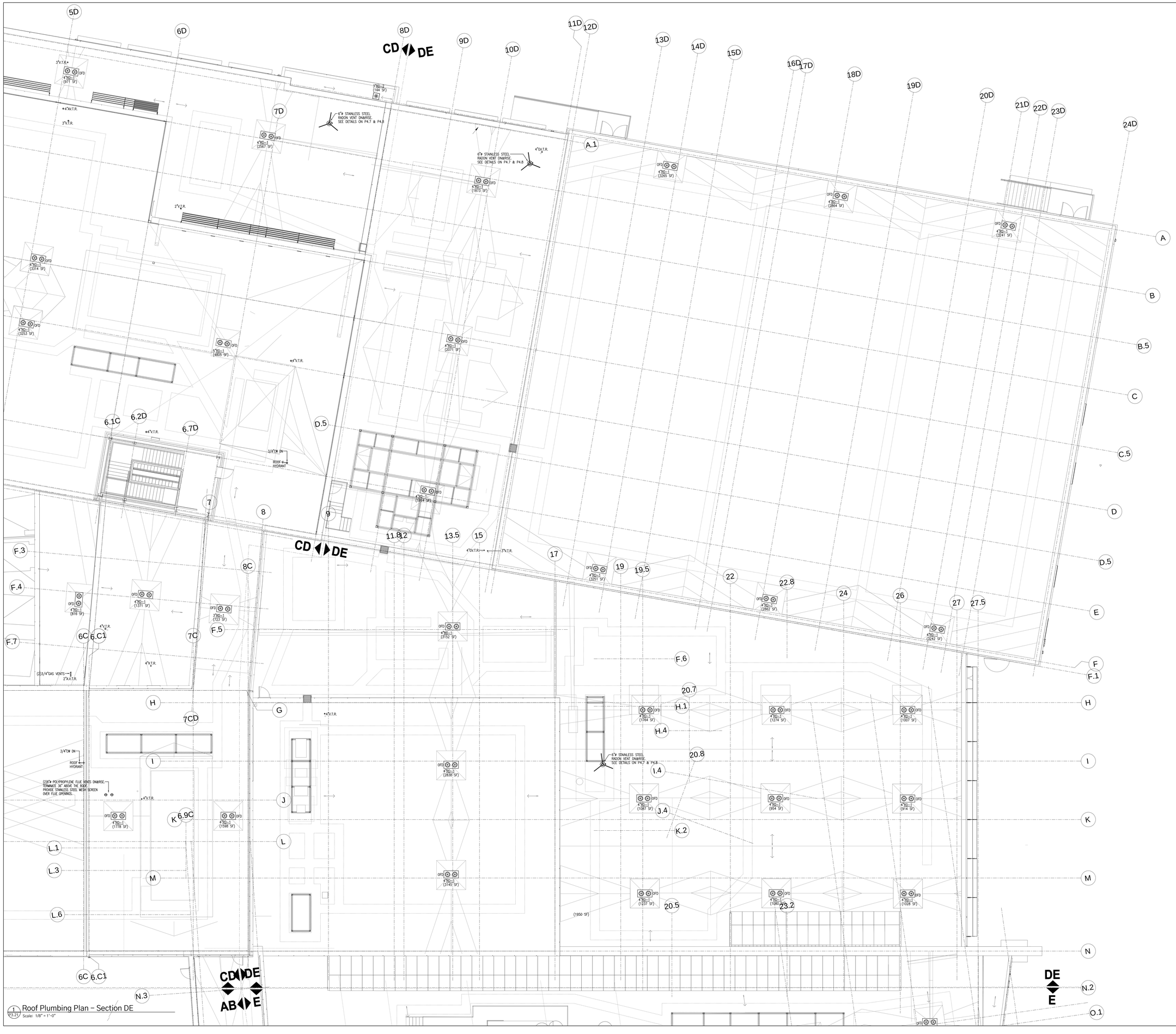
REVISIONS

No.	Description	Date

FILE:
JOB NO: #1904
SCALE: 1/8" = 1'-0"
DWN. BY: CDR
CKD. BY: KRS
DATE: JANUARY 20, 2022

P3.20

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1 P3.21 Roof Plumbing Plan – Section DE
Scale: 1/8" = 1'-0"

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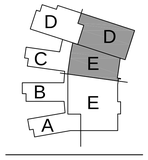
DRAWING TITLE

Roof Plumbing Plan Section DE

Locus Map

True North

Key Plan



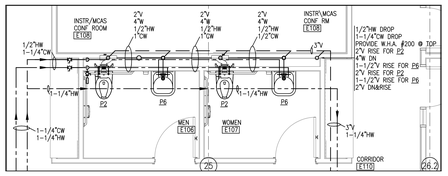
REVISIONS

No.	Description	Date

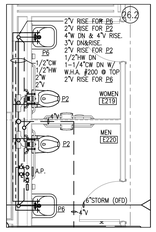
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SCALE:	1/8" = 1'-0"
DWN. BY:	CDR
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P3.21

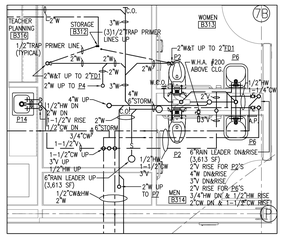
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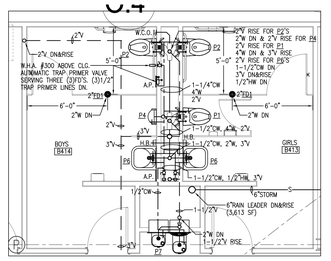
10 P4.1 Partial Main Level Plumbing Plan – Section E
Scale: 1/4" = 1'-0"



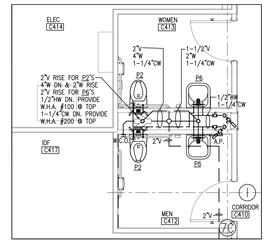
Partial Second Level Plumbing Plan – Section E
14 P4.1 Scale: 1/4" = 1'-0"



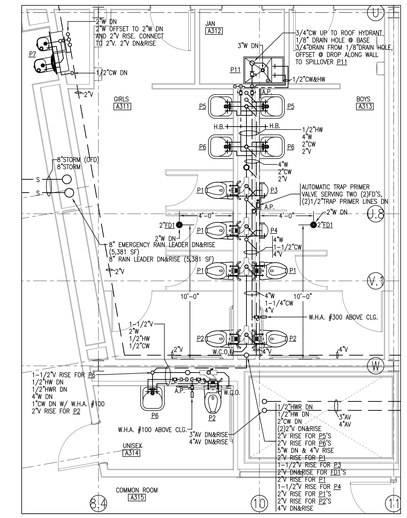
15 P4.1 Partial Third Level Plumbing Plan – Section AB
Scale: 1/4" = 1'-0"



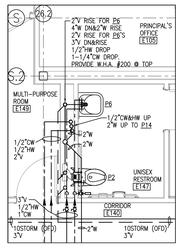
16 P4.1 Partial Fourth Level Plumbing Plan – Section AB
Scale: 1/4" = 1'-0"



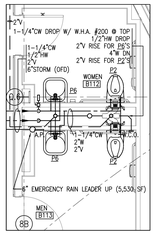
17 P4.1 Partial Fourth Level Plumbing Plan – Section C
Scale: 1/4" = 1'-0"



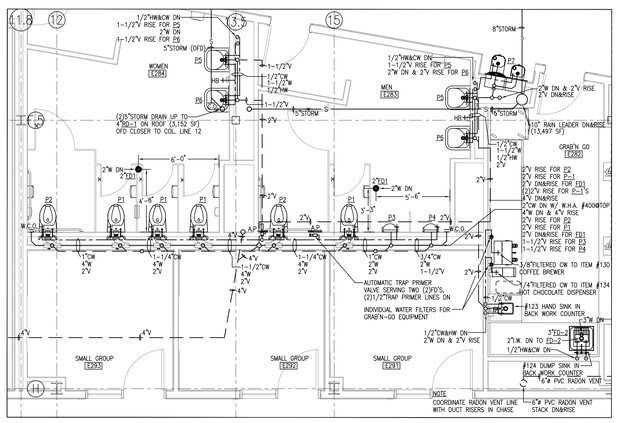
13 P4.1 Partial Third Level Plumbing Plan – Section AB
Scale: 1/4" = 1'-0"



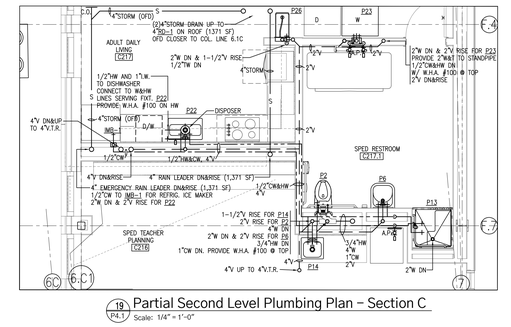
8 P4.1 Partial Main Level Plumbing Plan – Section E
Scale: 1/4" = 1'-0"



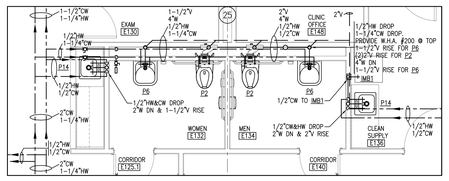
Partial Main Level Plumbing Plan – Section B
9 P4.1 Scale: 1/4" = 1'-0"



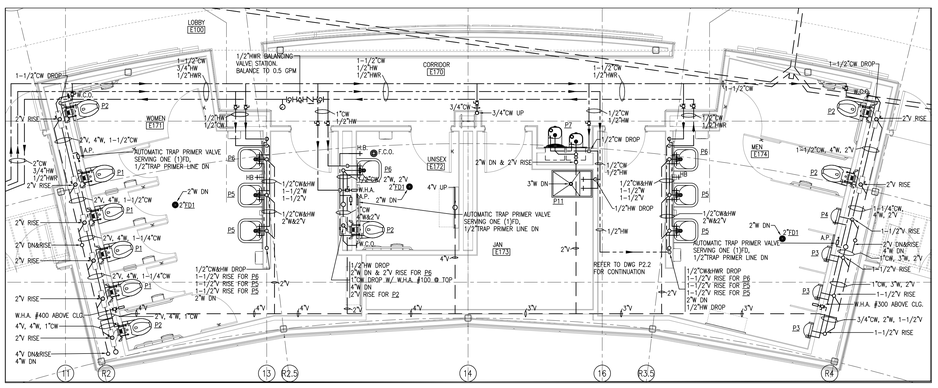
18 P4.1 Partial Second Level Plumbing Plan – Section E
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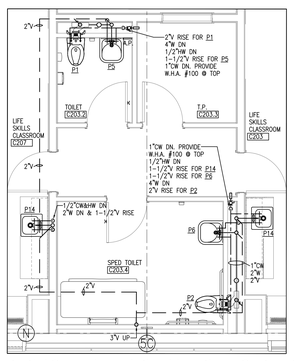
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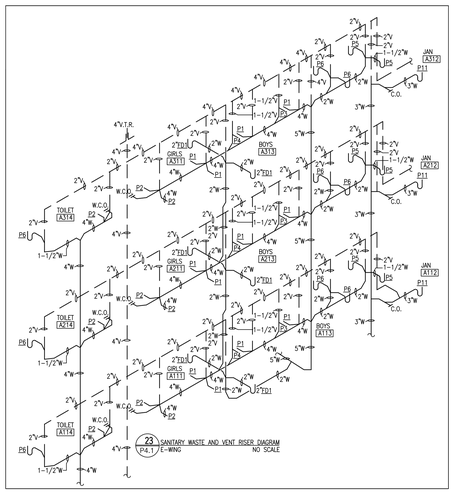
7 P4.1 Partial Main Level Plumbing Plan – Section E
Scale: 1/4" = 1'-0"



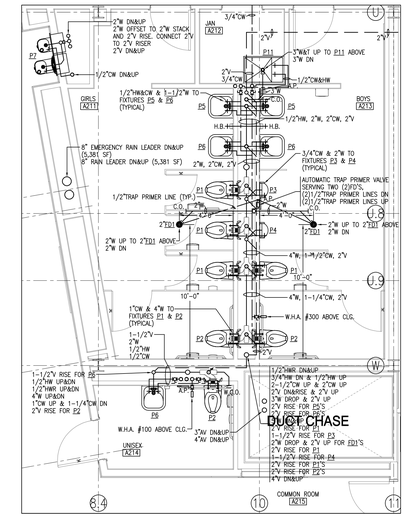
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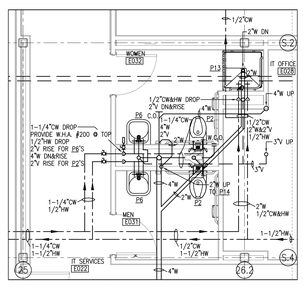
20 P4.1 Partial Second Level Plumbing Plan – Section C
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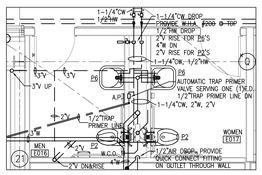
23 P4.1 SANITARY WASTE AND VENT RISER DIAGRAM E-WING NO SCALE



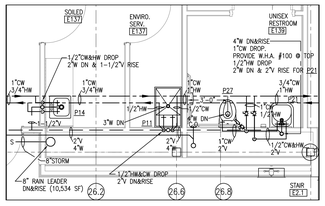
12 P4.1 Partial Second Level Plumbing Plan – Section AB
Scale: 1/4" = 1'-0"



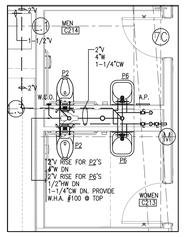
2 P4.1 Partial Ground Level Plumbing Plan – Section E
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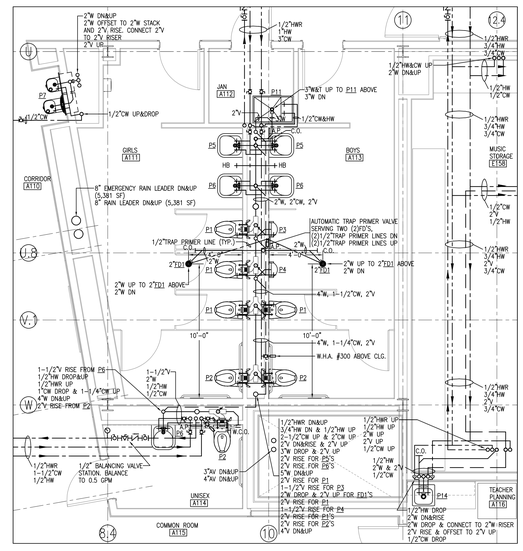
3 P4.1 Partial Ground Level Plumbing Plan – Section E
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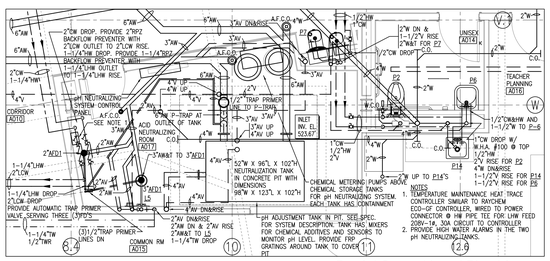
22 P4.1 Partial Main Level Plumbing Plan – Section E
Scale: 1/4" = 1'-0"



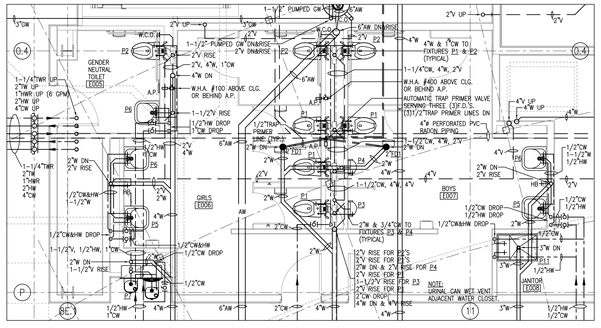
21 P4.1 Partial Second Level Plumbing Plan – Section C
Scale: 1/4" = 1'-0"



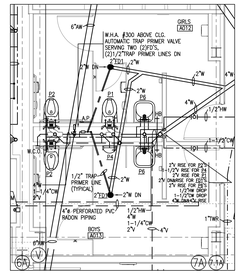
11 P4.1 Partial Main Level Plumbing Plan – Section AB
Scale: 1/4" = 1'-0"



1 P4.1 Partial Ground Level Plumbing Plan – Section AB
Scale: 1/4" = 1'-0"



4 P4.1 Partial Ground Level Plumbing Plan – Section E
Scale: 1/4" = 1'-0"



5 P4.1 Partial Ground Level Plumbing Plan – Section AB
Scale: 1/4" = 1'-0"

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Doherty Memorial High School

299 Highland Street, Worcester, MA 01605

DRAWING TITLE

Partial Plumbing Plans

Locus Map

True North

Key Plan

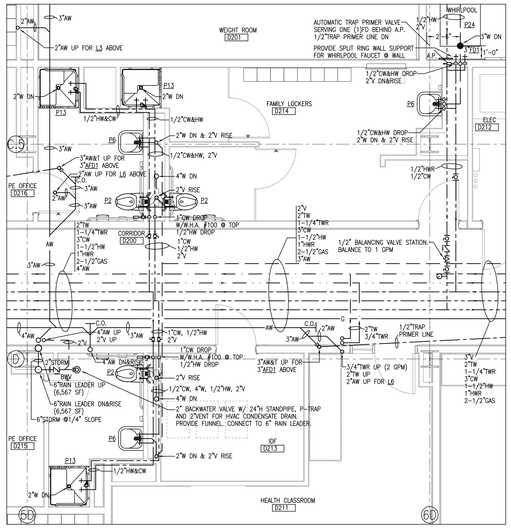
REVISIONS

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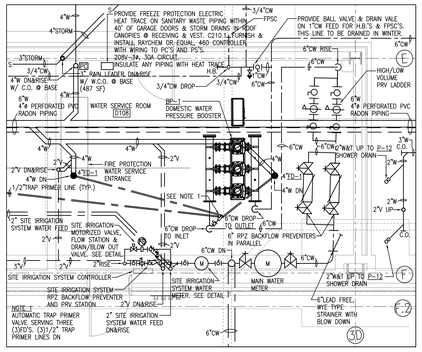
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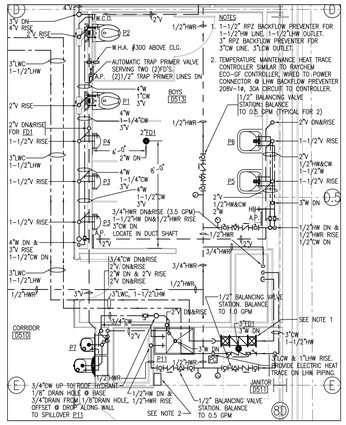
Partial Second Level Plumbing Plan – Section D

10 / P4.2 Scale: 1/4" = 1'-0"



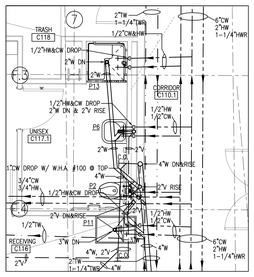
Partial Main Level Plumbing Plan – Section C

13 / P4.2 Scale: 1/4" = 1'-0"



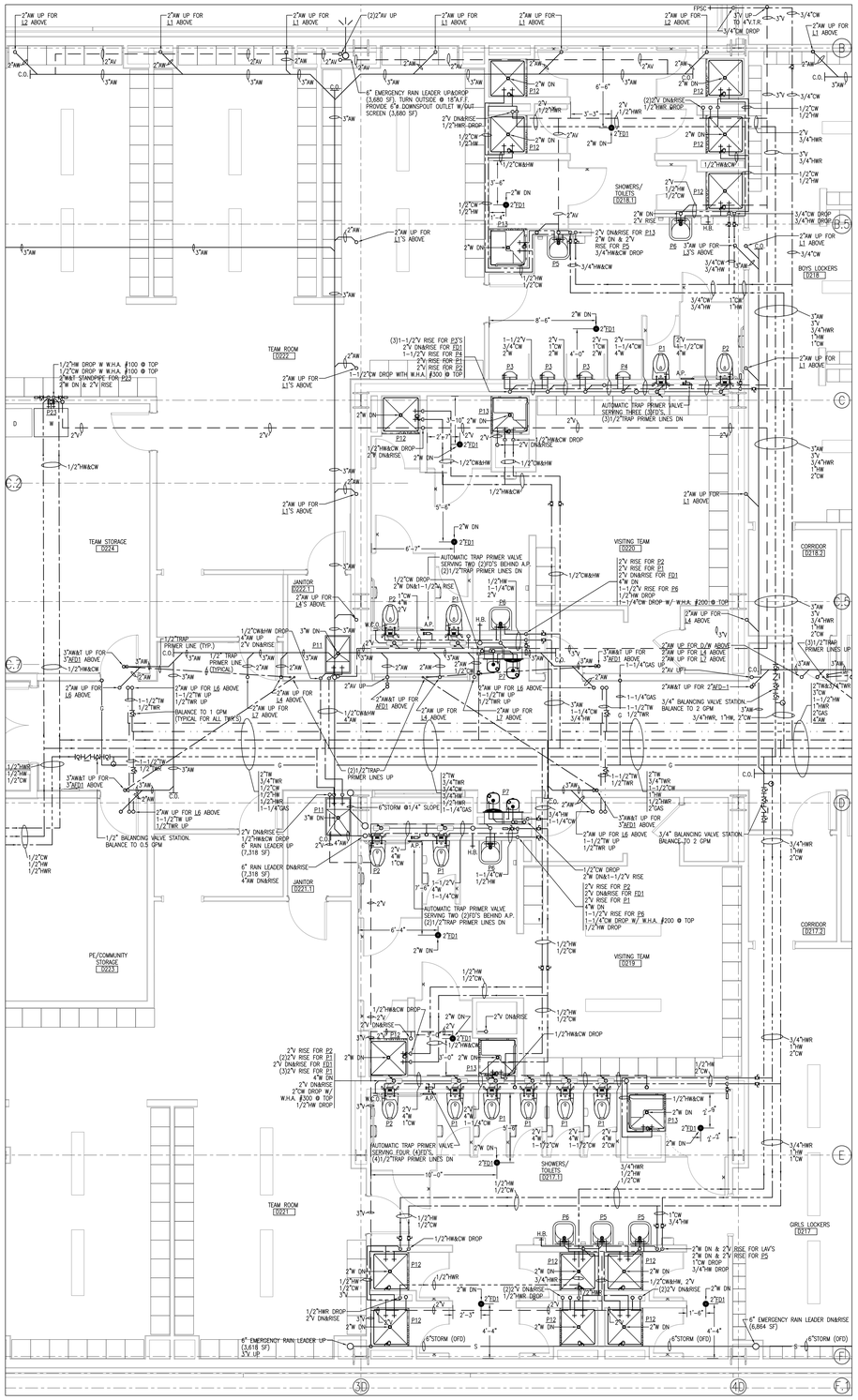
Partial Fifth Level Plumbing Plan – Section D

8 / P4.2 Scale: 1/4" = 1'-0"



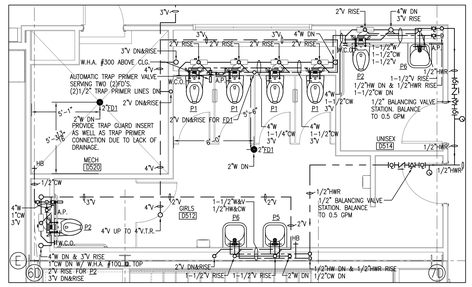
Partial Main Level Plumbing Plan – Section C

12 / P4.2 Scale: 1/4" = 1'-0"



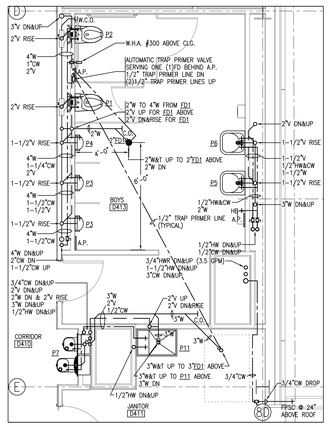
Partial Second Level Plumbing Plan – Section D

11 / P4.2 Scale: 1/4" = 1'-0"



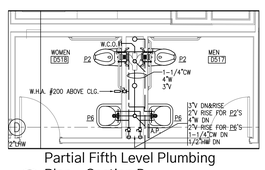
Partial Fifth Level Plumbing Plan – Section D

7 / P4.2 Scale: 1/4" = 1'-0"



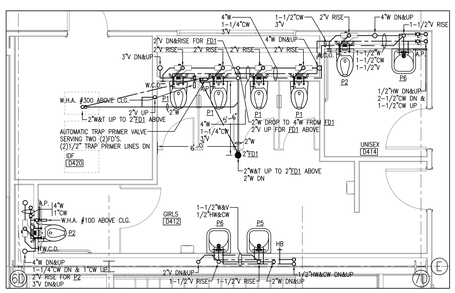
Partial Fourth Level Plumbing Plan – Section D

5 / P4.2 Scale: 1/4" = 1'-0"



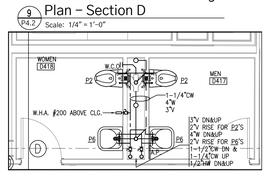
Partial Fifth Level Plumbing Plan – Section D

9 / P4.2 Scale: 1/4" = 1'-0"



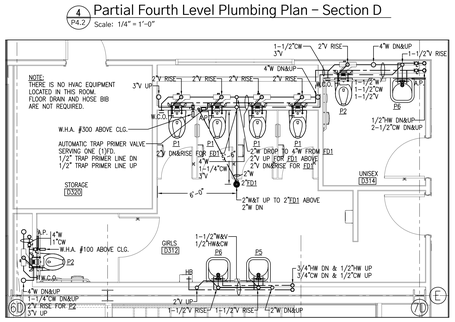
Partial Fourth Level Plumbing Plan – Section D

4 / P4.2 Scale: 1/4" = 1'-0"



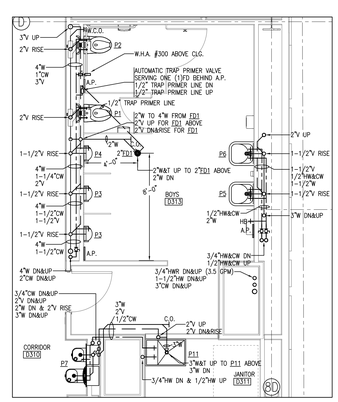
Partial Fourth Level Plumbing Plan – Section D

6 / P4.2 Scale: 1/4" = 1'-0"



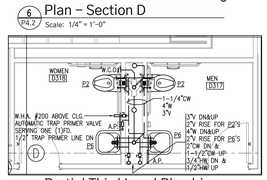
Partial Third Level Plumbing Plan – Section D

1 / P4.2 Scale: 1/4" = 1'-0"



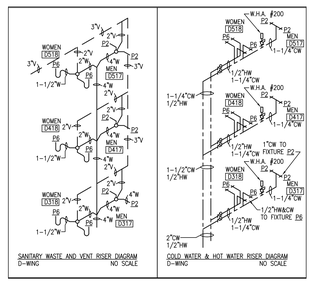
Partial Third Level Plumbing Plan – Section D

2 / P4.2 Scale: 1/4" = 1'-0"



Partial Third Level Plumbing Plan – Section D

3 / P4.2 Scale: 1/4" = 1'-0"



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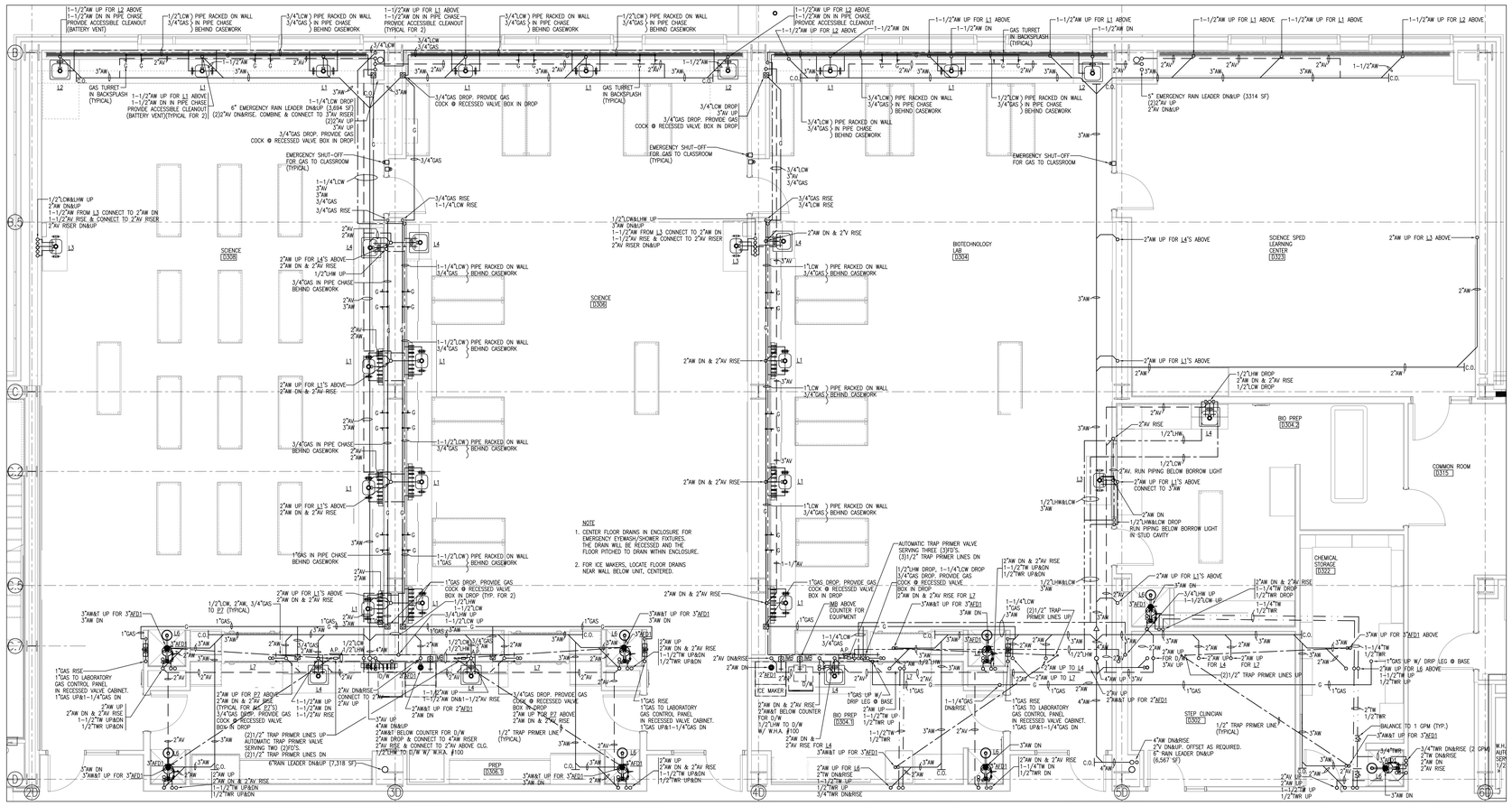
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No.	Description	Date

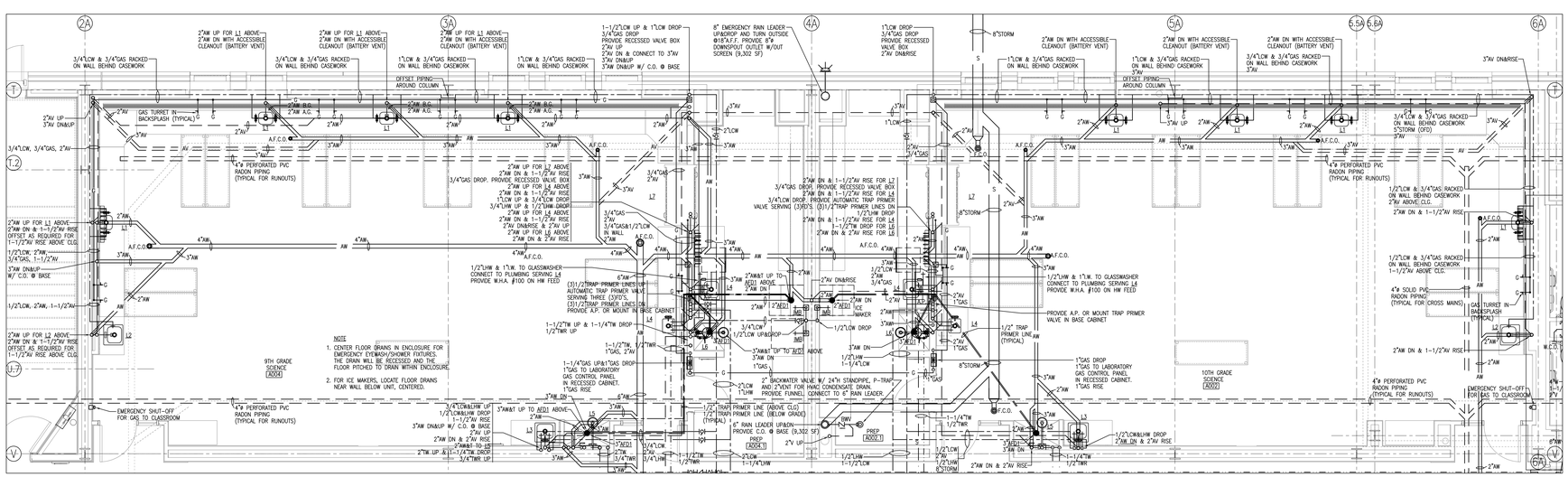
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P4.2

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1 Partial Third Level Plumbing Plan – Section D
P4.3 Scale: 1/4" = 1'-0"



2 Partial Ground Level Plumbing Plan – Section A
P4.3 Scale: 1/4" = 1'-0"

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OWNER

Worcester Public Schools
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Worcester MA 01602

PROJECT

100% CONSTRUCTION DOCUMENTS, FINAL BID PACKAGE #4

Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

DRAWING TITLE

Partial Science Room Plumbing Plans

Locus Map

True North

Key Plan

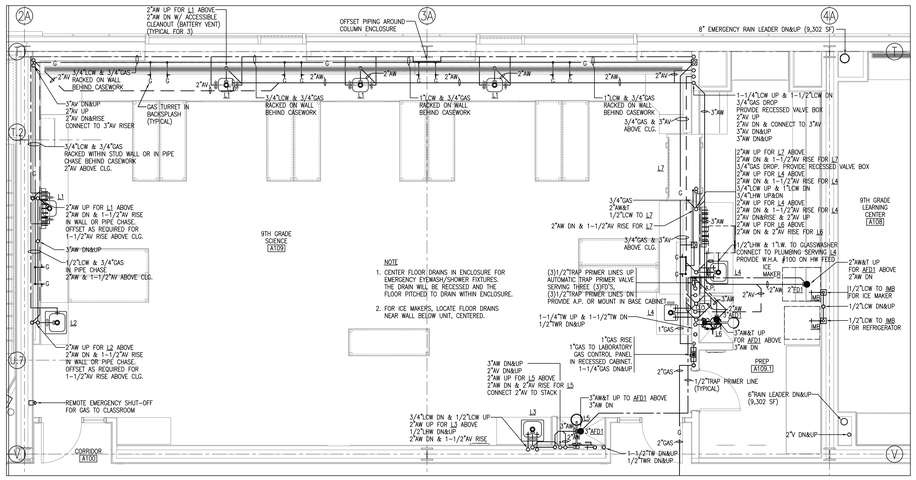
REVISIONS

No.	Description	Date

FILE:
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SCALE: 1/4" = 1'-0"
DWN. BY: CDR
CKD. BY: KRS
DATE: JANUARY 20, 2022

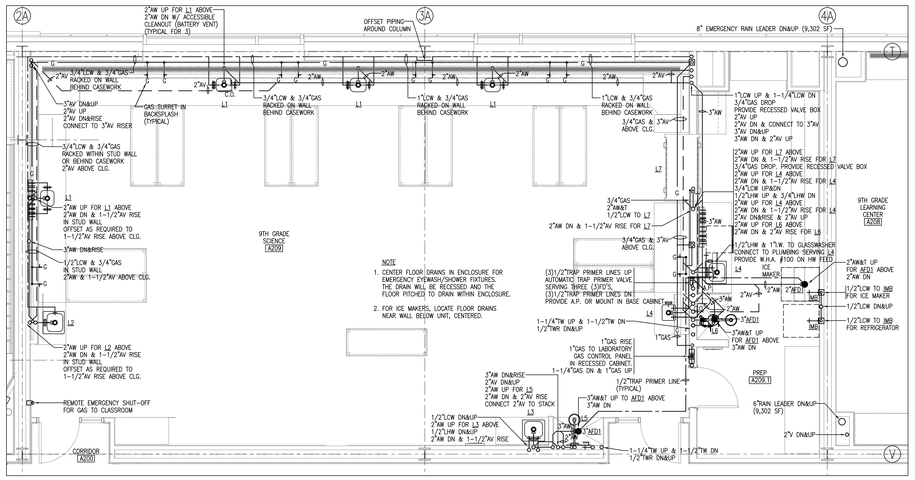
P4.3

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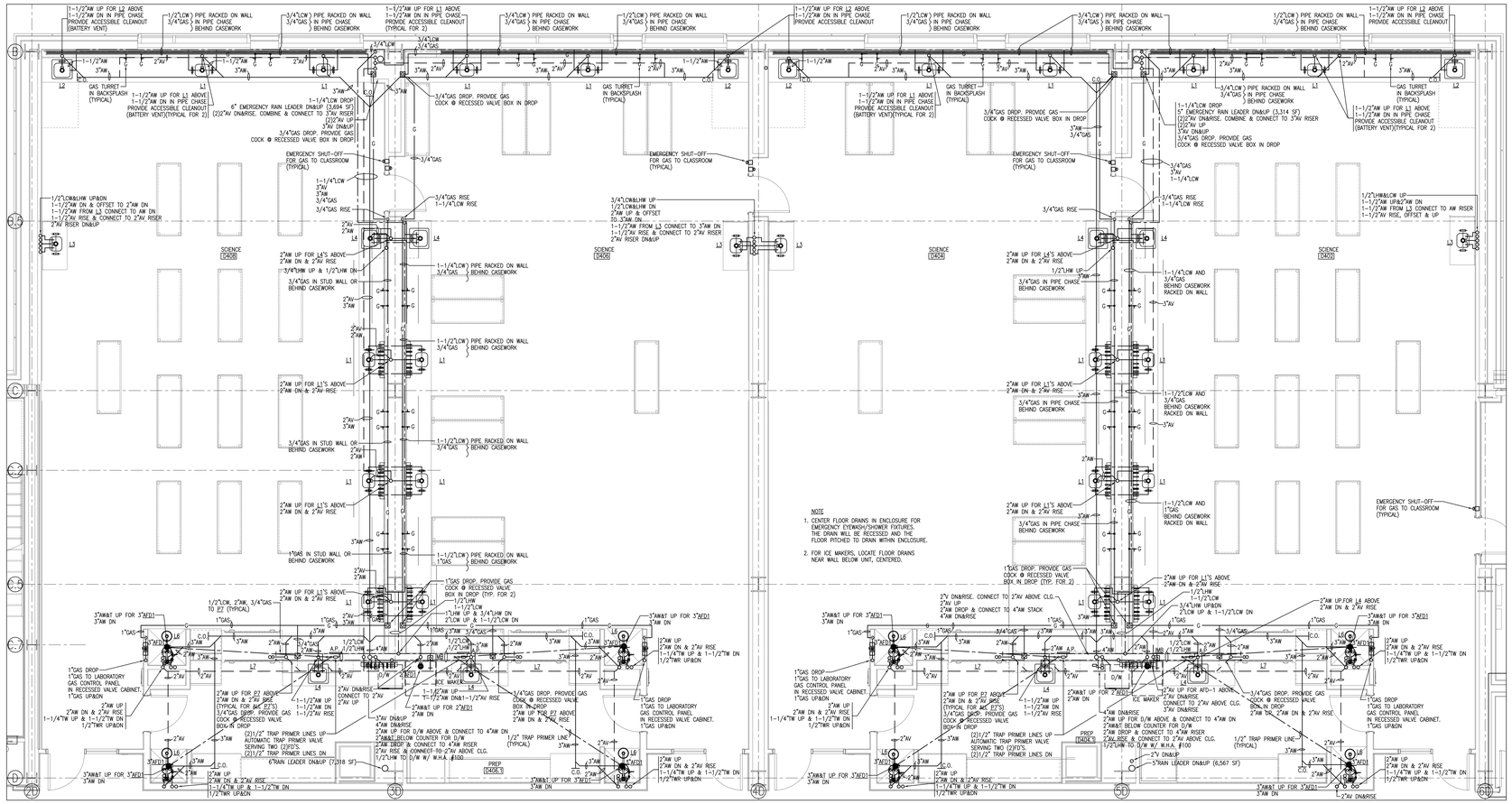
1 P4.4 Partial Main Level Plumbing Plan – Section A

Scale: 1/4" = 1'-0"



2 P4.4 Partial Second Level Plumbing Plan – Section A

Scale: 1/4" = 1'-0"



3 P4.4 Partial Fourth Level Plumbing Plan – Section D

Scale: 1/4" = 1'-0"

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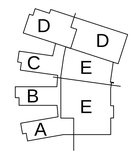
DRAWING TITLE

Partial Science Room Plumbing Plans

Locus Map

True North

Key Plan



REVISIONS

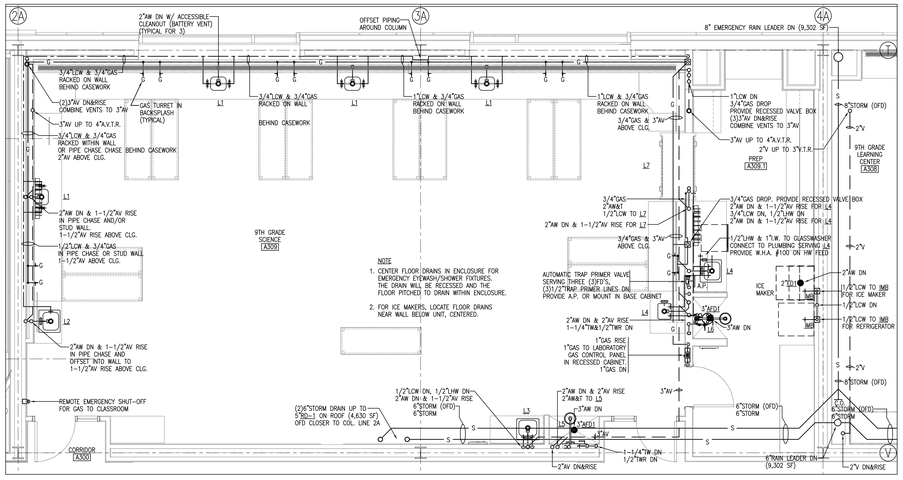
No.	Description	Date

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DATE:	JANUARY 20, 2022

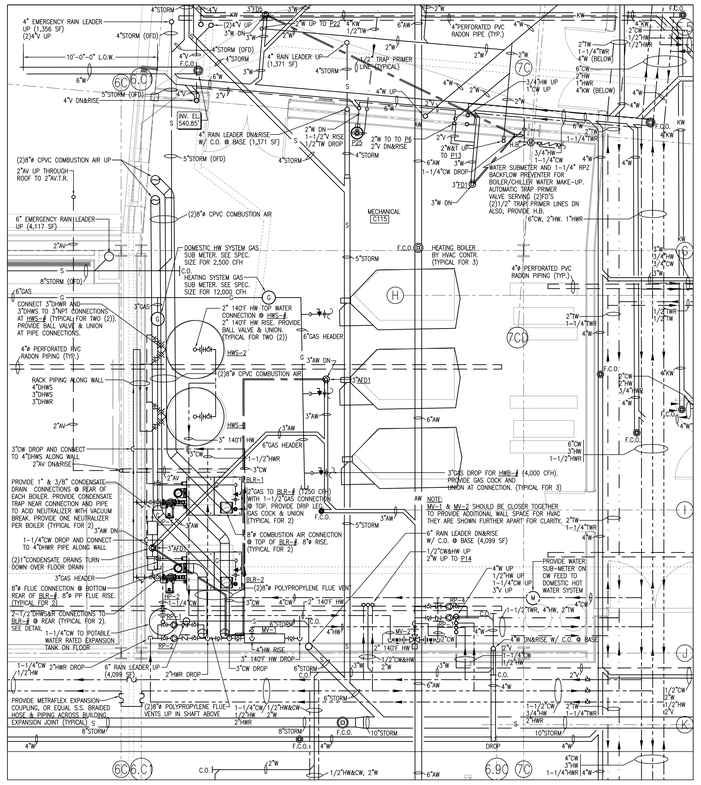
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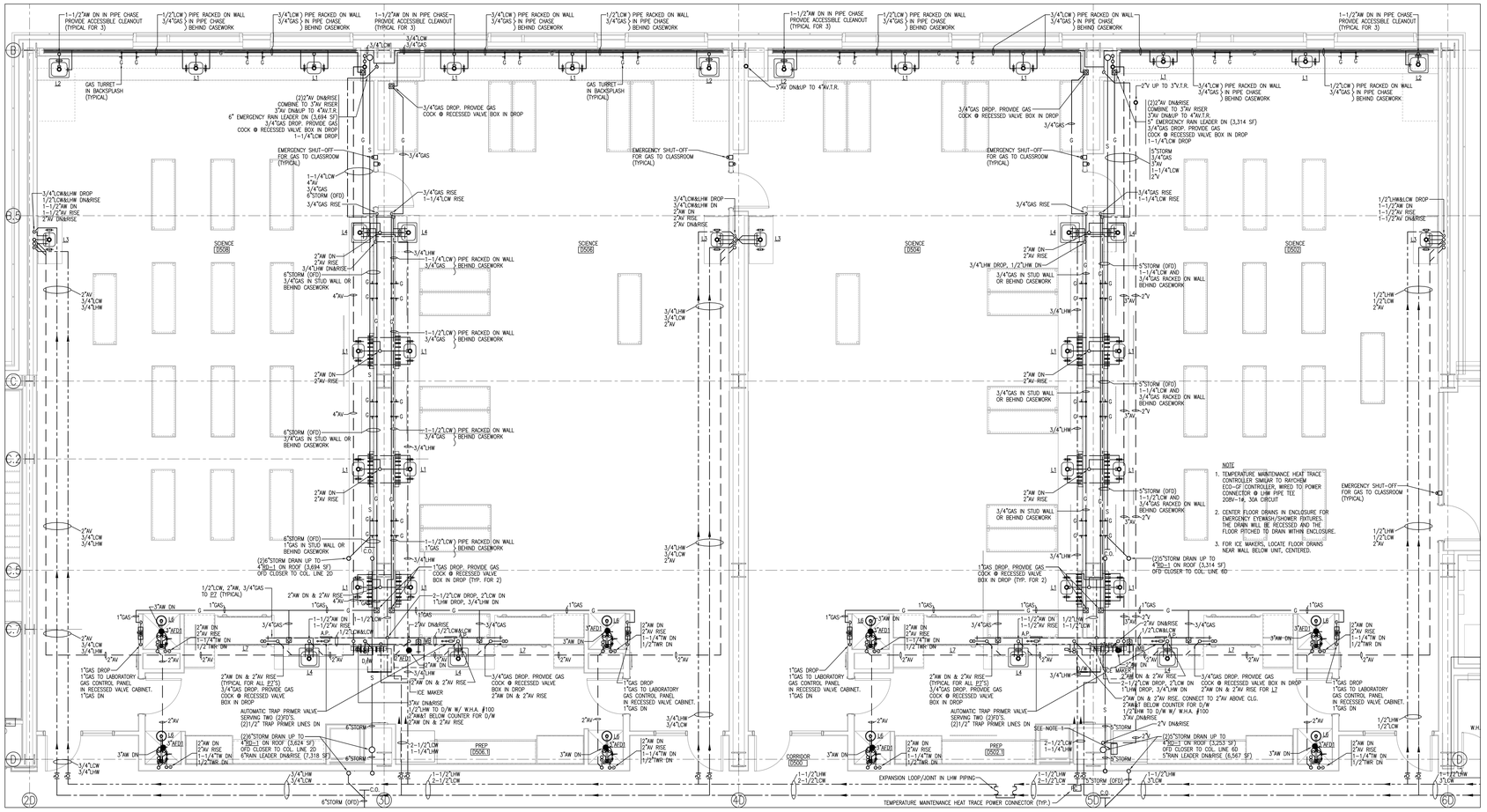
1 P4.5 Partial Third Level Plumbing Plan – Section A

Scale: 1/4" = 1'-0"



3 P4.5 Partial Main Level Plumbing Plan – Section C

Scale: 1/4" = 1'-0"



2 P4.5 Partial Fifth Level Plumbing Plan – Section D

Scale: 1/4" = 1'-0"

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Doherty Memorial High School

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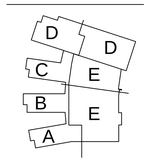
DRAWING TITLE

Partial Science Rooms & Boiler Rm Plumbing Plans

Locus Map

True North

Key Plan



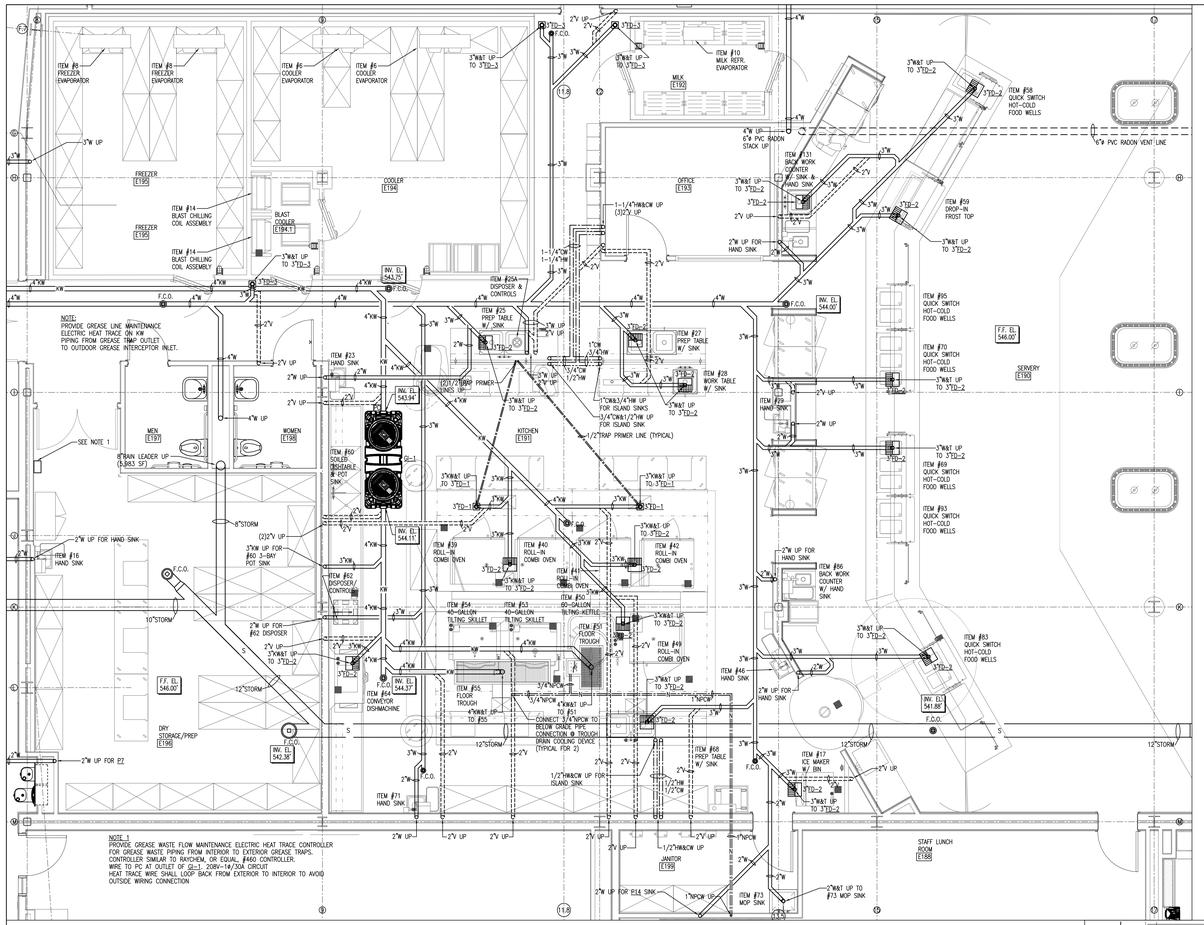
REVISIONS

No.	Description	Date

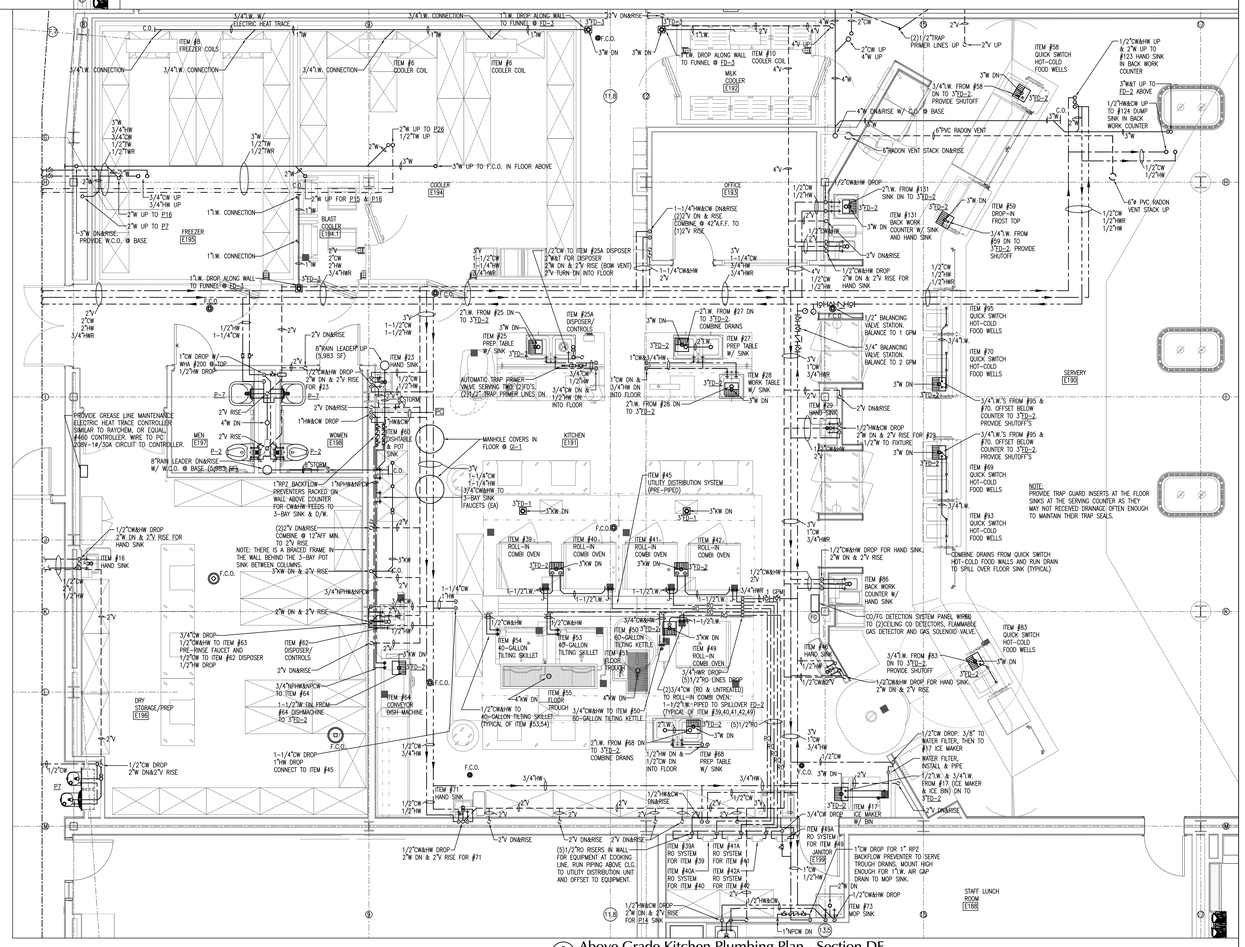
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SCALE:	1/4" = 1'-0"
DWN. BY:	CDR
CKD. BY:	KRS
DATE:	JANUARY 20, 2022

P4.5

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1 Below Grade Kitchen Plumbing Plan - Section DE
P4.6 Scale: 1/4" = 1'-0"



2 Above Grade Kitchen Plumbing Plan - Section DE
P4.6 Scale: 1/4" = 1'-0"

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Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

DRAWING TITLE

Kitchen Plumbing Plans

Locus Map

True North

Key Plan

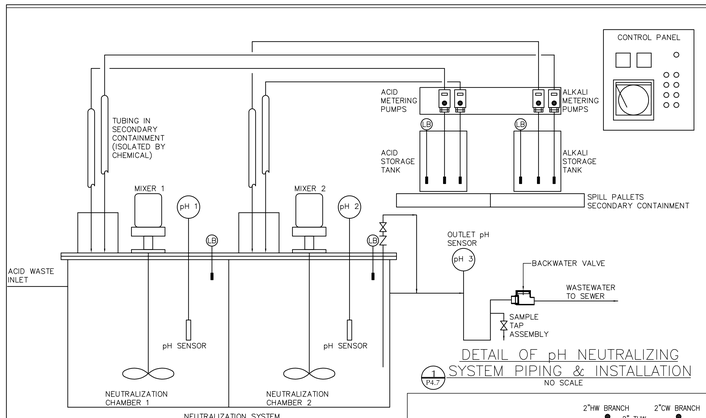
REVISIONS

No.	Description	Date

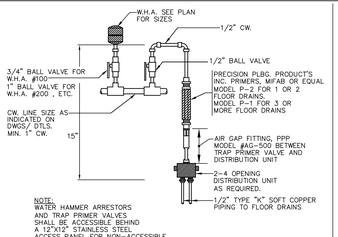
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P4.6

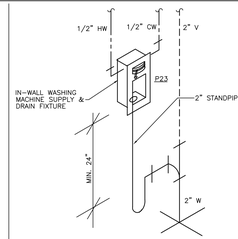
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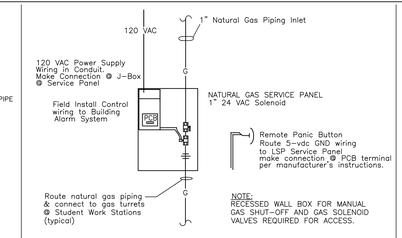
1 P4.7 DETAIL OF pH NEUTRALIZING SYSTEM PIPING & INSTALLATION
NO SCALE



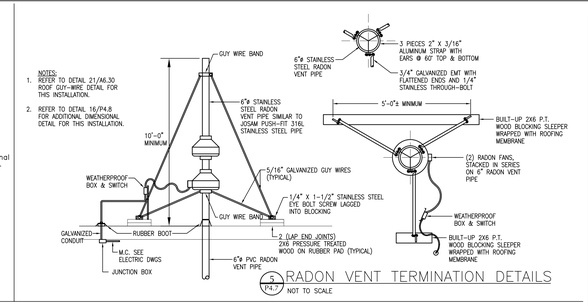
2 P4.7 DETAIL OF TRAP PRIMERS & WATER HAMMER ARRESTORS
NOT TO SCALE



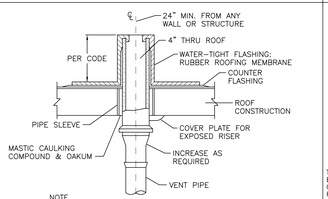
3 P4.7 WASHING MACHINE SUPPLY & DRAIN PIPING DETAIL
NO SCALE



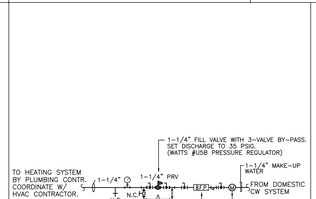
4 P4.7 TYPICAL SCIENCE CLASSROOM EMERGENCY GAS SHUT-OFF PIPING DIAGRAM
NOT TO SCALE



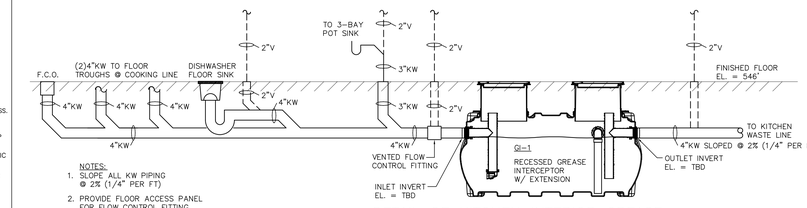
5 P4.7 RADON VENT TERMINATION DETAILS
NOT TO SCALE



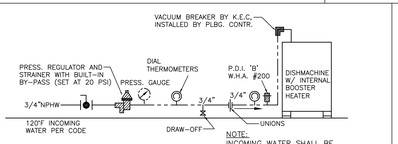
7 P4.7 VENT THRU ROOF DETAIL
NO SCALE



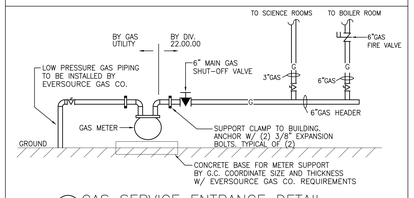
BOILER ROOM
8 P4.7 COLD WATER MAKE-UP DETAIL
NO SCALE FOR HEATING/COOLING PLANT



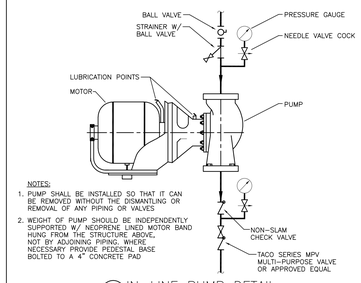
DETAIL OF KITCHEN INTERIOR GREASE
9 P4.7 INTERCEPTOR GI-1 PIPING & INSTALLATION
NOT TO SCALE



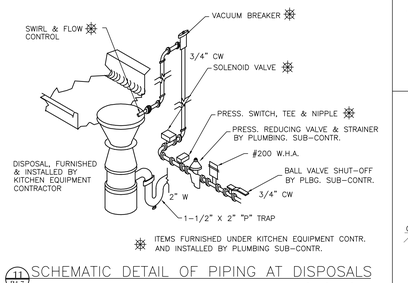
12 P4.7 DETAIL OF PIPING AT DISHWASHER
NOT TO SCALE ITEM #64



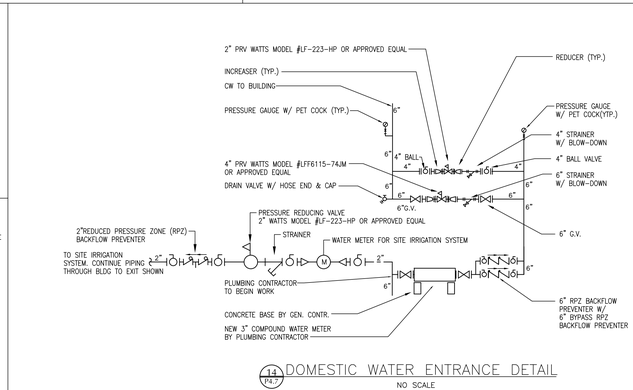
13 P4.7 GAS SERVICE ENTRANCE DETAIL
NO SCALE SCHOOL



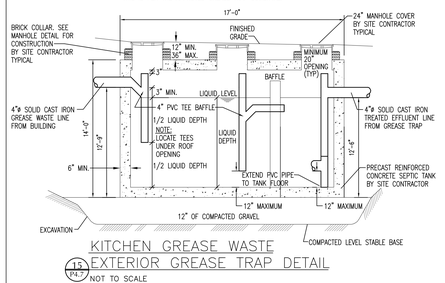
10 P4.7 IN-LINE PUMP DETAIL
NO SCALE



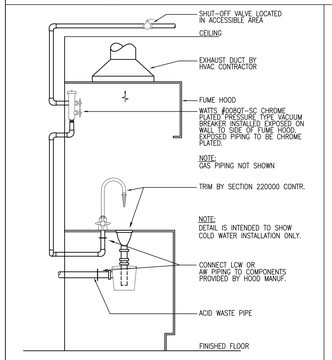
11 P4.7 SCHEMATIC DETAIL OF PIPING AT DISPOSALS
NOT TO SCALE ITEMS #25A, #27A & #62



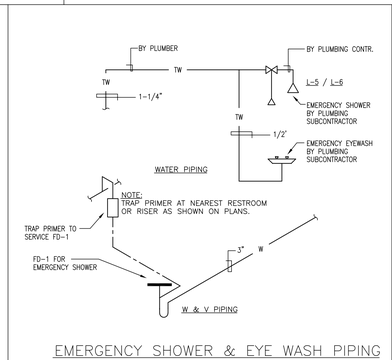
14 P4.7 DOMESTIC WATER ENTRANCE DETAIL
NO SCALE



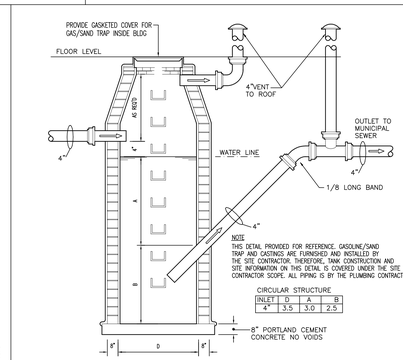
KITCHEN GREASE WASTE EXTERIOR GREASE TRAP DETAIL
15 P4.7 NOT TO SCALE



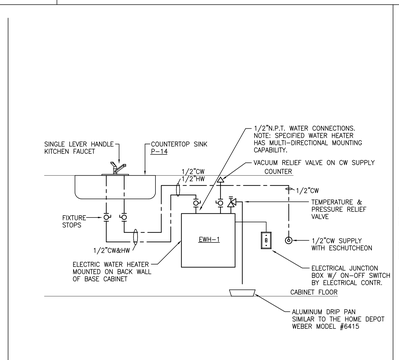
16 P4.7 TYPICAL FUME HOOD DETAIL
NOT TO SCALE



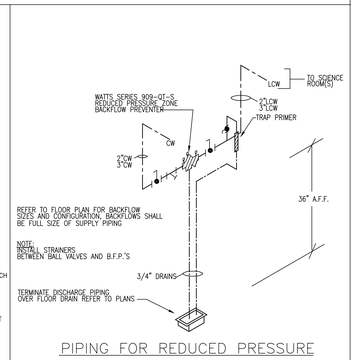
EMERGENCY SHOWER & EYE WASH PIPING
17 P4.7 DETAIL – SCIENCE LABS & PREP RMS
NOT TO SCALE



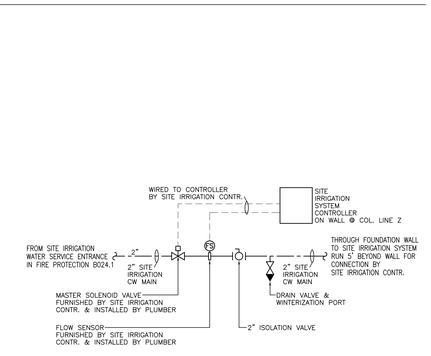
18 P4.7 CATCH BASIN AND GASOLINE TRAP DETAIL
NOT TO SCALE



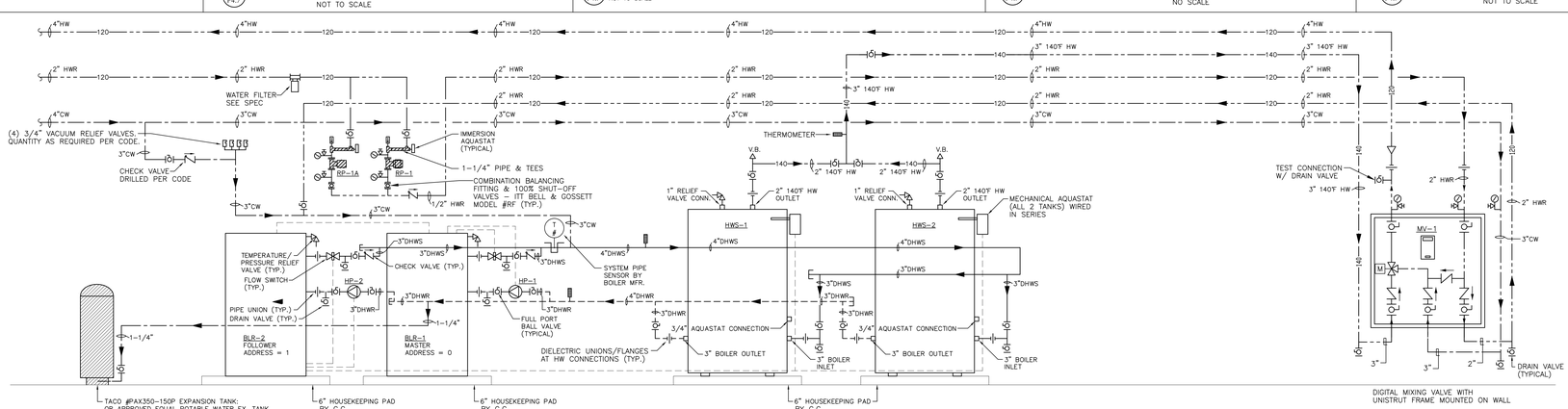
19 P4.7 MINI-TANK ELECTRIC WATER HEATER DETAIL
NO SCALE



PIPING FOR REDUCED PRESSURE
20 P4.7 BACKFLOW PREVENTER DETAIL
NOT TO SCALE



21 P4.7 SITE IRRIGATION SYSTEM CONNECTION DETAIL
NO SCALE WATER SERVICE ROOM D108



NOTE:
PIPING TO BOILERS AND TANKS SHALL BE INSTALLED SUCH THAT THE TANKS CAN BE EASILY REMOVED WITHOUT REMOVING TOO MUCH PIPING. ONCE THE BOILERS AND TANKS ARE DISCONNECTED, THEY SHOULD BE ABLE TO BE REMOVED FORE REPLACEMENT.

22 P4.7 SCHEMATIC DETAIL OF BOILER WATER PIPING BETWEEN DOMESTIC WATER BOILERS, HOT WATER STORAGE TANKS AND THERMOSTATIC MIXING VALVE
NOT TO SCALE

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DRAWING TITLE

Plumbing Details

Locus Map

True North

Key Plan

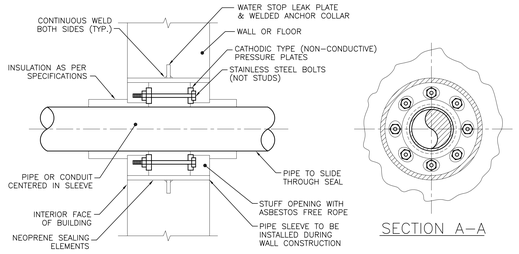
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No.	Description	Date

FILE:
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SCALE: As Noted
DWN. BY: CDR
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DATE: JANUARY 20, 2022

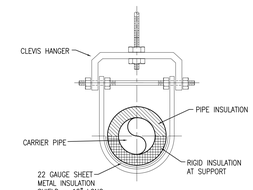
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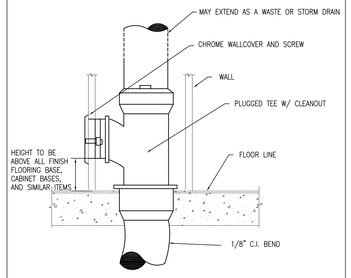


NOTES:
1. WHEN SEALING FLOOR PENETRATIONS, EXTEND SLEEVE 3" ABOVE FINISHED FLOOR. WHEN CORE DRILL IS USED THE PIPE SLEEVE & WATER STOP/LEAK PLATE ARE NOT REQUIRED.
2. PLUMBING AND DRAINAGE LINES THROUGH WALLS WITH FINISHED SPACES TO HAVE LINK SEAL. PLUMBING AND DRAINAGE LINES THROUGH FROST WALLS LINK SEAL NOT REQUIRED. SAND PACKAGE HOLE ACCEPTABLE.

1 P4.8 MOLDED RUBBER BOLTED SEAL ASSEMBLY
NOT TO SCALE

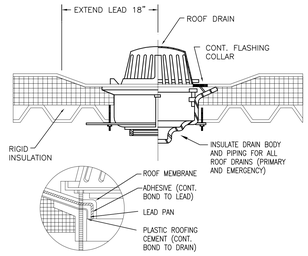


2 P4.8 PIPE HANGER DETAIL FOR ALL INSULATED PIPING
NO SCALE

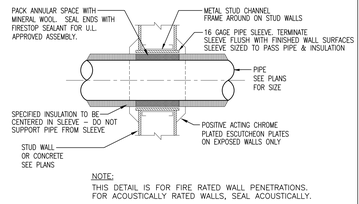


NOTE:
BASE OF STACK CLEANOUTS MUST BE SHOWN ON COORDINATION DRAWINGS TO COORDINATE WITH WALL MATERIALS AND ITEMS ON THE WALLS

3 P4.8 WALL CLEANOUT DETAIL
NO SCALE

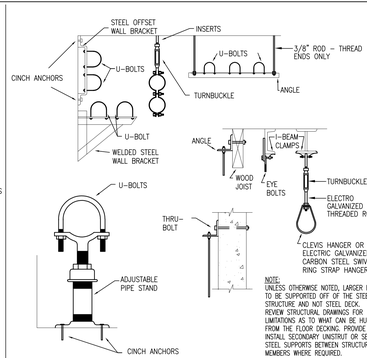


4 P4.8 ROOF DRAIN DETAIL
NO SCALE



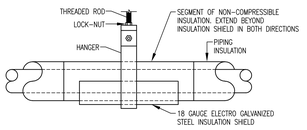
NOTE:
THIS DETAIL IS FOR FIRE RATED WALL PENETRATIONS. FOR ACOUSTICALLY RATED WALLS, SEAL ACOUSTICALLY.

5 P4.8 PIPE THROUGH WALL DETAIL
NO SCALE



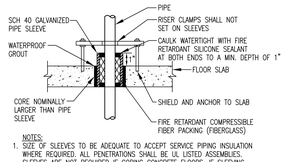
NOTE:
UNLESS OTHERWISE NOTED, LARGER PIPING TO BE SUPPORTED OFF OF THE STEEL STRUCTURE AND NOT STEEL DECK. REVIEW STRUCTURAL DRAWINGS FOR LIMITATIONS AS TO WHAT CAN BE HUNG FROM THE FLOOR DECKING. PROVIDE AND INSTALL SECONDARY UNISTRUT OR SECONDARY STEEL SUPPORTS BETWEEN STRUCTURAL STEEL MEMBERS WHERE REQUIRED.

6 P4.8 TYPICAL PIPE SUPPORT DETAIL
NO SCALE



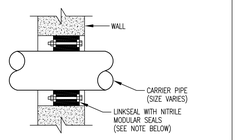
NOTES:
1. HANGER SHIELD IS TYPICAL FOR INSULATED PIPING
2. ALL HANGERS HARDWARE AND RODS SHALL BE ELECTRIC GALVANIZED

P4.8 PIPE HANGERS AND SHIELD
NOT TO SCALE



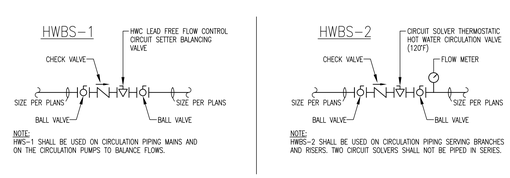
NOTES:
1. SIZE OF SLEEVES TO BE ADEQUATE TO ACCEPT SERVICE PIPING INSULATION WHERE REQUIRED. ALL PENETRATIONS SHALL BE UL LISTED ASSEMBLIES. SLEEVES ARE NOT REQUIRED IF CORING CONCRETE FLOORS. IF SLEEVING, DO NOT CUT THE STEEL DECKING BEFORE THE SLAB IS POURED.
2. IF PIPING SLEEVE IS LOCATED IN WALL WHERE THE WALL IS NOT WIDE ENOUGH, THEN THE SLEEVE SHALL BE FLUSH WITH FLOOR & RISER CLAMPS NOT REQUIRED.

8 P4.8 TYPICAL FLOOR PENETRATION
NOT TO SCALE



NOTE:
SEAL ASSEMBLY SHALL BE MODULAR MECHANICAL TYPE CONSISTING OF INTERLOCKING RUBBER LINKS SHAPED TO CONTINUOUSLY FILL IN THE ANNULAR SPACE BETWEEN PIPE AND WALL OPENING. PRESSURE PLATES SHALL BE DELRIN PLASTIC. BOLTS AND NUTS SHALL BE 18/8 STAINLESS STEEL. SEALING ELEMENTS SHALL BE EPDM RUBBER.

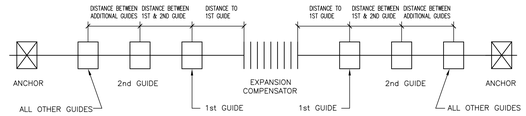
9 P4.8 WATER TIGHT SEAL (CORED CONCRETE)
NOT TO SCALE



NOTE:
HWS-1 SHALL BE USED ON CIRCULATION PIPING MAINS AND ON THE CIRCULATION PUMPS TO BALANCE FLOWS.

NOTE:
HWBS-2 SHALL BE USED ON CIRCULATION PIPING SERVING BRANCHES AND RISERS. TWO CIRCUIT SOLVERS SHALL NOT BE PIPED IN SERIES.

10 P4.8 HOT WATER CIRCULATION FLOW BALANCING STATIONS (HWBS)
NOT TO SCALE

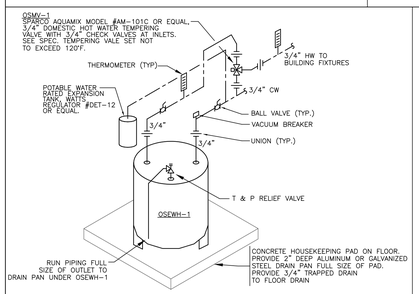


NOTE: 1) EXPANSION JOINT NEAR CENTER OF PIPING.
2) GUIDE SPACING SHALL BE SIMILIAR FOR EXPANSION LOOPS

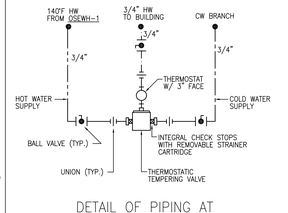
TYPICAL PIPE GUIDE INSTALLATION
NOT TO SCALE

PIPE SIZE (D)	MAXIMUM DISTANCE FROM BELLOWS TO 1st GUIDE OR ANCHOR	APPROX. DISTANCE BETWEEN 1st TO 2nd GUIDE	APPROX. DISTANCE BETWEEN ADDITIONAL PIPE GUIDES (IN FEET)	
			STEEL PIPE	COPPER PIPE
3/4"	3"	10"	14'	5'
1"	4"	1'-4"	16'	6'
1-1/4"	5"	1'-5"	18'	9'
1-1/2"	6"	1'-9"	22'	9'
2"	8"	2'-4"	24'	12'
2-1/2"	10"	2'-11"	30'	15'
3"	1'-0"	3'-6"	32'	
3-1/2"	1'-2"	4'-1"	36'	
4"	1'-4"	4'-8"	40'	
5"	1'-8"	5'-10"	35'	
6"	2'-0"	7'-0"	40'	
8"	2'-8"	9'-4"	50'	

14 P4.8 PIPE GUIDE INSTALLATION DETAIL AND SPACING SCHEDULE
NOT TO SCALE

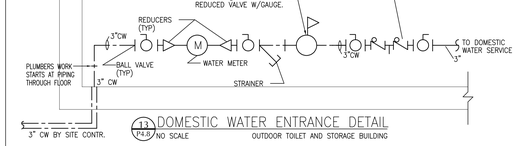


11 P4.8 OSEWH-1 ELECTRIC WATER HEATER DETAIL
NO SCALE



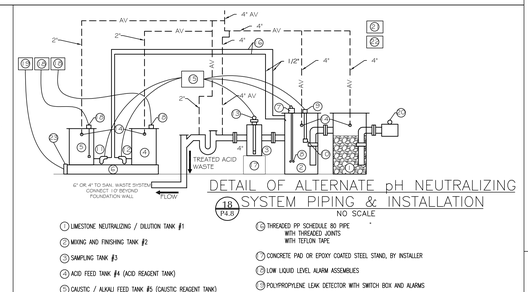
DETAIL OF PIPING AT THERMOSTATIC MIXING VALVE
NOT TO SCALE OSMV-1

12 P4.8



13 P4.8 DOMESTIC WATER ENTRANCE DETAIL
NO SCALE OUTDOOR TOILET AND STORAGE BUILDING

GENERAL NOTES:
1. OBTAIN PROPER SIZE AND TYPE WATER METERS FROM WATER DEPARTMENT. VERIFY WATER SERVICE CONFIGURATION WITH LOCAL WATER DEPARTMENT PRIOR TO INSTALLATION.
2. SECURELY SUPPORT SERVICES WITH COPPER CLAD HANGERS AND SUPPORTS.
3. PROVIDE PRESSURE GAUGES AT EACH SIDE OF PRESSURE REDUCING VALVE ASSEMBLY.

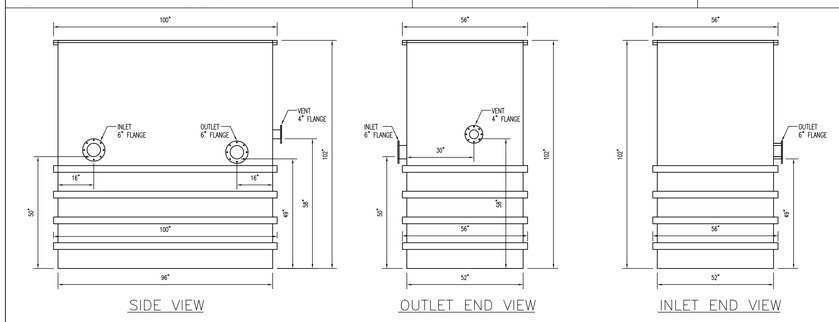


DETAIL OF ALTERNATE pH NEUTRALIZING SYSTEM PIPING & INSTALLATION
NO SCALE

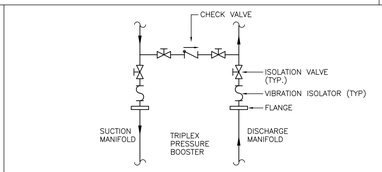
18 P4.8

1. LIMESTONE NEUTRALIZING / DILUTION TANK #1
2. MIXING AND FINISHING TANK #2
3. SAMPLING TANK #3
4. ACID FEED TANK #4 (ACID REAGENT TANK)
5. CAUSTIC / ALKALI FEED TANK #5 (CAUSTIC REAGENT TANK)
6. SPILL CONTAINMENT PALLET
7. CHEMICAL AGITATOR / MIXER
8. AGITATOR SHAFT AND MIXING BLADE
9. PH PROBE ASSEMBLY
10. PH PROBE SENSOR
11. CAUSTIC CHEMICAL FEED PUMP
12. ACID CHEMICAL FEED PUMP
13. PH PROBE ASSEMBLY WITH SUPPORT
14. ACID VENT CONNECTIONS
15. CONTROL PANEL
16. THREADED PP SCHEDULE 80 PIPE WITH THREADED JOINTS WITH TEFLON TAPE
17. CONCRETE PAD OR EPOXY COATED STEEL STAND, BY INSTALLER
18. LOW LIQUID LEVEL ALARM ASSEMBLIES
19. POLYPROPYLENE LEAK DETECTOR WITH SWITCH BOX AND ALARMS
20. POLYPROPYLENE SHUT OFF VALVE
21. MODEL #WNS-1 SIGN
22. MODEL #WNS-2 SIGN
23. PP-44T LEAK DETECTION FLOAT ASSEMBLY TO BE INSTALLED IN SPILL CONTAINMENT PALLET AND/OR PIT FLOOR

T&C CAN PROVIDE AT EXTRA COST, IF LIST OF P-I-V-F GIVEN TO T&C BY PLUMBING CONTRACTOR, PRIOR TO INSTALLING

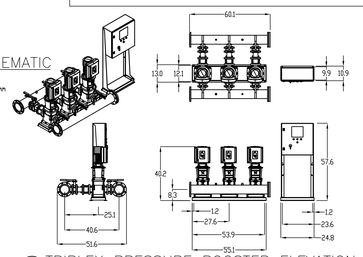


15 P4.8 pH NEUTRALIZATION TANK DIMENSIONS - SPECIFIED SYSTEM
SCALE: N.T.S.

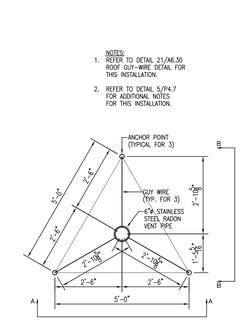


TRIPLEX PRESSURE BOOSTER PIPING SCHEMATIC
SCALE: N.T.S.

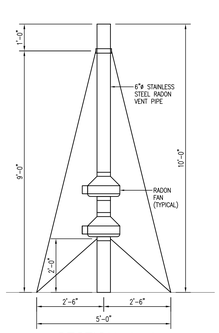
Manifolds 6" ANSI Class 150 AISI 316SS Schedule 10s ASTM A312Wx68.3mm x2mm
Base/Frame AISI 304SS
Standard system layout : panel right facing suction
3" lug style ANSI 150# class butterfly valve
UL Type 3R/12 rated electrical panel
Note: panel size will vary with options



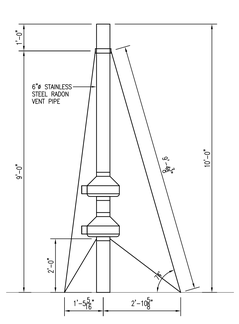
17 P4.8 TRIPLEX PRESSURE BOOSTER ELEVATION
SCALE: N.T.S. BASIS OF DESIGN



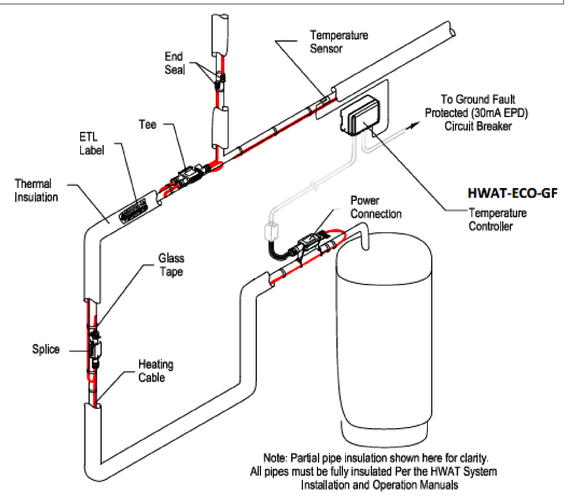
16 P4.8 RADON VENT PLAN VIEW
SCALE: N.T.S.



SECTION A-A



SECTION B-B



Note: Partial pipe insulation shown here for clarity. All pipes must be fully insulated Per the HWAT System Installation and Operation Manuals

19 P4.8 RAYCHEM HWAT LAB HOT WATER TEMPERATURE MAINTANENCE DETAIL & SPECIFICATION
NOT TO SCALE BASIS OF DESIGN

A. Heating Cable - Raychem HWAT-R2 self-regulating heating cable manufactured by Pentair. The heating cable shall operate on line voltages of 208, 220, 240 volts without the use of transformers. The heating cable shall have a plasticizer diffusion shield. Also required is a thicker gauge (5/24) tinned copper braid for ground path and mechanical ruggedness. The heating cable shall have the ability to raise the water temperature to 140°F.
B. Connection Kits - Raychem RayClic connection kits. All components shall be UV stabilized and shall not require the installing contractor to cut into the heating-cable core to expose the bus wires.
C. Attachment - GT-66 general purpose, high temperature, glass filament tape for attachment of heating cable to water lines, or AT-180 aluminium tape, high temperature for all plastic piping. Cable ties are not permitted.
D. Labels - Provide Raychem ETL "Electric Heat Traced: warning labels every 10 feet on exterior of insulation, opposite sides of pipe.
E. Control - Single Circuit Local Digital Control shall be the Raychem **HWAT-ECO-GF** Digital controller shall operate on 208 - 240 V. Have flexible temperature control from 105 - 140°F.Three programmable temperature set points for maximum energy efficiency: Maintain, Economy, Off. Controller shall have 24/7 pre-programmed time based profiles specific to the selected heating cable application such as schools, hospitals, and prisons. Controller shall have a water heater sensor and water heater temperature alarm. Allows BMS to interface with a master**HWAT-ECO-GF** to control cloned circuits to minimize the number of **HWAT-ECO-GF**controllers that must be individually programmed. Controller shall have NO/NC alarm contacts and alarm on: loss of power, water heater temperature too high/too low, master/slave error. Digital controller shall have c-UL-us approvals specifically for use with HWAT-R2 heating cable.
F. Approval - The system (heating cable, connection kits, and controller) shall be UL Listed, CSA Certified, or FM Approved for hot water temperature maintenance. No parts of the system may be substituted or exchanged.
G. Installation - Install and secure the heating cable in accordance with the HWAT Installation and Operation manual (H57548). Special attention should be given to the Insulation Thickness Chart. No deviation will be acceptable.
   1. Any deviation in circuitry, insulation, or piping material must be approved by engineer prior to execution.
   2. Distribution pipes & express risers must be isolated electrically. Each shall have their own circuit(s).
   3. Branch lines shall be grouped electrically based on location.
   4. All power connections must be located in accessible areas. Access panels for power connection shall be a minimum of 12" x 12" and within reach of power connection kit.
   5. Refer to Electrical Specification for power connection locations.
   6. All power, tee, and splice connection points shall be shown on the plumbing as-built.
   7. Installation training provided by an authorized manufacturer's representative must be completed prior to work mobilization.
H. Testing -The heating cable circuit integrity shall be tested using a 2500 Vdc megohmmeter. Minimum acceptable insulation resistance shall be 1000 megohms. Contractor shall submit to owner results of installation tests required by the manufacturer.
I. Start-up - System start-up shall be performed by factory technician or factory representative per the owner's requirements.
J. Manufacturer - Manufacturer shall be Pentair Thermal Management, LLC. For pricing and technical information call **Patrick Shea at Emerson Swan, Randolph, MA - Cell: 508-415-7510**

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CONSULTANT'S STAMP

OWNER

Worcester Public Schools
299 Highland St
Worcester MA 01602

PROJECT

100% CONSTRUCTION DOCUMENTS, FINAL BID PACKAGE #4

Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

DRAWING TITLE

Plumbing Details

Locus Map

True North

Key Plan

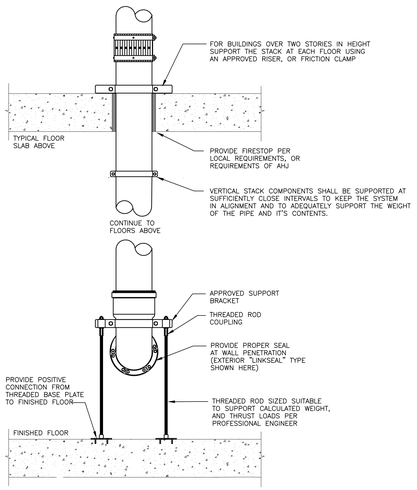
REVISIONS

No.	Description	Date

FILE:
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SCALE: As Noted
DWN. BY: CDR
CKD. BY: KRS
DATE: JANUARY 20, 2022

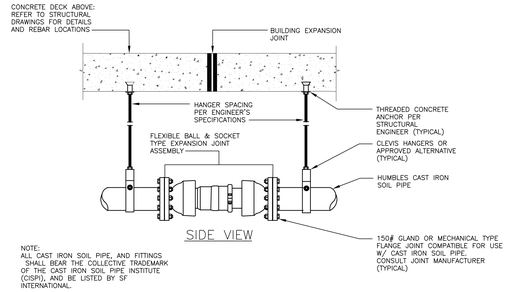
P4.8

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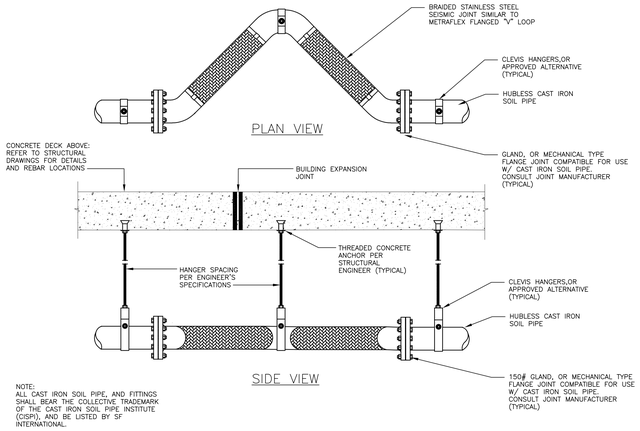
CAST IRON DWV/STORM PIPE BASE SUPPORT DETAIL

NOT TO SCALE



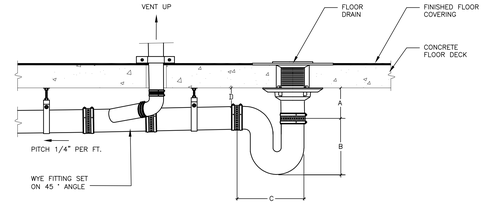
CAST IRON DWV/STORM PIPE WITH FLEXIBLE BALL TYPE EXPANSION JOINT DETAIL

NOT TO SCALE



CAST IRON DWV/STORM PIPE WITH "V" TYPE EXPANSION JOINT DETAIL

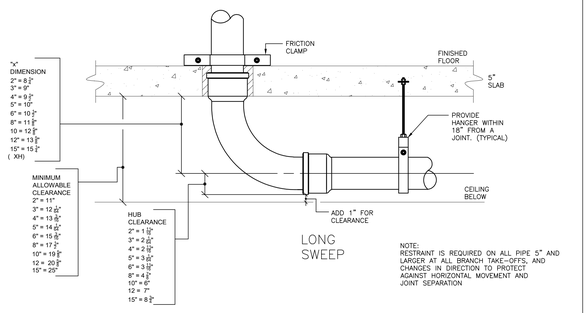
NOT TO SCALE



A	"A" DIMENSION IS DEPENDANT ON SPECIFIC FLOOR DRAIN MODEL, AND FLOOR SYSTEM INSTALLED. A 1" INSERTION INTO THE COUPLING IS ASSUMED.
B	3" NH P-TRAP = 7 1/8" 4" NH P-TRAP = 8 3/4"
C	3" NH P-TRAP = 10 5/8" 4" NH P-TRAP = 12 3/4"
	NOTE: ALL "B", & "C" DIMENSIONS ARE BASED ON CHARLOTTE PIPE PART NUMBER NH-42.

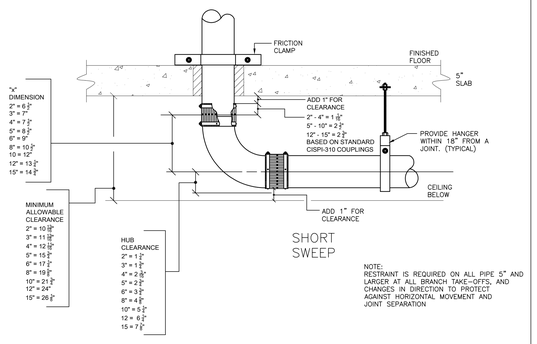
FLOOR DRAIN CLEARANCE DETAIL

NOT TO SCALE



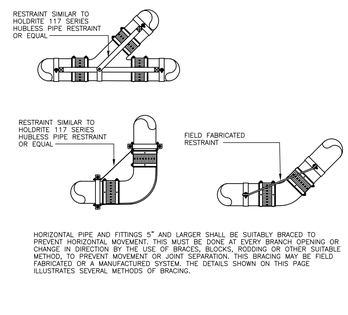
START OF ELEVATION USING LONG SWEEP

NOT TO SCALE



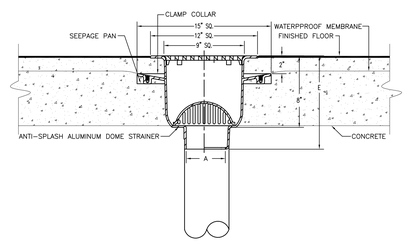
START OF ELEVATION USING NO-HUB SHORT SWEEP

NOT TO SCALE



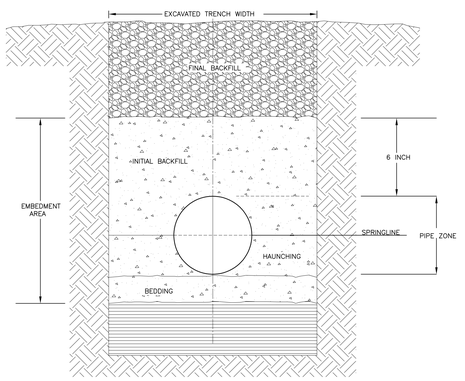
HUBLESS CAST IRON DWV/STORM PIPE WITH THRUST RESTRAINT DETAIL

NOT TO SCALE



FLOOR SINK INSTALLATION DETAIL

NOT TO SCALE



UNDERGROUND PLASTIC PIPE SYSTEM INSTALLATION DETAIL

NOT TO SCALE

UNDERGROUND INSTALLATION OF PLASTIC PIPE

PLASTIC PIPE SHOULD ALWAYS BE BURIED IN STRICT ACCORDANCE WITH THE ASTM STANDARD RELEVANT TO THE TYPE OF PLASTIC PIPING SYSTEM BEING INSTALLED. THOSE STANDARDS ARE:

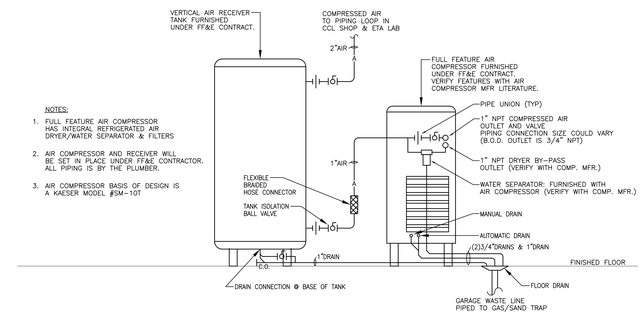
ASTM D2321 STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS.

ASTM D2774 STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PRESSURE PIPING.

NOTE: IN ADDITION TO THESE STANDARDS, PIPE SHOULD ALWAYS BE INSTALLED IN ACCORDANCE WITH ALL LOCAL CODE REQUIREMENTS.

RECOMMENDATIONS FOR UNDERGROUND INSTALLATION OF PLASTIC DRAINAGE PIPE:

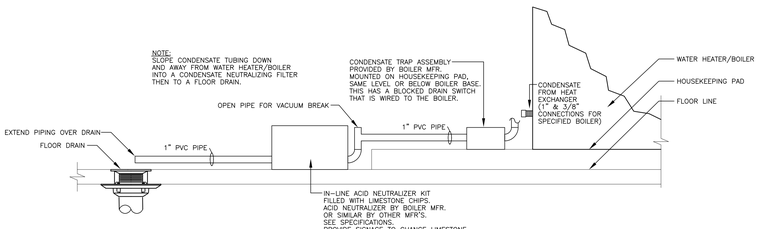
1. THE MINIMUM WIDTH OF THE TRENCH SHOULD BE THE PIPE OD (OUTSIDE DIAMETER) PLUS 16 INCHES OR THE PIPE OUTSIDE DIAMETER TIMES 1.25 PLUS 12 INCHES. THIS WILL ALLOW ADEQUATE ROOM FOR JOINING THE PIPE, SNAKING THE PIPE IN THE TRENCH TO ALLOW FOR EXPANSION AND CONTRACTION WHERE APPROPRIATE AND SPACE FOR BACKFILLING AND COMPACTION OF BACKFILL. THE SPACE BETWEEN THE PIPE AND TRENCH WALL MUST BE WIDER THAN THE COMPACTION EQUIPMENT USED TO COMPACT THE BACKFILL.
2. PROVIDE A MINIMUM OF 4 INCHES OF FIRM, STABLE AND UNIFORM BEDDING MATERIAL IN THE TRENCH BOTTOM. IF ROCK OR UNYIELDING MATERIAL IS ENCOUNTERED, A MINIMUM OF 6 INCHES OF BEDDING SHALL BE USED. BLOCKING SHOULD NOT BE USED TO CHANGE PIPE GRADE OR TO INTERMITTENTLY SUPPORT PIPE OVER LOW SECTIONS IN THE TRENCH.
3. THE PIPE SHOULD BE SURROUNDED WITH AN AGGREGATE MATERIAL WHICH CAN BE EASILY WORKED AROUND THE SIDES OF THE PIPE. BACKFILLING SHOULD BE PERFORMED IN LAYERS OF 6 INCHES WITH EACH LAYER BEING SUFFICIENTLY COMPACTED TO 85% TO 95% COMPACTION.
4. A MECHANICAL TAMPER IS RECOMMENDED FOR COMPACTING SAND AND GRAVEL. THESE MATERIALS CONTAIN FINE-GRAINS, SUCH AS SILT AND CLAY. IF A TAMPER IS NOT AVAILABLE, COMPACTING SHOULD BE DONE BY HAND.
5. THE TRENCH SHOULD BE COMPLETELY FILLED. THE BACKFILL SHOULD BE PLACED AND SPREAD IN UNIFORM LAYERS TO PREVENT ANY UNFILLED SPACES OR VOIDS. LARGE ROCKS, STONES, FROZEN CLODS, OR OTHER LARGE DEBRIS SHOULD BE REMOVED. STONE BACKFILL SHALL PASS THROUGH AN 1-1/2" SIEVE. ROCK SIZE SHOULD BE ABOUTONE-TENTH OF THE PIPE OUTSIDE DIAMETER. HEAVY TAMPERS OR ROLLING EQUIPMENT SHOULD ONLY BE USED TO CONSOLIDATE THE FINAL BACKFILL.
6. TO PREVENT DAMAGE TO THE PIPE AND DISTURBANCE TO PIPE EMBEDMENT, A MINIMUM DEPTH OF BACKFILL ABOVE THE PIPE SHOULD BE MAINTAINED. PIPE SHOULD ALWAYS BE INSTALLED BELOW THE FROST LEVEL. TYPICALLY, IT IS NOT ADVISABLE TO ALLOW VEHICULAR TRAFFIC OR HEAVY CONSTRUCTION EQUIPMENT TO TRAVERSE THE PIPE TRENCH.



NOTES:
1. FULL FEATURE AIR COMPRESSOR HAS INTEGRAL REFRIGERATED AIR DRYER/WATER SEPARATOR & FILTERS
2. AIR COMPRESSOR AND RECEIVER WILL BE SET IN PLACE UNDER FF&E CONTRACTOR. ALL PIPING IS BY THE PLUMBER.
3. AIR COMPRESSOR BASIS OF DESIGN IS A KAESER MODEL #SM-10T

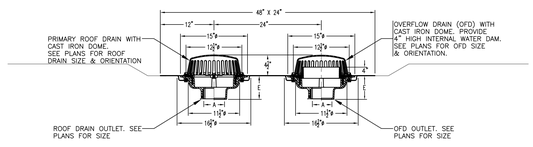
AIR COMPRESSOR AND AIR RECEIVER PIPING DETAIL

NO SCALE



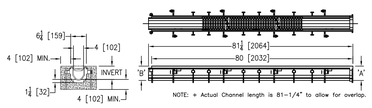
WATER HEATER/BOILER CONDENSATE NEUTRALIZER INSTALLATION DETAIL

NOT TO SCALE



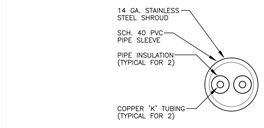
ROOF DRAIN DIMENSIONS - B.O.D.

NOT TO SCALE



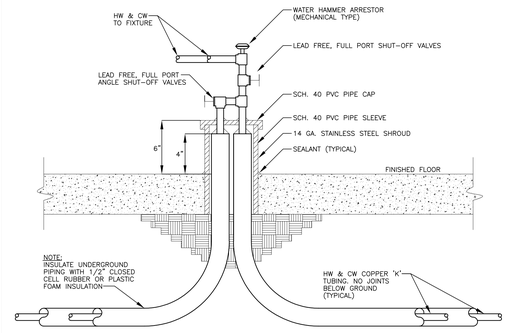
TRENCH DRAIN DIMENSIONS - B.O.D.

NOT TO SCALE



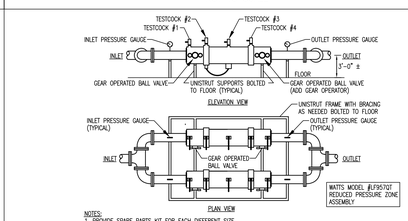
SECTION CUT THROUGH PIPE SLEEVE LOOKING DOWN

NOT TO SCALE



BURIED WATER PIPE TO ISLAND FIXTURES DETAIL

NOT TO SCALE



NOTES:
1. PROVIDE SPARE PARTS KIT FOR EACH DIFFERENT SIZE UNIT INCLUDING GASKETS, SPRINGS AND MAIN ASSEMBLIES.
2. MOUNT IN ACCORDANCE WITH LOCAL REGULATIONS WITH CLEARANCE FROM WALLS AND OTHER OBSTRUCTIONS.
3. 12" MIN CLEARANCE FROM BEHIND, 36" MIN CLEARANCE FROM FRONT, 36" - 48" ABOVE FINISHED FLOOR.
4. DISCHARGE INDIRECT WASTE INTO FLOOR DRAIN BELOW.

DUPLEX REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY (RPBP)

NOT TO SCALE

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299 Highland St
Worcester MA 01602

PROJECT

100% CONSTRUCTION DOCUMENTS, FINAL BID PACKAGE #4

Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

DRAWING TITLE

Plumbing Details

Locus Map

True North

Key Plan

REVISIONS

No.	Description	Date

FILE:

JOB NO: #1904

SCALE: As Noted

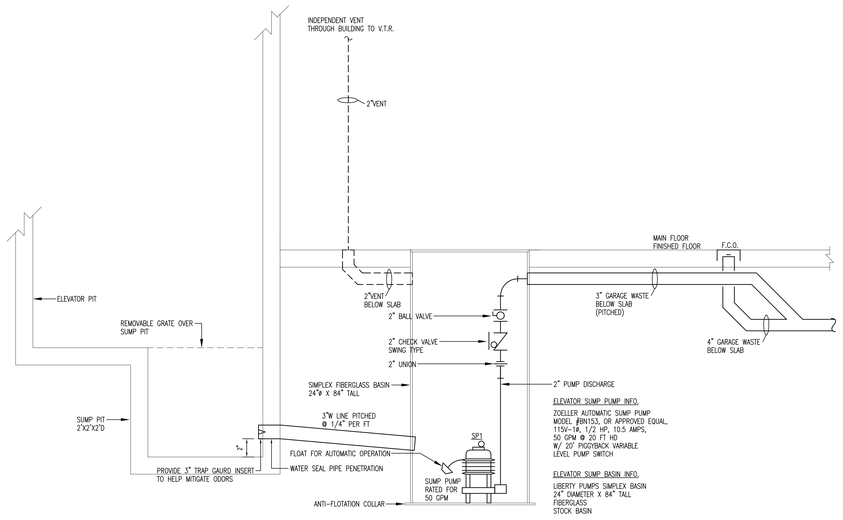
DWN. BY: CDR

CKD. BY: KRS

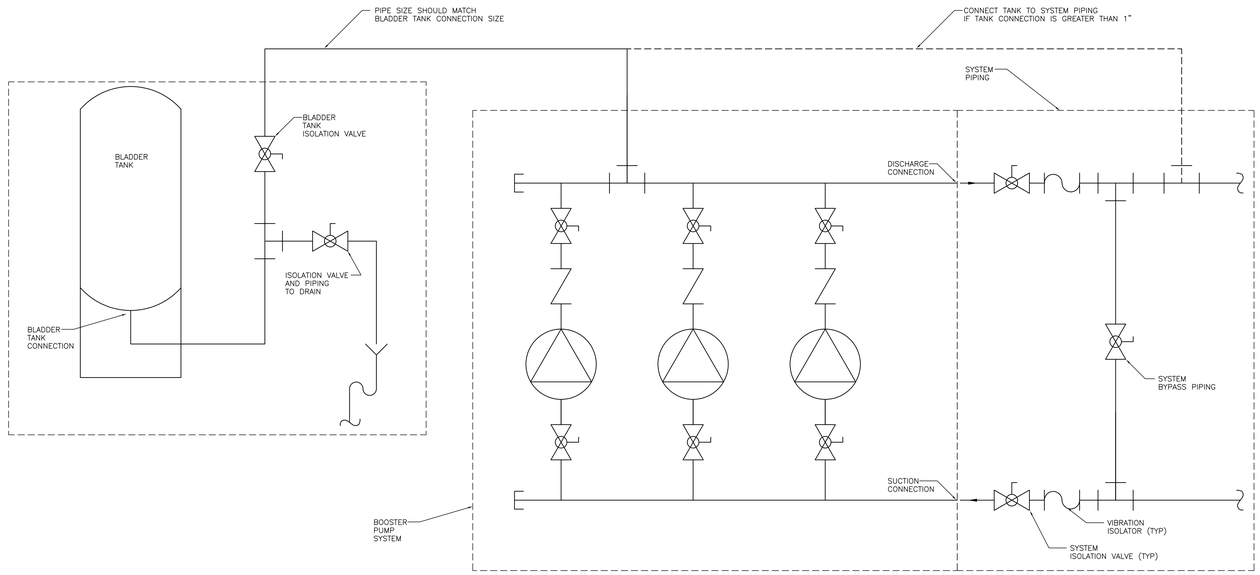
DATE: JANUARY 20, 2022

P4.9

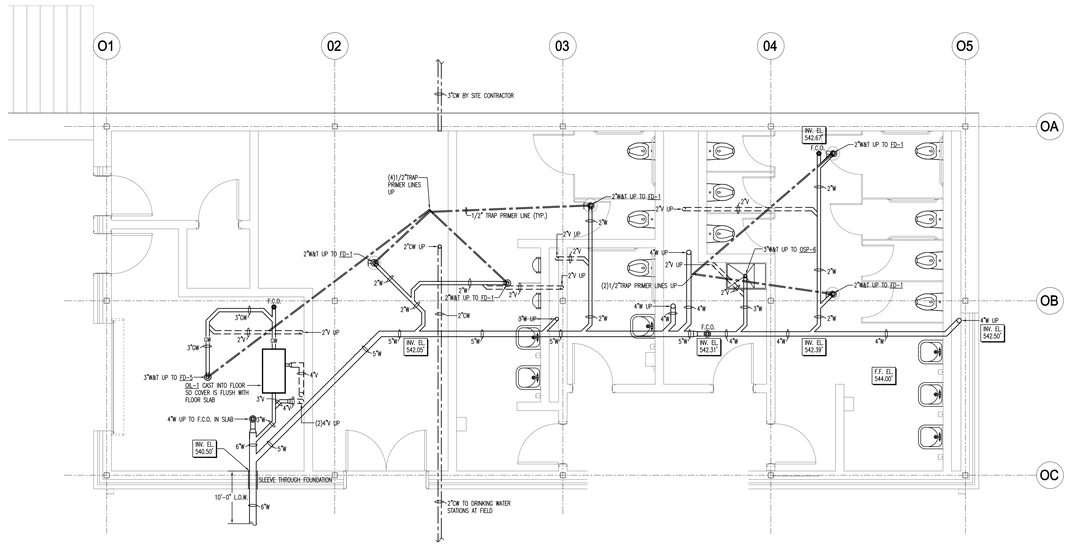
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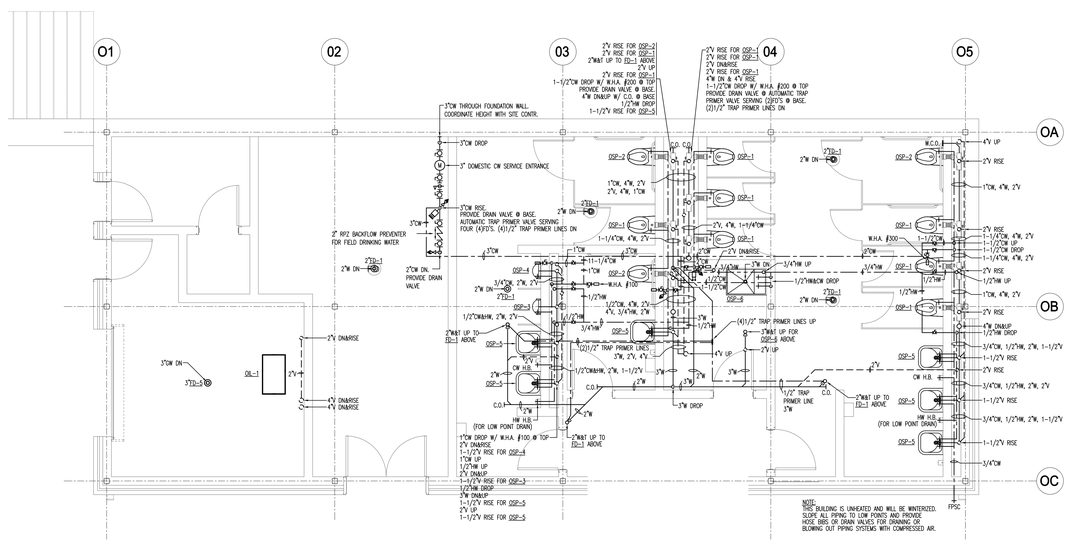
1 P4.10 DETAIL OF ELEVATOR SUMP PUMP IN PARKING GARAGE
NO SCALE



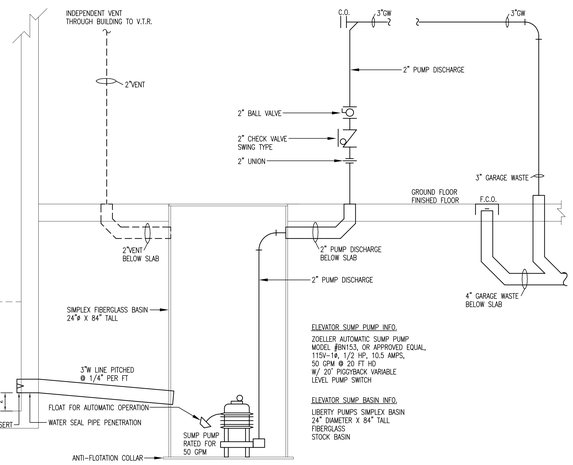
2 P4.10 TRIPLEX PRESSURE BOOSTER PUMP SYSTEM AND BLADDER TANK PIPING SCHEMATIC
SCALE: N.T.S.



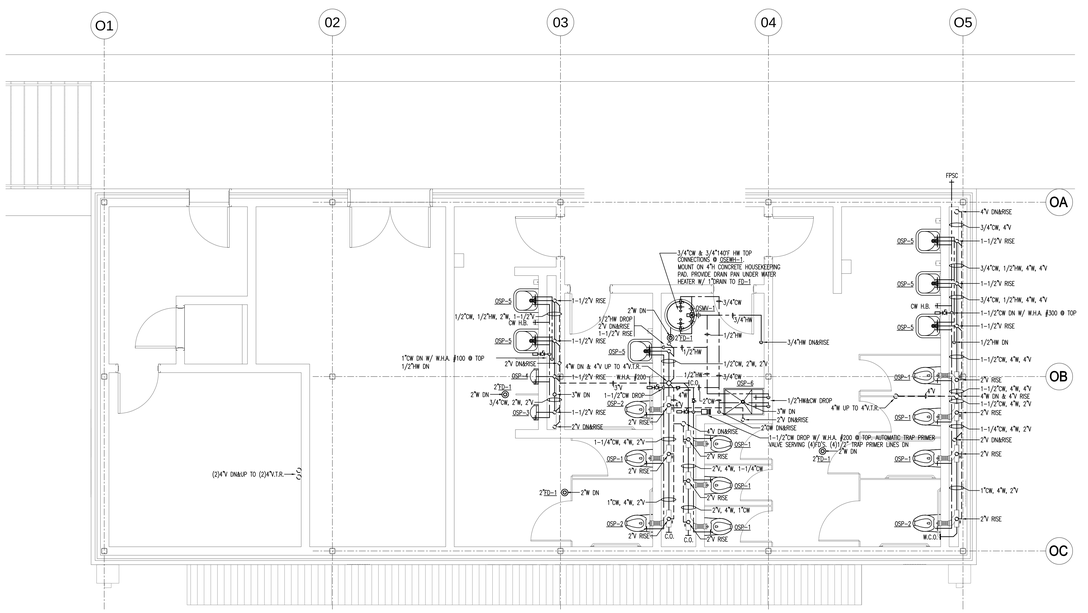
4 P4.10 First Floor Below Grade Plumbing Plan
Scale: 1/4" = 1'-0" Outdoor Toilet and Storage Building



5 P4.10 First Floor Above Grade Plumbing Plan
Scale: 1/4" = 1'-0" Outdoor Toilet and Storage Building



3 P4.10 DETAIL OF ELEVATOR SUMP PUMP IN STOREROOM E002
NO SCALE



6 P4.10 Second Floor Plumbing Plan
Scale: 1/4" = 1'-0" Outdoor Toilet and Storage Building

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Doherty Memorial
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DRAWING TITLE

Plumbing Details
and Outdoor
Toilet and
Storage Building
Plumbing Plans

Locus Map

True North

Key Plan

REVISIONS

No.	Description	Date

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JOB NO:	#1904
SCALE:	As Noted
DWN. BY:	CDR
CKD. BY:	KRS
DATE:	JANUARY 20, 2022

P4.10

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TRIPLEX WATER PRESSURE BOOSTER SYSTEM

UNIT NUMBER		BP–1
BUILDING SERVICING		BUILDING
MANUFACTURER		GRUNDFOS
SYSTEM MODEL #		HYDRO MPC–E 3CRE
SYSTEM PART #		95058733
SYSTEM CAPACITY (GPM)		215
SYSTEM PRESSURE (PSIG)		41.49
NPSHr		9.68 FT
MAXIMUM SUCTION PRESSURE (PSIG)		58
MAXIMUM OPERATING PRESSURE (PSIG)		81.27
PUMP EFFICIENCY		66.37%
SYSTEM POWER		460V – 3ø – 60Hz
PUMP TYPE		VERTICAL INLINE
PUMP ENCLOSURE		TEFC
PUMP DATA	MOTOR BHP / HP	3.4 / 7.5
	RPM	3500
	DUTY POINT	–
MANIFOLD SIZE		6"
HYDRO–PNEUMATIC TANK MODEL #		–
TANK SIZE (GALLONS)		–
SYSTEM DIMENSIONS		–

STANDARD FEATURES: COMPLETELY PREFABRICATED, INDIVIDUAL PUMP ISOLATION VALVES, PRV ON EACH PUMP, SUCTION PRESSURE GAUGE, SYSTEM PRESSURE GAUGE, FACTORY TEST.
OPTION FEATURE: TYPE 'L' COPPER MANIFOLDS

– EQUAL MANUFACTURER'S ARE CANARIS,

PUMP SCHEDULE

UNIT NUMBER		RP–1 & RP–2	RP–3 & RP–4	HP–1 & HP–2 ②	SP–1
SERVICE		120° HWR WATER LOOP ENTIRE BUILDING	EMERG. SHOWER HWR ALL SCIENCE LABS	DOMESTIC WATER BOILER	ELEVATOR SUMP PUMPS
MANUFACTURER ①		TACO	TACO	BELL + GOSSETT	ZOELLER
MODEL #		1915e–SF	0034e–SF2	E–902AAB	BN153
TYPE		IN–LINE	WET–ROTOR CIRCULATOR	IN–LINE CENTRIFUGAL	AUTOMATIC SUMP PUMP
FLUID DATA	FLUID	WATER	WATER	WATER	WATER
	TEMPERATURE (F)	120°F	70°F	140°F	50°F
	FLOW RATE (GPM)	22.5	12	112	50
	T.D.H. (FT)	30	20	32	20
	MAX. PRESS. (PSI)	–	–	–	–
PUMP DATA	TYPE	ECM	ECM	ODP	–
	SPEED (RPM)	–	830 – 4300	3450	–
	AMP RATING	0.25A – 3.8A	1.48A MAX.	10.7	105A
	MOTOR POWER (W)	20W – 650W	10W – 170W	1 HP	1/2 HP (373 W)
	VOLTAGE–PH–Hz	208 – 1 – 60	115 – 1 – 60	208 – 3 – 60	115 – 1 – 60
STARTER DATA	TYPE	INTEGRAL V–F–D	INTEGRAL V–F–D	H–O–A	CONTROL SWITCH
	NEMA SIZE	–	–	–	–
	CONTROL	TIMECLOCK	TIMECLOCK	AQUASTAT	PIGGYBACK FLOATS
	AUX. CONTACTS	–	–	–	–

– ALL PUMPS SHALL BE BRONZE FOR DOMESTIC HOT WATER USE.
① GRUNDFOS, TACO, ARMSTRONG, BELL AND GOSSETT, OR APPROVED EQUAL
② THE BOILER PUMPS ARE SHIPPED WITH THE BOILERS FOR INSTALLATION.

PLUMBING FIXTURE SCHEDULE

THE FOLLOWING ITEMS SHALL BE FURNISHED AND INSTALLED BY THE PLUMBING SUB–CONTRACTOR

P–#	ITEM	CONNECTIONS CW	HW	S	W	V	REMARKS
P–1	WATER CLOSET	1"	–	4"	–	2"	WALL HUNG–SEAT 15" A.F.F.
P–2	WATER CLOSET	1"	–	4"	–	2"	WALL HUNG–HDCP–SEAT 18" A.F.F.
P–3	URINAL	3/4"	–	2"	–	1–1/2"	WALL HUNG – LIP @ 24"
P–4	URINAL	3/4"	–	2"	–	1–1/2"	WALL HUNG – HDCP LIP 17" A.F.F.
P–5	LAVATORY	1/2"	1/2"	–	1–1/2"	1–1/2"	WALL HUNG – RIM 36" A.F.F.
P–6	LAVATORY	1/2"	1/2"	–	1–1/2"	1–1/2"	WALL HUNG – HDCP – RIM 34" A.F.F.
P–7	ELECTRIC WATER COOLER W/ BOTTLE FILLER	1/2"	–	–	1–1/2"	1–1/4"	RECESSED MOUNTED, BI–LEVEL – HDCP
P–7A	ELECTRIC WATER COOLER	1/2"	–	–	1–1/2"	1–1/4"	RECESSED MOUNTED, BI–LEVEL – HDCP
P–8	UTILITY SINK/LAUNDRY TUB	1/2"	1/2"	–	2"	1–1/2"	
P–9	WALL HUNG SINK FOR ENSEMBLE ROOMS	1/2"	1/2"	–	2"	1–1/2"	
P–10	RECESSED COMBO EMERGENCY SHOWER/EYEWASH	–	1–1/4"	–	2"	1–1/2"	TEMPERED HW FEED, EYEWASH DRAIN PIPING
P–11	MOP SERVICE BASIN	1/2"	1/2"	–	3"	2"	
P–12	SHOWER W/ TERRAZZO BASE	1/2"	1/2"	–	–	–	
P–13	SHOWER	1/2"	1/2"	–	–	–	HDCP
P–14	COUNTERTOP SINK, PLANNING ROOMS	1/2"	1/2"	–	2"	1–1/2"	SINGLE COMPARTMENT, HDCP
P–15	ART ROOM SINK	1/2"	1/2"	–	2"	1–1/2"	SINGLE COMPARTMENT, HDCP, SOLIDS INTERCEPTOR
P–16	ART ROOM SINK	1/2"	1/2"	–	2"	1–1/2"	SINGLE COMPARTMENT, SOLIDS INTERCEPTOR
P–16A	ART ROOM SINK, HANDICAP	1/2"	1/2"	–	2"	1–1/2"	HDCP SINGLE COMPARTMENT, SOLIDS INTERCEPTOR
P–17	WALL MOUNTED EYEWASH	–	1/2"	–	–	–	TEMPERED HOT WATER FEED
P–18	4–USER WASHFOUNTAIN @ CCL	1/2"	1/2"	–	2"	2"	WALL HUNG – HDCP – RIM 34" A.F.F.
P–19	COUNTERTOP SINK, EXAM ROOMS	1/2"	1/2"	–	2"	1–1/2"	SINGLE COMPARTMENT, HDCP
P–20	EXPOSED COMBO EMERGENCY SHOWER/EYEWASH	–	1–1/4"	–	2"	1–1/2"	TEMPERED HW FEED, EYEWASH DRAIN PIPING
P–21	LAVATORY	1/2"	1/2"	–	1–1/2"	1–1/2"	BARIATRIC – HDCP – RIM 34" A.F.F.
P–22	COUNTERTOP SINK, ADULT DAILY LIVING	1/2"	1/2"	–	2"	1–1/2"	SINGLE COMPARTMENT, WITH DISPOSER
P–23	CLOTHES WASHER CONNECTION	1/2"	1/2"	–	2"	1–1/2"	WALL BOX
P–24	WHIRLPOOL (FURNISHED & INSTALLED BY PLUMBER)	1/2"	1/2"	–	–	–	THE WHIRLPOOL HAS NO PLUMBING CONNECTIONS BUT THE WHIRLPOOL HAS A MIXING VALVE/FILL ACCESSORY THAT HAS CW&HW CONNECTIONS
P–25	WALL HUNG EYE/FACE WASH STATION	–	1/2"	–	2"	1–1/2"	TEMPERED HW FEED
P–26	RECESSED EYE/FACE WASH STATION	–	1/2"	–	2"	1–1/2"	TEMPERED HW FEED, EYEWASH DRAIN PIPING
P–27	WATER CLOSET	1"	–	4"	–	2"	BARIATRIC–FLOOR MOUNT–HDCP–SEAT 18" A.F.F.
FPSC	WALL HYDRANT	3/4"	–	–	–	–	MOUNT UNIT 24" ABOVE FIN. GRADE
H.B.	HOSE BIBB	3/4"	–	–	–	–	MOUNT UNIT 24" ABOVE FIN. FLOOR
R.H.	ROOF HYDRANT	3/4"	–	–	1/8"	–	PROVIDE INDIRECT DRAIN FROM ROOF HYDRANTS

FOR FIXTURES P–15, P–16 & P–16A, SEE PLAN FOR SOLIDS INTERCEPTOR REQUIREMENT (NOTE: ART ROOM SINKS)

PLUMBING NOTES:

1. CONTRACTOR RESPONSIBLE FOR PROVIDING ALL MATERIAL, LABOR, SUPERVISION AND TRANSPORTATION REQUIRED TO COMPLETE THE WORK DESCRIBED ON THESE DRAWINGS AND IN THE SPECIFICATIONS UNLESS NOTED OTHERWISE.
2. PLUMBING CONTRACTOR TO FURNISH AND INSTALL VENTING TO DOMESTIC WATER BOILERS FROM LOWER LEVEL MECHANICAL ROOM THROUGH ROOF. THE VENTING MUST BE INSTALLED BY A LICENSED PLUMBER OR GASFITTER PER THE MA PLUMBING CODE. PLUMBER SHALL INSTALL COMBUSTION AIR PIPING FOR DOMESTIC HOT WATER BOILERS. SEE PLANS FOR ROUTING
3. CONTRACTOR TO VERIFY ALL DIMENSIONS AND LOCATION IN THE FIELD.
4. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS.
5. ALL PIPING TO BE INSTALLED PER LOCAL, STATE, AND FEDERAL CODES.
6. CONTRACTOR IS RESPONSIBLE FOR ALL OFFSETS AND MODIFICATIONS AS REQUIRED TO CLEAR BUILDING STRUCTURES.
7. ALL FLOOR DRAINS SHALL HAVE TRAP PRIMERS UNLESS OTHERWISE NOTED. TRAP PRIMER VALVES SHALL HAVE AN AIR GAP FITTING INSTALLED BEFORE DISTRIBUTION UNIT. SEE DETAIL.
8. FLOOR CLEANOUTS (F.C.O.) SHALL BE LOCATED CLEAR OF ANY BUILT–IN OR STATIONARY EQUIPMENT.
9. EXACT LOCATION OF ALL WALL HYDRANTS TO BE DETERMINED IN THE FIELD BY THE ARCHITECT.
10. ALL PIPING TO BE PRESSURE TESTED BEFORE INSULATION. LEAVE VALVES OPEN, READY FOR OPERATION.
11. INSULATE ALL COLD, HOT AND HOT WATER RECIRCULATION LINES INSTALLED. TEMPERED WATER PIPING FOR EMERGENCY FIXTURES IS NOT INSULATED. INSULATE STORM DRAIN PIPING INCLUDING EMERGENCY OVERFLOW DRAIN PIPING. SEE SPECIFICATION.
12. REPAIR OF ANY DAMAGE TO THE NEW CONSTRUCTION DURING THE EXECUTION OF THIS WORK SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR.
13. ALL EXPOSED PIPING/FITTINGS TO BE CHROME PLATED COPPER/BRASS, INCLUDING KITCHEN PIPING.
14. ALL WATER SUPPLY PIPING TO BE RIGID TYPE L COPPER UNLESS STATED OTHERWISE. SEE SPEC.
15. ALL WASTES, VENT AND STORM DRAIN PIPING TO BE CAST IRON OR DWV COPPER AS ALLOWED BY THE MA PLUMBING CODE.
16. ALL WASTE AND STORM DRAIN PIPING 4" AND UNDER TO HAVE A CLEANOUT EVERY 50 FT AND AT EACH CHANGE IN PIPE SIZE. NOT ALL CLEANOUTS SHOWN ON DRAWINGS. CLEANOUTS SHALL BE EVERY 100 FT PER PIPING OVER 4" IN SIZE.
17. PIPING RUNS ARE SHOWN AS REPRESENTATIVE OF REQUIRED SIZES. ROUTING MAY BE CHANGED BY CONTRACTOR AS NECESSITATED BY STRUCTURAL CONSIDERATIONS.
18. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND ELEVATION OF PLUMBING FIXTURES.
19. ALL EXTERIOR SILLCOCKS AND ROOF HYDRANTS SHALL BE FREEZE PROOF AND AN APPROVED BACKFLOW PREVENTER DEVICE SHALL BE INSTALLED ON EACH.
20. A WATER HAMMER ARRESTOR (MECHANICAL DEVICE) SHALL BE INSTALLED ON EACH SUPPLY LINE (HOT AND COLD) AT ALL SINKS AND RESTROOMS (FAST ACTING ELECTRONIC METERING FAUCETS).
21. ALL DOMESTIC AND WASTE PIPING IS DIAGRAMMATIC. CONTRACTOR IS RESPONSIBLE TO PROVIDE COMPLETE AND WORKING FIXTURES.
22. FLOOR DRAINS IN MECHANICAL ROOMS TO BE COORDINATED WITH THE MECHANICAL CONTRACTOR TO PROPER LOCATION, IN PARTICULAR HEATING BOILER FLOOR DRAINS FOR BOILER CONDENSATE.
23. ALL DISHWASHERS, CLOTHES WASHERS, ELECTRIC RANGES AND FIXTURES IN CASEWORK TO BE PROVIDED AND INSTALLED BY OTHERS, UNLESS OTHERWISE NOTED. PLUMBING SUBCONTRACTOR TO MAKE ALL FINAL CONNECTIONS. THIS INCLUDES REFRIGERATOR ICE MAKERS.
24. PROVIDE PIPE GUIDES AND ANCHORS AS DETAILED AND REQUIRED FOR ALL EXPANSION LOOPS SHOWN ON THE DRAWINGS.
25. THERE IS AN UNDERSLAB DRAINAGE SYSTEM INSTALLED IN THE BUILDING. THIS PIPING IS MOSTLY DEEPER THAN THE PROPOSED PLUMBING LINES TAKE CARE NOT TO DISTURB THE UNDERSLAB DRAINAGE SYSTEM WHEN EXCAVATING FOR UNDERGROUND PLUMBING. COORDINATE WITH G.C.
26. REFER TO BOILER PLANT PIPING & CONTROL DIAGRAM IN HVAC DRAWINGS FOR BMS CONTROL SYSTEM POINTS/NODES ASSOCIATED WITH THE PLUMBING SYSTEMS. COORDINATE WITH HVAC CONTRACTOR AND THEIR ATC SUBCONTRACTOR FOR INTERFACING AND MOUNTING OF THESE CONTROLS IN OR ONTO THE PLUMBING EQUIPMENT SHOWN.

INTERIOR GREASE INTERCEPTOR SCHEDULE

UNIT NUMBER	GI–1
MANUFACTURER	SCHIER
MODEL	GB–250
SERVICE	KITCHEN APPLIANCES
TYPE	MANUAL CLEANING BELOW GRADE CAST IRON COVERS
PIPE SIZE (IN)	4"
FLOW RATE (GPM)	200
GREASE CAPACITY (LBS)	1,196
OVERALL (L X W)	87" X 33"
REMARKS	① ② ③

①THE WASTE FROM FOOD WASTE GRINDERS (GARBAGE DISPOSERS) SHALL NOT DISCHARGE TO THE SYSTEM THROUGH A GREASE INTERCEPTOR. PROVIDE STRAINERS TO PREVENT THIS, PER MA PLUMBING CODE.

②GREASE INTERCEPTORS SHALL BE EQUIPPED WITH DEVICES TO CONTROL THE RATE OF WATER FLOW THROUGH THE INTERCEPTORS SO THAT IT DOES NOT EXCEED THE RATED FLOW OF THE INTERCEPTORS, PER MA PLUMBING CODE.

③INTERIOR GREASE INTERCEPTOR SHALL BE SCHIER, ZURN, JOSAM, JAY R. SMITH, WATTS DRAINAGE, MIFAB OR APPROVED EQUAL. SEE SPECIFICATION.

GAS FIRED HOT WATER SUPPLY BOILER SCHEDULE

UNIT NUMBER		BLR–1 & 2
SERVICE		DOMESTIC HOT WATER
MANUFACTURER ①		LOCHINVAR
MODEL #		ARMOR AWN1250NPM
GAS INPUT – LOW FIRE (MBH)		250
GAS INPUT – HIGH FIRE (MBH)		1,250
GROSS OUTPUT (MBH)		1,225
EFFICIENCY A.F.U.E.		98.0%
MAX. WORKING PRESSURE (PSI)		125
FLUE CONNECTION		8"ø
COMBUSTION AIR INLET CONN.		8"ø
GAS CONNECTION		1–1/2"
WATER CONNECTIONS		2–1/2"
SHIPPING WEIGHT (LBS)		1,519
WATER SUPPLY TEMPERATURE		140°F
RECOVERY (GALLONS PER HOUR)		1485
WATER TEMPERATURE RISE (°F)		100
SYSTEM FLOW & TEMP. RISE		112 GPM & 22°F
WATER PRESSURE DROP (FT HD.)		23
ELECTRICAL DATA	VOLTAGE/PH	120 V / 1ø
	AMPERAGE	9.9
	FUSE SIZE	– –
	CONTROL	INTEGRAL
	CONTROL VOLTAGE	24V

–PROVIDE RELIEF VALVE AND ALL SAFETIES & CONTROL INCLUDING HIGH LIMIT AND FLOW SWITCH.

–PROVIDE 6" VERTICAL/ROOF TERMINATION KIT FOR FLUE

–PROVIDE CONDENSATE NEUTRALIZER KITS FOR EACH BOILER W/ SPARE REFILL FOR EACH

–PROVIDE LOW WATER CUT–OFF INTERFACE KIT W/ MANUAL RESET

–BOILERS HAVE TWO PUMPS THAT ARE SHIPPED WITH THEM FOR INSTALLATION, THE PUMPS ARE GRUNDFOS MODEL #TP 40–160

①HEAT TRANSFER PRODUCTS, RBI, LOCKINVAR, AERCO OR APPROVED EQUAL.

HOT WATER STORAGE TANK SCHEDULE

UNIT NUMBER	HWS–1 & 2
MANUFACTURER ③	LOCHINVAR
MODEL	LOCK–TEMP #RGA0650
TYPE	VERTICAL
MAX. WORKING PRESSURE (PSI)	150
CAPACITY (GAL.)	650
WATER CONNECTION (INLET)	(2) 3" NPT–M
WATER CONNECTION (OUTLET)	2" NPT–M
DRAIN CONNECTION	1"
TANK SIZE: DIAMETER x HEIGHT	52"ø x 23–1/2"
WEIGHT – EMPTY	1,817 LBS
WEIGHT – FULL	7,243 LBS
STORAGE TANK WATER TEMP.	140°F
REMARKS	① ②

① FACTORY JACKETED & INSULATED, GLASS LINED STORAGE TANK
② ASME RATED
③ OR EQUAL BY A.O. SMITH, STATE, HEAT TRANSFER PRODUCTS, RUUD/RHEEM, AERCO, OR APPROVED EQUAL.

OUTDOOR TOILET & STORAGE BUILDING PLUMBING FIXTURE SCHEDULE

THE FOLLOWING ITEMS SHALL BE FURNISHED AND INSTALLED BY THE PLUMBING SUB–CONTRACTOR

OSP–#	ITEM	CONNECTIONS CW	HW	S	W	V	REMARKS
OSP–1	WATER CLOSET	1"	–	4"	–	2"	SS, WALL HUNG–SEAT 15" A.F.F.
OSP–2	WATER CLOSET	1"	–	4"	–	2"	SS, HUNG–HDCP–SEAT 18" A.F.F.
OSP–3	URINAL	3/4"	–	2"	–	1–1/2"	SS, WALL HUNG – LIP @ 24"
OSP–4	URINAL	3/4"	–	2"	–	1–1/2"	SS, WALL HUNG – HDCP LIP 17" A.F.F.
OSP–5	LAVATORY	1/2"	1/2"	–	1–1/2"	1–1/2"	SS, WALL HUNG – HDCP – RIM 34" A.F.F.
OSP–6	MOP SERVICE BASIN	1/2"	1/2"	–	3"	2"	

NATURAL GAS PIPING NOTES:

1. CONTRACTOR RESPONSIBLE FOR PROVIDING ALL MATERIAL, LABOR, SUPERVISION AND TRANSPORTATION REQUIRED TO COMPLETE THE WORK DESCRIBED ON THESE DRAWINGS.
2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND LOCATION IN THE FIELD.
3. ALL PIPING TO BE INSTALLED PER LOCAL, STATE AND FEDERAL CODES.
4. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PLUMBING PERMITS.
5. ALL INTERIOR PIPING WILL BE SCHEDULE 40 BLACK STEEL PIPE W/ THREADED TYPE STEEL FITTINGS FOR PIPE SIZES 2" & BELOW, AND WELDED OR MEGAPRESS FITTINGS FOR 2"–4" PIPING RATED FOR 125 PSIG SERVICE. ALL GAS PIPING 5" AND LARGER SHALL BE WELDED, RATED FOR 125 PSIG SERVICE. MALLEABLE OR DUCTILE IRON SCREW TYPE FITTINGS WILL BE USED. CAST IRON FITTINGS ARE NOT ALLOWED.
6. VALVES: ALL VALVES WILL BE AGA APPROVED WITH AGA STAMPED ON VALVE BODY.
7. PIPE SYSTEM WILL BE PRESSURE TESTED TO 100 PSIG FOR ONE HOUR. SEE SPECIFICATION.
8. AFTER TESTING AND PRIOR TO PLACING PIPE SYSTEM IN SERVICE, THE GAS PIPE LINE WILL BE PURGED WITH CO2 OR NITROGEN GAS TO EXPEL AIR PRIOR TO CHARGING WITH FUEL GAS.
9. A MASTER SHUT–OFF VALVE WILL BE MOUNTED IN THE BOILER ROOM AND LABELED.
10. ALL EQUIPMENT TO HAVE MASSACHUSETTS APPROVED GAS TRAINS AND BE PRODUCT APPROVED.
11. PLUMBER SHALL BE PRESENT AT START–UP OF GAS–FIRED EQUIPMENT IN THE BUILDING EVEN IF THE EQUIPMENT WAS NOT INSTALLED UNDER YOUR CONTRACT.
12. PER EVERSOURCE, THE GAS SERVICE TO THE BUILDING IS LOW PRESSURE. IP GAS IS NOT AVAILABLE.

EXTERIOR GREASE INTERCEPTOR SCHEDULE – BY SITE CONTR.

UNIT NUMBER	EGI–1
MANUFACTURER	SHEA PRECAST INC.
MODEL	–
SERVICE	KITCHEN DRAINS
TYPE	PRECAST CONCRETE TANK W/ BAFFLES
INLET/OUTLET PIPE SIZE (IN)	6"
KITCHEN MEALS PREPARED/DAY	1,850
GALLONS OF WASTEWATER PER MEAL	5
LOADING FACTOR (WITH DISHWASHER)	1.0
CODE REQUIRED SIZE (GALLONS)	1,850*5*1.0 = 9,250
GREASE CAPACITY (GALLONS)	10,000
BODY (H X W X L)	–
REMARKS	①

① SCHEDULE PROVIDED FOR REFERENCE ONLY
TANK MUST MEET CITY OF WORCESTER STANDARDS

SCIENCE ROOM EQUIPMENT SCHEDULE

MARK	ITEM	PLUMBING CONNECTIONS LHW	LCW	TW	AW	AV	GAS	REMARKS
L–1	STUDENT TABLE (2–FAUCETS)	– – –	1/2"	– – –	1–1/2"	1–1/2"	– – –	TWO LCW ONLY FAUCETS, ONE WITH ASPIRATOR
L–2	HC STUDENT TABLE (1–FAUCET)	– – –	1/2"	– – –	1–1/2"	1–1/2"	– – –	ONE LCW ONLY FAUCET W/ WRIST BLADE HANDLE, PIPE INSULATION UNDER
L–3	DEMONSTRATION TABLE (1–FAUCET)	– – –	1/2"	– – –	2"	2"	– – –	ONE LCW ONLY FAUCET
L–4	CLASSROOM HAND SINK AND PREP ROOM SINK	1/2"	1/2"	– – –	2"	1–1/2"	– – –	ONE MIXING FAUCET
L–5	EMERGENCY EYE WASH/SHOWER – RECESSED	*	*	1–1/4"	1–1/2"	1–1/2"	– – –	*1–1/4" TEMPERED HW, FURNISHED BY P.C.
L–6	EMERGENCY EYE WASH/SHOWER – EXPOSED	*	*	1–1/4"	1–1/4"	1–1/4"	– – –	*1–1/4" TEMPERED HW, FURNISHED BY P.C.
L–7	PASS THROUGH FUME HOOD	– – –	1/2"	– – –	2"	2"	1/2"	INTEGRAL GAS TURRET & FAUCET
TURRET	GAS TURRET MOUNTED IN BACKSPLASH	– – –	– – –	– – –	– – –	– – –	1/2"	SEE SPEC.

–SCIENCE ROOM FIXTURES FURNISHED BY G.C. AND INSTALLED BY PLUMBER (P.C.) UNLESS OTHERWISE NOTED (SEE FIXTURES L–5 & L–6 FOR EXCEPTION).
–PLUMBER TO INSTALL SCIENCE ROOM FIXTURES, FAUCETS AND ACCESSORIES.
–SEE SPECIFICATION FOR FAUCETS, ETC...
–GAS TURRETS DO NOT HAVE CALLOUTS, BUT THEY ARE FURNISHED AND INSTALLED BY THE PLUMBING CONTRACTOR. SEE SPEC.
GAS TURRETS ARE STRAIGHT BALL VALVE STYLE INSTALLED THROUGH BACKSPLASH.
–PROVIDE OFFSET PIPING AND UNDERSINK PIPE INSULATION FOR LAB FIXTURE L–2 SIMILAR TO THAT FOR A HC LAVATORY.

ELECTRIC WATER HEATER SCHEDULE

UNIT NUMBER		EWH–1	OSEWH–1
SERVICE		1 SINK @ SCHOOL	OUTDOOR TOILET BUILDING
MANUFACTURER		BOSCH	RUUD
MODEL #		ES4	EL080–6
TYPE		POINT–OF–USE	COMMERCIAL TANK TYPE
DIMENSIONS (DIAMETER X HEIGHT)		13–1/2" CUBE	24–1/2"ø X 59"H
WEIGHT EMPTY (LBS)		17.3	200
FLUID DATA	STORAGE CAPACITY (GAL)	4	80
	STORED TEMPERATURE (F)	110°F	140°F
	RECOVERY RATE (GPH)	6.8	24
ELEC. DATA	TEMPERATURE RISE (°F)	90°F	100°F
	TOTAL WATTAGE (KW)	1.44	6.0
	AMP RATING (A)	12	28.8
	HEATING (BTU/HR)	4,915	20,478
	VOLTAGE–PH–Hz	120 – 1 – 60	208 – 1 – 60
REMARKS		①	②

① WATER HEATER MOUNTED IN BASE CABINET ON REAR WALL.
EWH–1 IS PLUG–IN STYLE.
PROVIDE CUP UNDER T&P RELIEF VALVE OUTLET TO PROTECT BASE CABINET.

② PROVIDE DRAIN PAN UNDER WATER HEATER WITH SIMILAR TO WATTS MODEL #WM–26, 26" SQUARE

MIXING VALVE SCHEDULE

UNIT NUMBER	MV–1	MV–2	POINT–OF–USE	OSMV–1
MANUFACTURER ①	POWERS	POWERS	POWERS	HONEYWELL SPARCO
MODEL	LFIS100VL	ETV–400	LFG480–11	AM101–USTG–1LF
SERVICE	120°F DOMESTIC HW	EMERG. SHOWERS & EMERG. EYEWASH	VARIOUS FIXTURES	120°F DOMESTIC HW FOR OSEWH–1
TYPE	DIGITAL	THERMOSTATIC	THERMOSTATIC	THERMOSTATIC
MIXED WATER TEMPERATURE (°F)	120	75	110	120
PROBABLE FLOW RATE (GPM)	27.6	40	0.25	5.25
MIN. FLOW RATE (GPM)	0.5	3	0.25	0.5
MAX. FLOW RATE (GPM)	55	48.1	3	12
MAX. PRESSURE DROP (PSI)	10	10	45	10
WATER PRESSURE DROP (PSIG)	>5	8	– –	5
INLET PIPE SIZE (IN)	1"	1–1/4"	3/8"	3/4"
OUTLET PIPE SIZE (IN)	1–1/4"	1–1/2"	3/8"	3/4"

– WATER PRESSURE DROP IN @ PROBABLE FLOW RATE.
③ MIXING VALVES SHALL BE POWERS, LEONARD VALVE COMPANY, SYMMONS, LAWLER, ARMSTRONG RADA OR APPROVED EQUAL

INTERIOR OIL INTERCEPTOR SCHEDULE

UNIT NUMBER	OIL–1
MANUFACTURER ①	WATTS DRAINAGE
MODEL	OI–20–ST
SERVICE ②	ONE GARAGE FLOOR DRAIN @ OUTDOOR STORAGE BLDG
TYPE	RECESSED MOUNTED EPOXY COATED STEEL OIL INTERCEPTOR
PIPE CONNECTION SIZE (IN)	3"
FLOW RATE (GPM)	20
TANK OIL CAPACITY (GALLONS)	19
BODY (L X W)	39.75" X 20.875"
REMARKS	PROVIDE EXTENSION

①INTERIOR OIL INTERCEPTOR SHALL BE WATTS DRAINAGE, MIFAB #MI–O–HU–A, JAY R. SMITH #8550 OR APPROVED EQUAL.

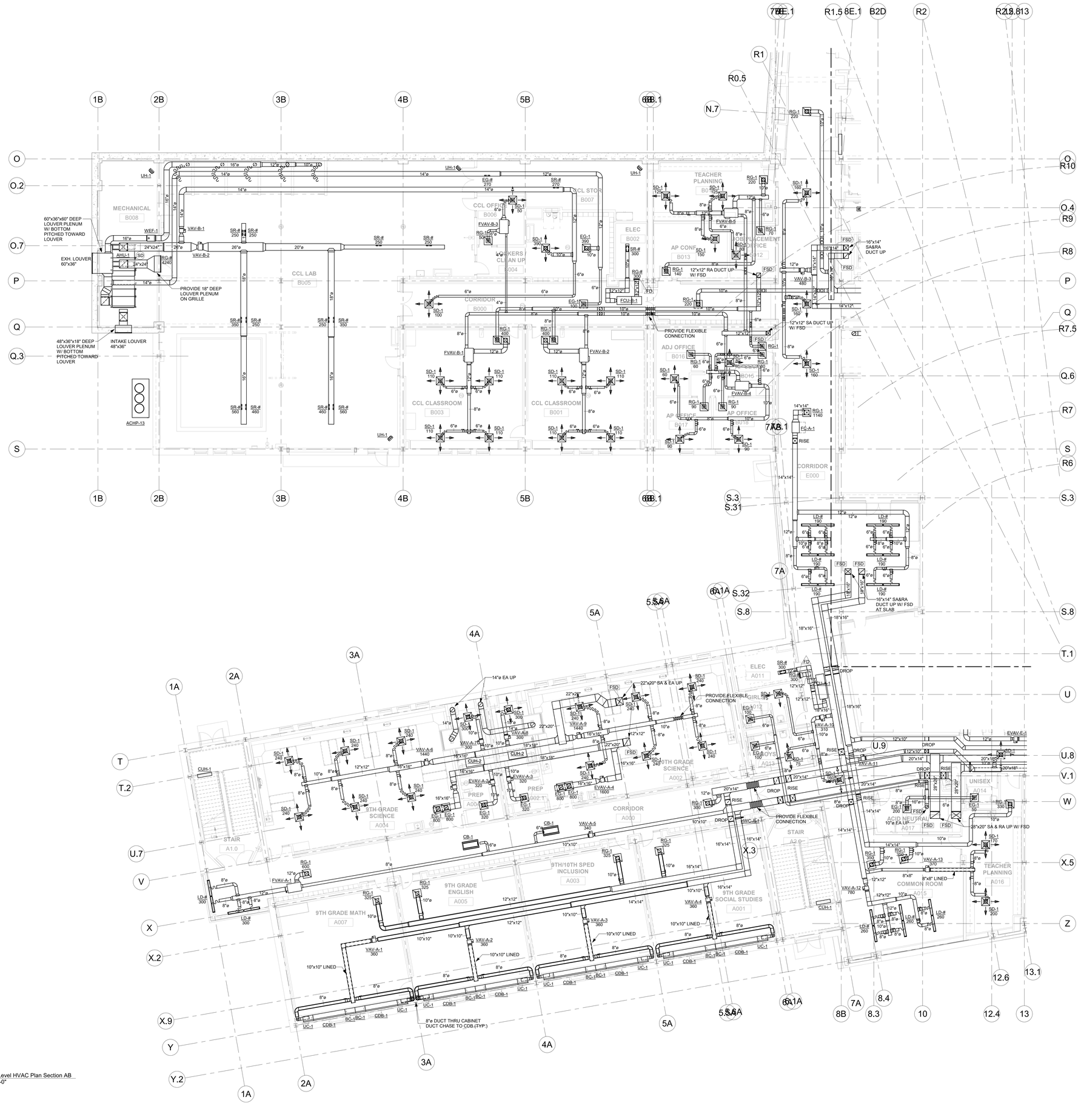
②INTERIOR OIL INTERCEPTOR LOCATED IN OUTDOOR TOILET AND STORAGE BUILDING

FLOOR DRAIN SCHEDULE

MARK	SELECTION BASED ON MFR	MODEL	SIZE	PIPE CONNECTION	TOP MATERIAL	ACCESSORIES	REMARKS
FD1	ZURN	Z843–6BZ1–P	6"ø	VARIES	POLISHED BRONZE	1/2" TRAP PRIMER CONN.	– – –
FD2	ZURN	ZN1901–K–3–32	12"X12"	4" BOTTOM	NICKEL BRONZE	ANCHOR FLANGE, 3/4" GRATE ALUMINUM DOME STRAINER	NO TRAP PRIMER REQUIRED FOR INDIRECT WASTE
FD3	ZURN	Z843–8BZ1 W/ ZN329–9	8"ø	4" BOTTOM	POLISHED BRONZE	9" OVAL FUNNEL	NO TRAP PRIMER REQUIRED FOR INDIRECT WASTE
FD4	ZURN	Z507–P–Y	7"ø	4" BOTTOM	CAST IRON	1/2" TRAP PRIMER CONN. SEDIMENT BUCKET	– – –
FD5	ZURN	Z507–P	7"ø	4" BOTTOM	CAST IRON	1/2" TRAP PRIMER CONN.	– – –
FD6	ZURN	Z886–HPD	20"–0"L	4" BOTTOM	DUCTILE IRON	HEEL PROOF SLOTTED GRATE	– – –
FD7	ZURN	Z886–HPD	6'–8"L	4" BOTTOM	DUCTILE IRON	HEEL PROOF SLOTTED GRATE	

KITCHEN EQUIPMENT SCHEDULE – PLUMBING CONNECTIONS

No.	Qty.	Description	Plumbing Utilities HW	CW	DW	IW	MBTUS	Gas Size	Plumbing Height	Comment
6	2	Cooler Coil				3/4"				
8	2	Freezer Coil				3/4"				
10	1	Cooler Coil				3/4"				
14	1	Blast Chiller Coil Assembly				(2)1"				
16	1	Handsink	1/2"	1/2"	1–1/2"					PC – Provide 110 degree hot water to faucet.
17	1	Ice Maker w/ Bin		3/8"		1/2" & 3/4"				
17A	1	Ice Machine Filter		3/8"						PC – Filtered water to feed #17 Ice Maker
23	1	Handsink	1/2"	1/2"	1–1/2"					PC – Provide 110 degree hot water to faucet.
25	1	Prep Table w/ Sinks	1/2"	1/2"		2"				
25A	1	Disposer/Controls		1/2"	2"					
27	1	Prep Table w/ Sinks	1/2"	1/2"		2"				
28	1	Work Table with Sink	1/2"	1/2"		2"				
29	1	Handsink	1/2"	1/2"	1–1/2"					PC – Provide 110 degree hot water to faucet.
39	1	Roll–In Combi–Oven		(2) 3/4"		1 1/2"				
39A	1	Reverse Osmosis System		3/8"						PC – Coordinate interconnection with Item No. 39 – Roll–In Combi–Oven
40	1	Roll–In Combi–Oven		(2) 3/4"		1 1/2"				
40A	1	Reverse Osmosis System		3/8"						PC – Coordinate interconnection with Item No. 39 – Roll–In Combi–Oven
41	1	Roll–In Combi–Oven		(2) 3/4"		1 1/2"				
41A	1	Reverse Osmosis System		3/8"						PC – Coordinate interconnection with Item No. 39 – Roll–In Combi–Oven
42	1	Roll–In Combi–Oven		(2) 3/4"		1 1/2"				
42A	1	Reverse Osmosis System		3/8"						PC – Coordinate interconnection with Item No. 39 – Roll–In Combi–Oven
45	1	Utility Distribution System	3/4"	1–1/4"						
46	1	Handsink	1/2"	1/2"	1–1/2"					PC – Provide 110 degree hot water to faucet.
49	1	Roll–In Combi–Oven		(2) 3/4"		1 1/2"				
49A	1	Reverse Osmosis System		3/8"						PC – Coordinate interconnection with Item No. 39 – Roll–In Combi–Oven
50	1	60 Gallon Tilting Kettle	1/2"	1/2"						
51	1	Floor Trough	1"		4"					PC – 1"NPCW to trough cooling system
53	1	40 Gallon Tilting Skillet	3/8"	3/8"						
54	1	40 Gallon Tilting Skillet	3/8"	3/8"						
55	1	Floor Trough	1"		4"					PC – 1"NPCW to trough cooling system
60	1	3–Bay Pot Sink/Soiled Dishtable	(2) 3/4"	(2) 3/4"	(3) 2"					PC – PC to provide 1/4" female threaded fitting with shut off valve and approved backflow prevention on the incoming cold and hot water line for soap and sanitizer.
62	1	Disposer/Controls		1/2"	2"



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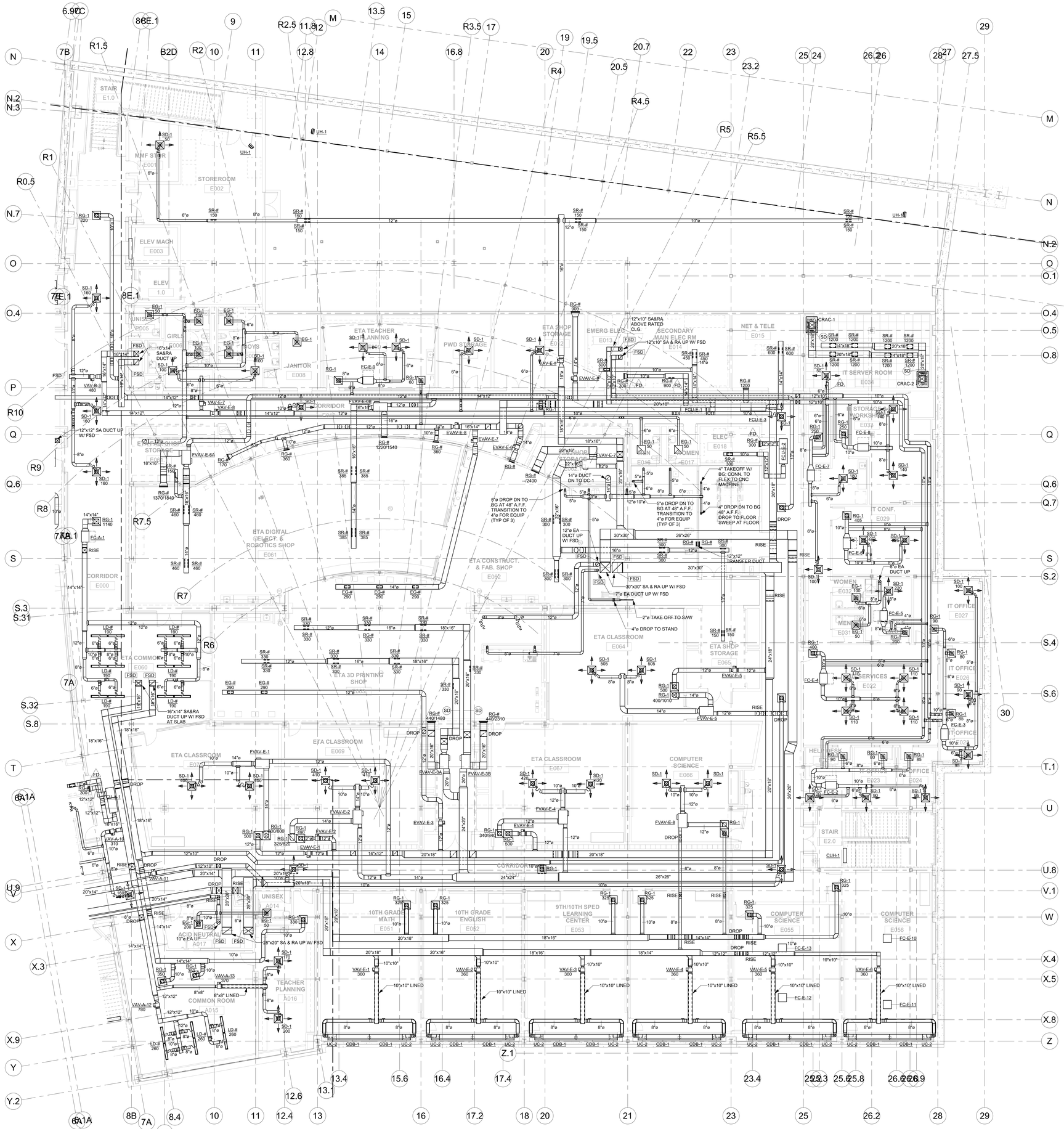
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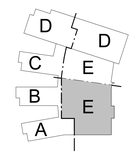
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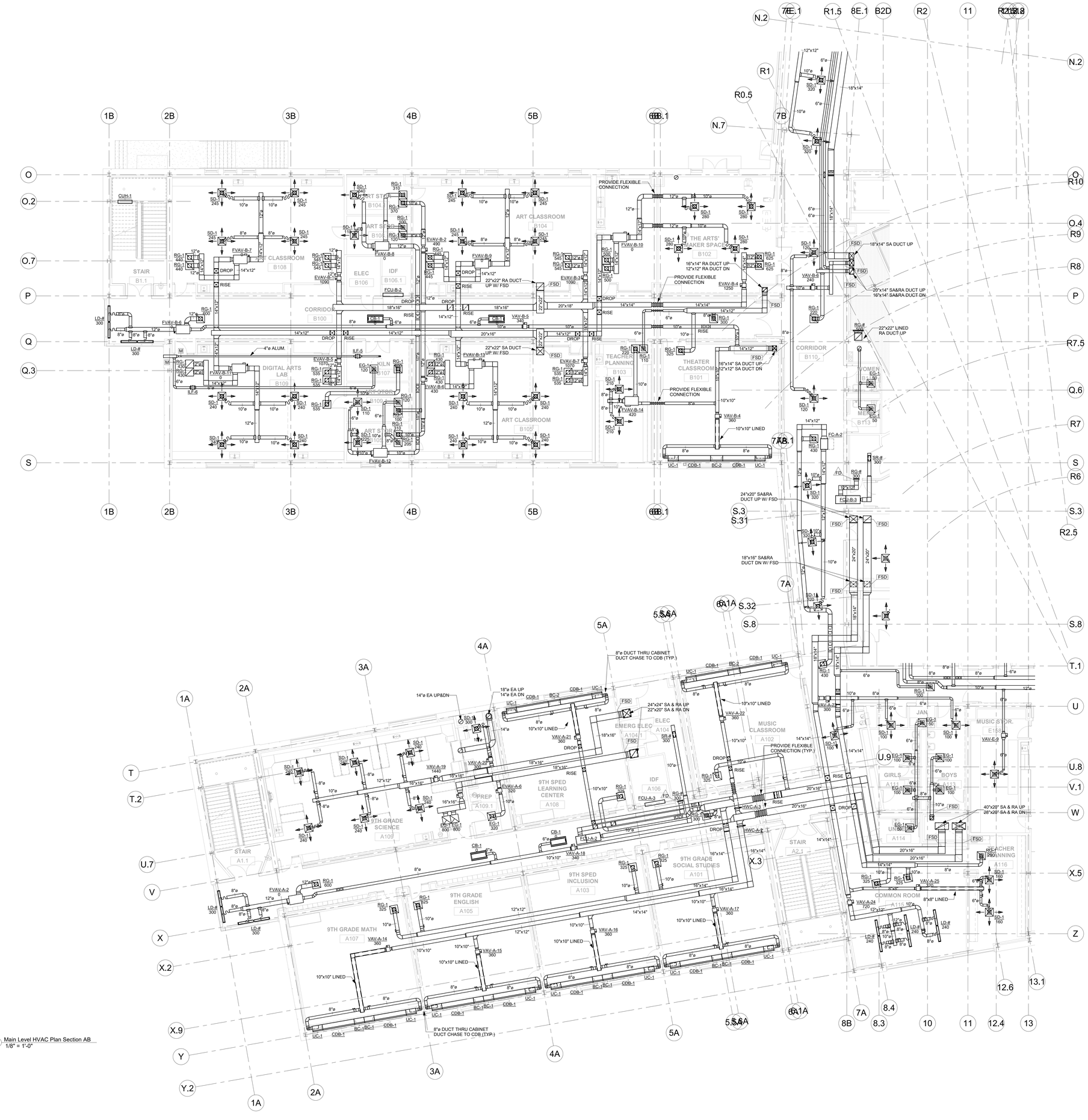
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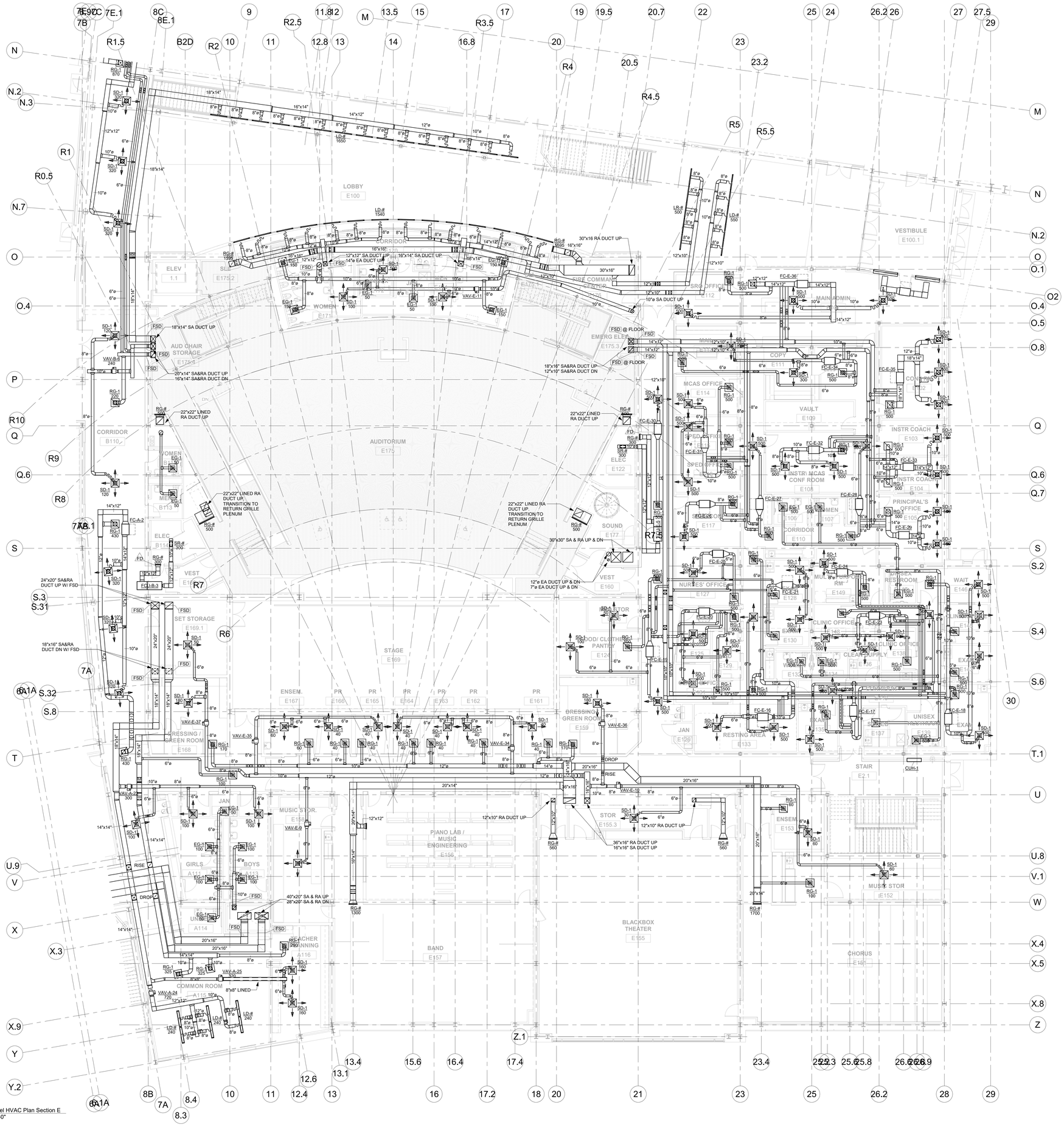
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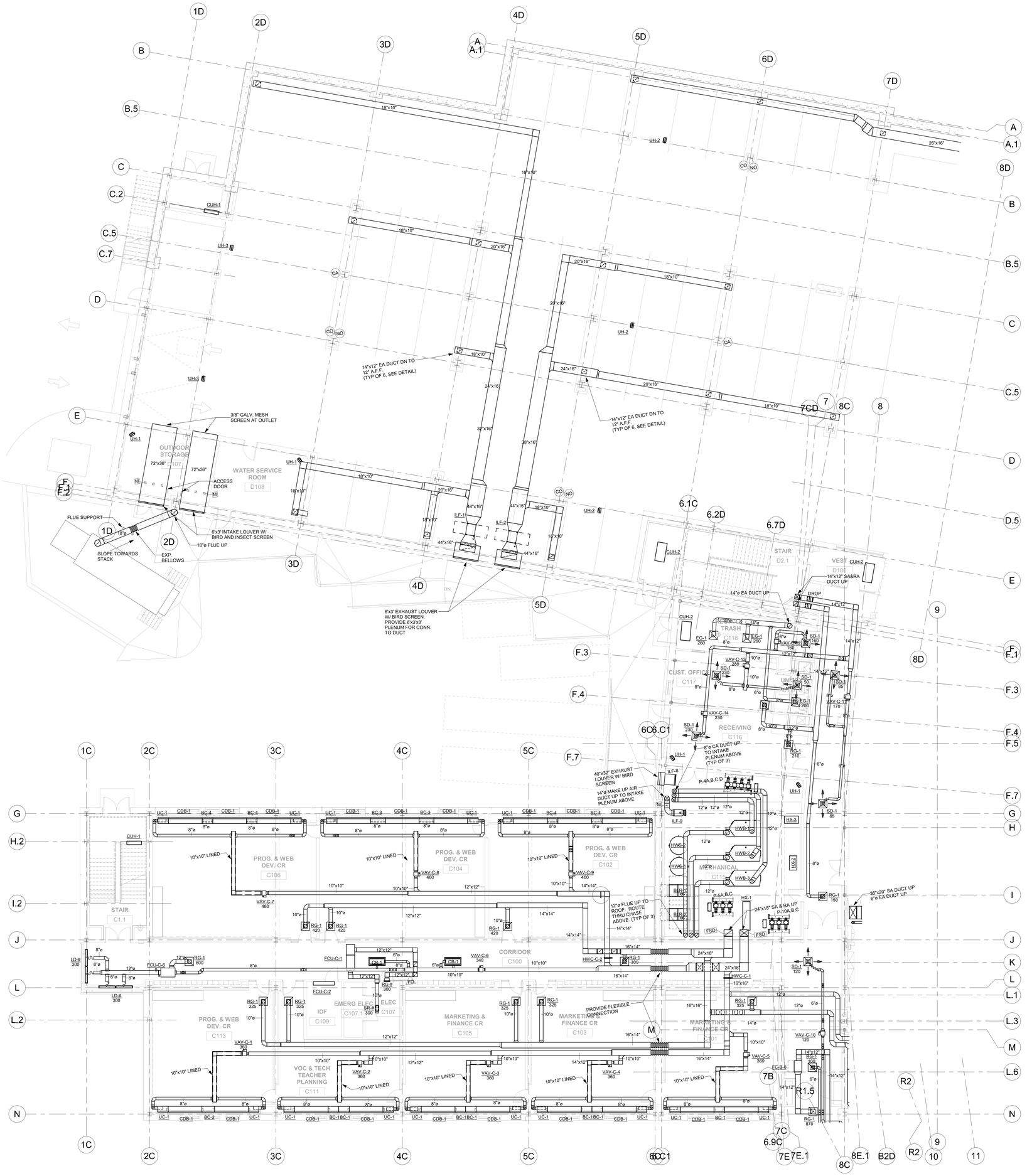
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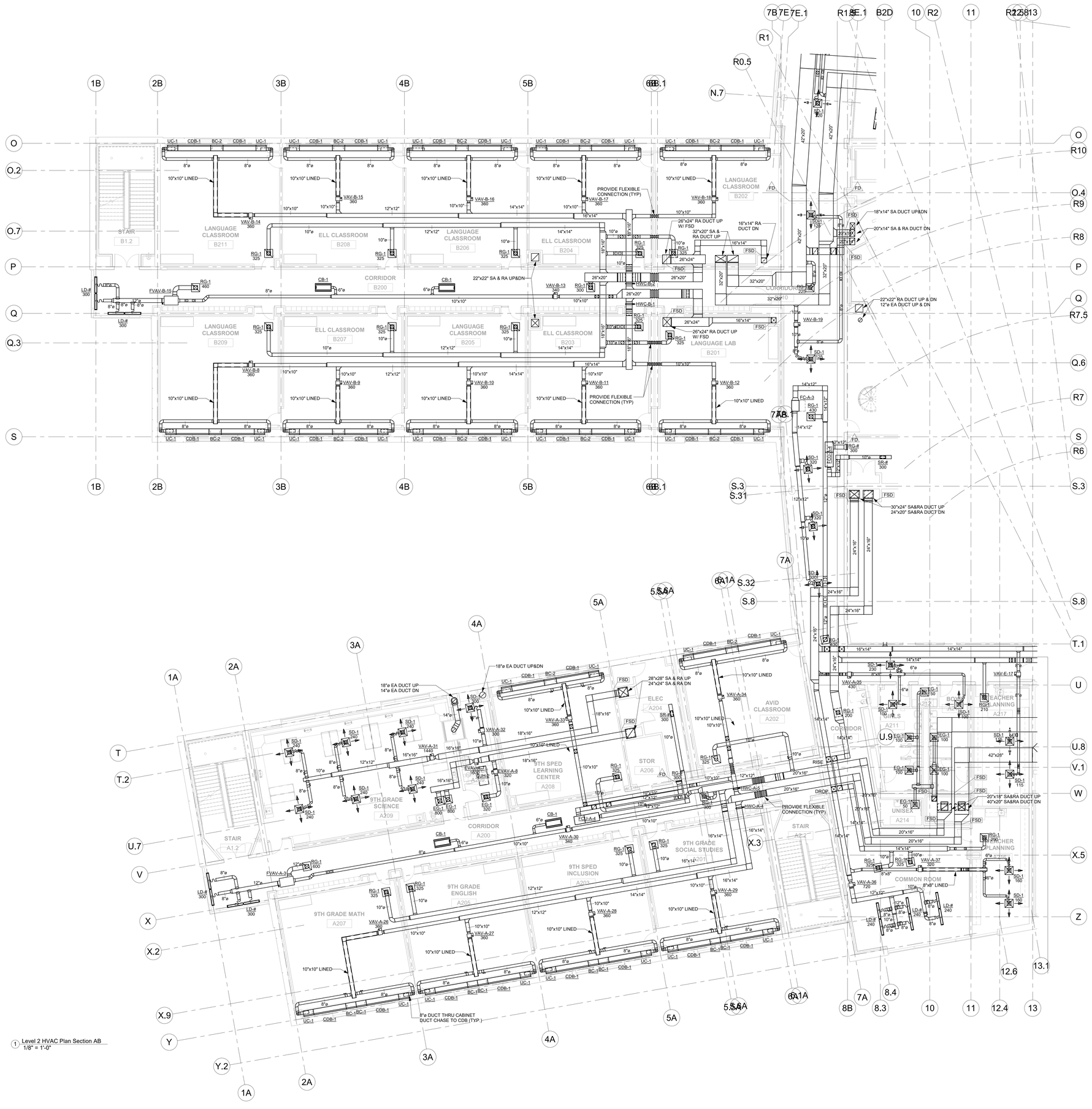
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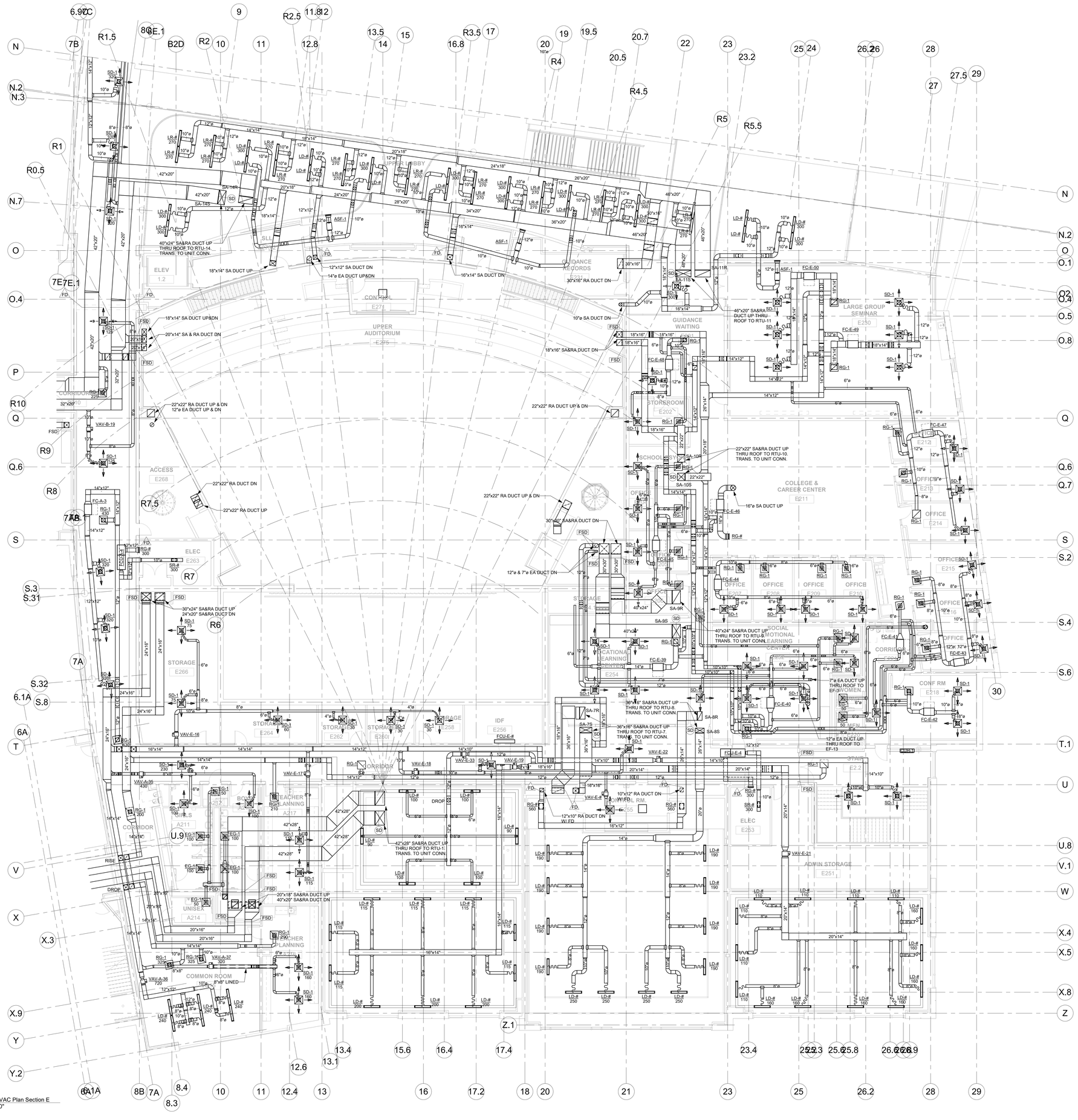
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Key Plan

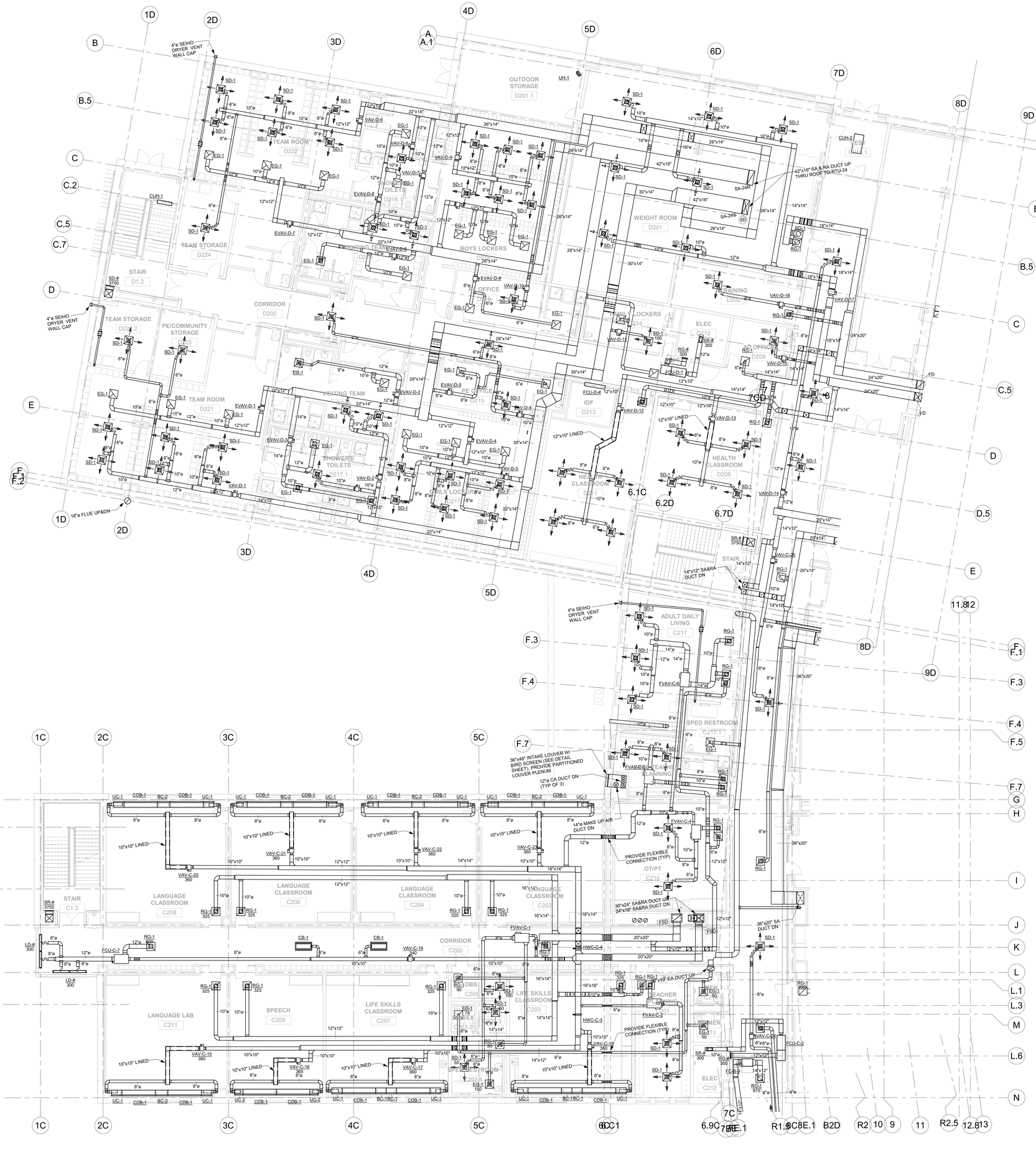
REVISIONS

No.	Description	Date

FILE:
JOB NO: #1904
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PROJECT

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Doherty Memorial High School

299 Highland St
Worcester, MA 01602

DRAWING TITLE

Level 2 HVAC Plan Section CD

Locus Map

True North

Key Plan

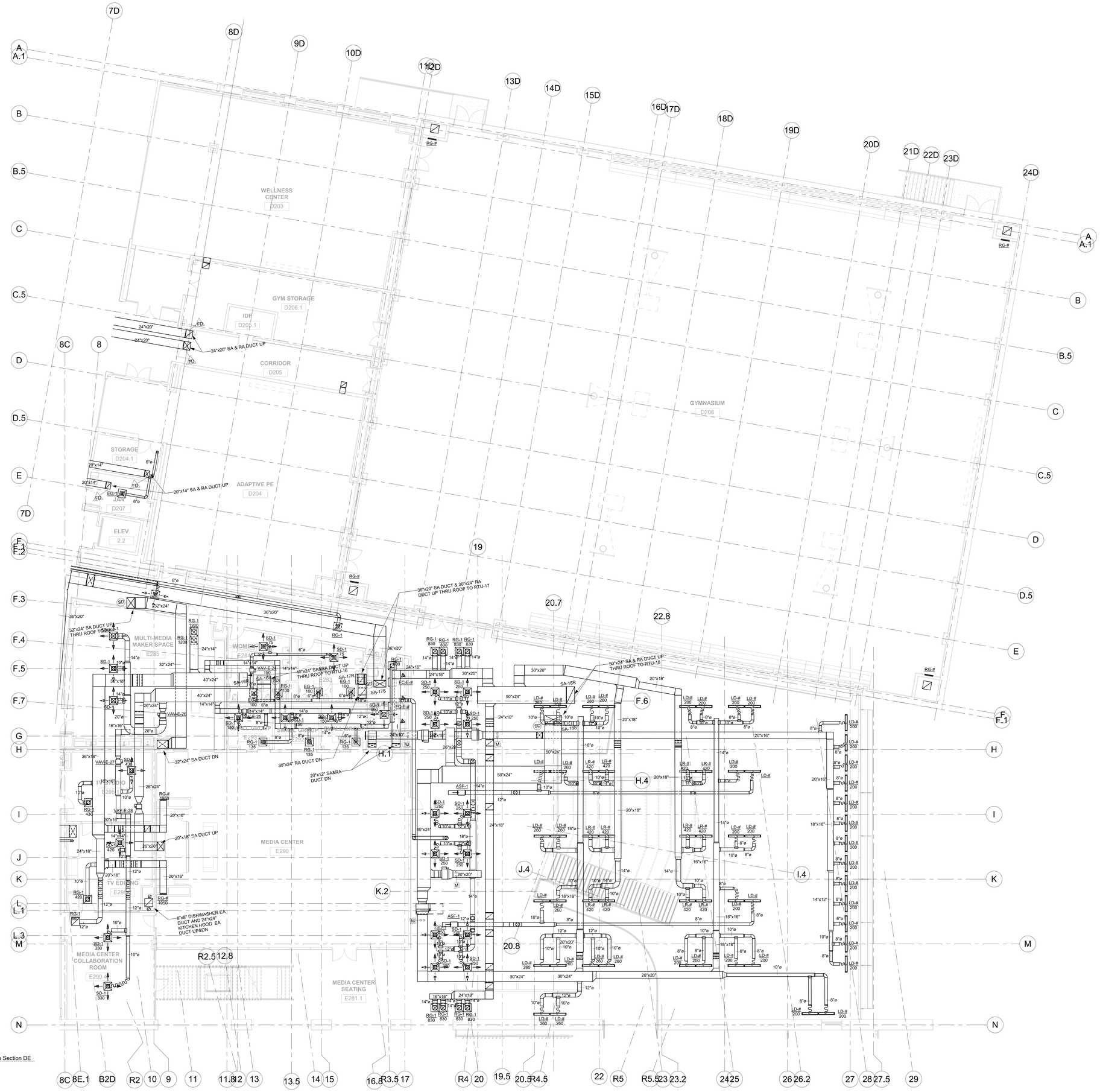
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JOB NO: #1904
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299 Highland St
Worcester, MA 01602

DRAWING TITLE

Level 2 HVAC Plan Section DE

Locus Map

True North

Key Plan

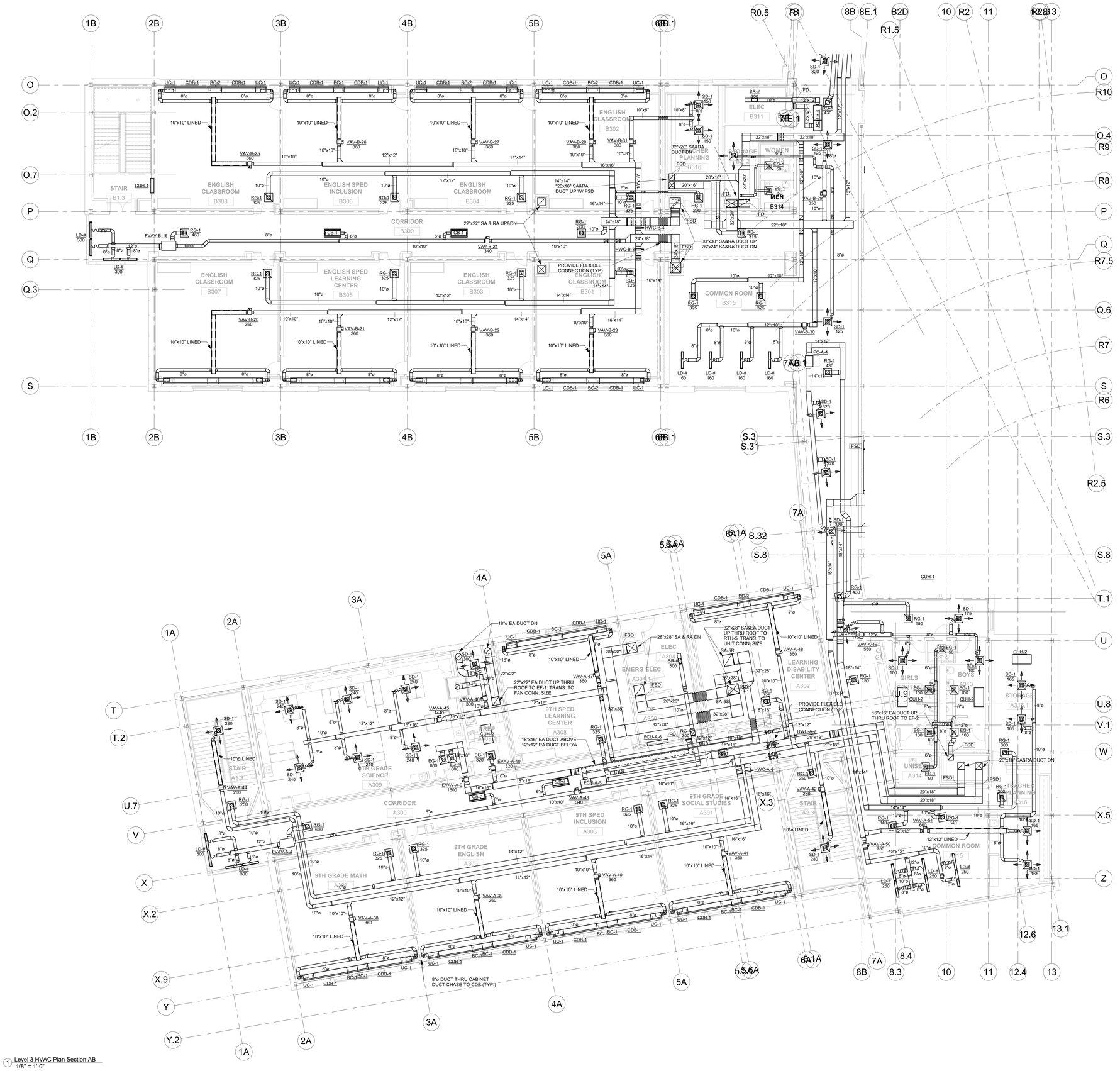
REVISIONS

No.	Description	Date

FILE:
JOB NO: #1904
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DRAWING TITLE

Level 3 HVAC Plan Section AB

Locus Map

True North

Key Plan

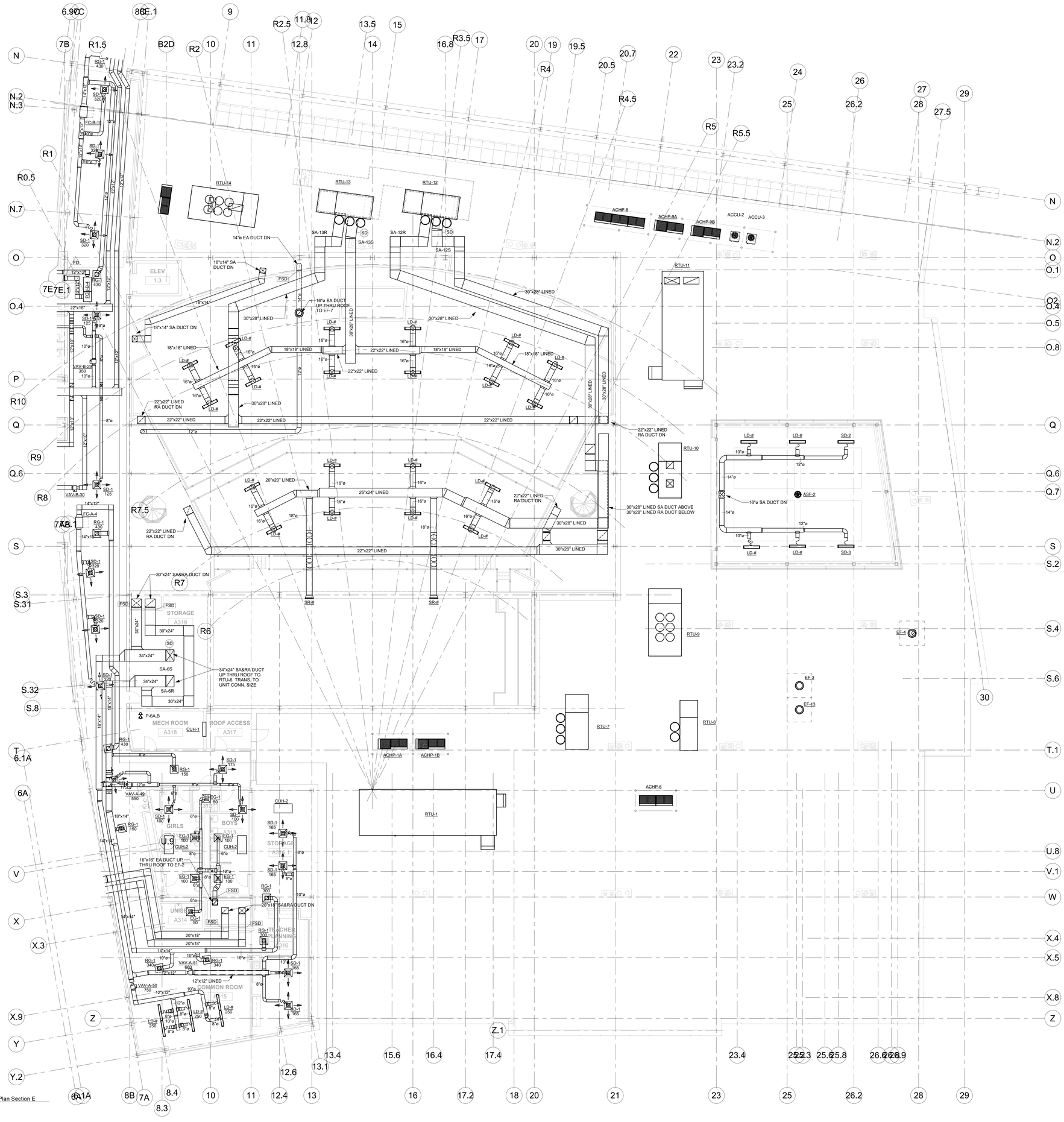
REVISIONS

No.	Description	Date

FILE:	
JOB NO:	#1904
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299 Highland St
Worcester, MA 01602

DRAWING TITLE

Level 3 HVAC Plan Section E

Locus Map

True North

Key Plan

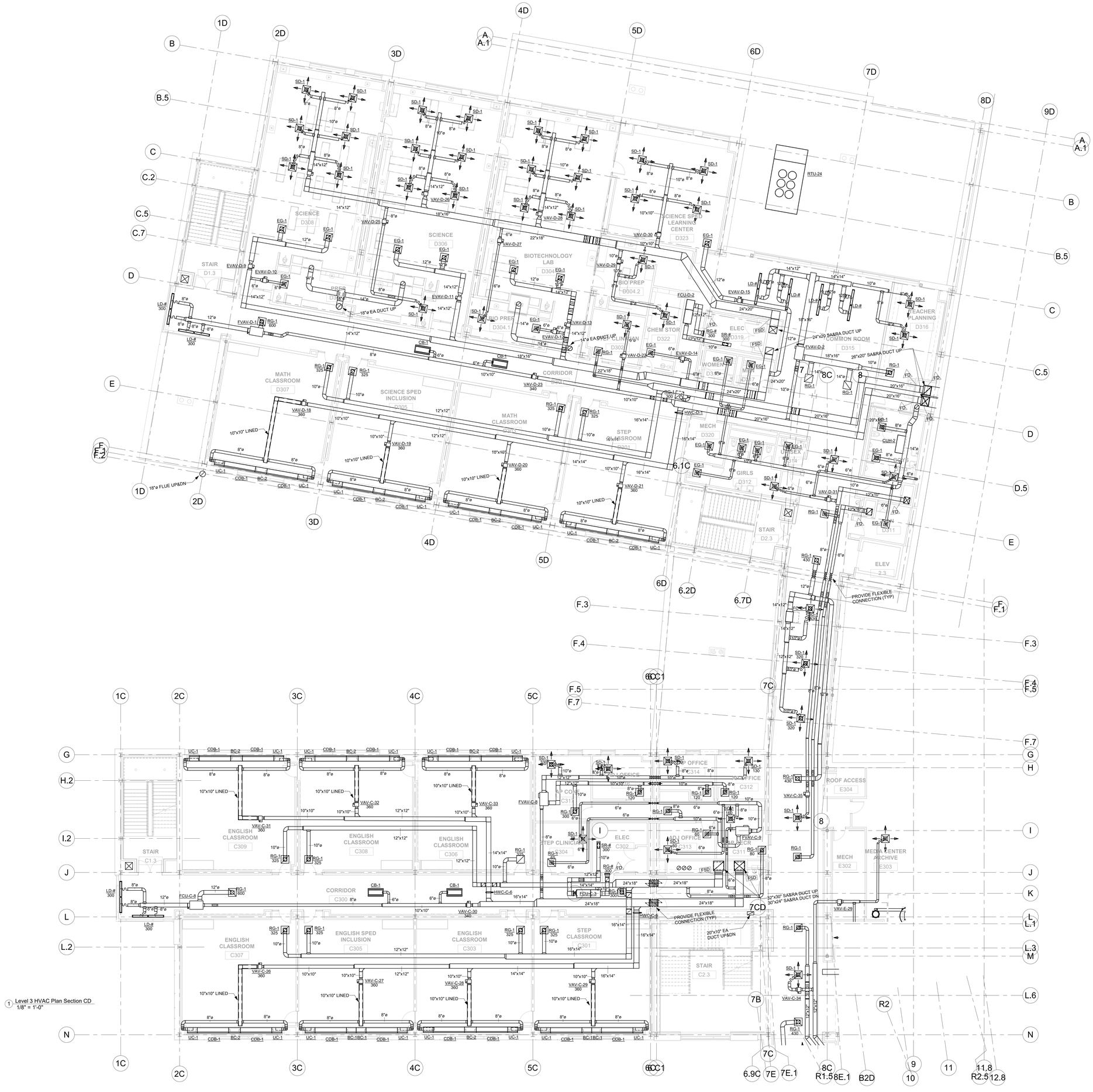
REVISIONS

No.	Description	Date

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DRAWING TITLE

Level 3 HVAC Plan Section CD

Locus Map

True North

Key Plan

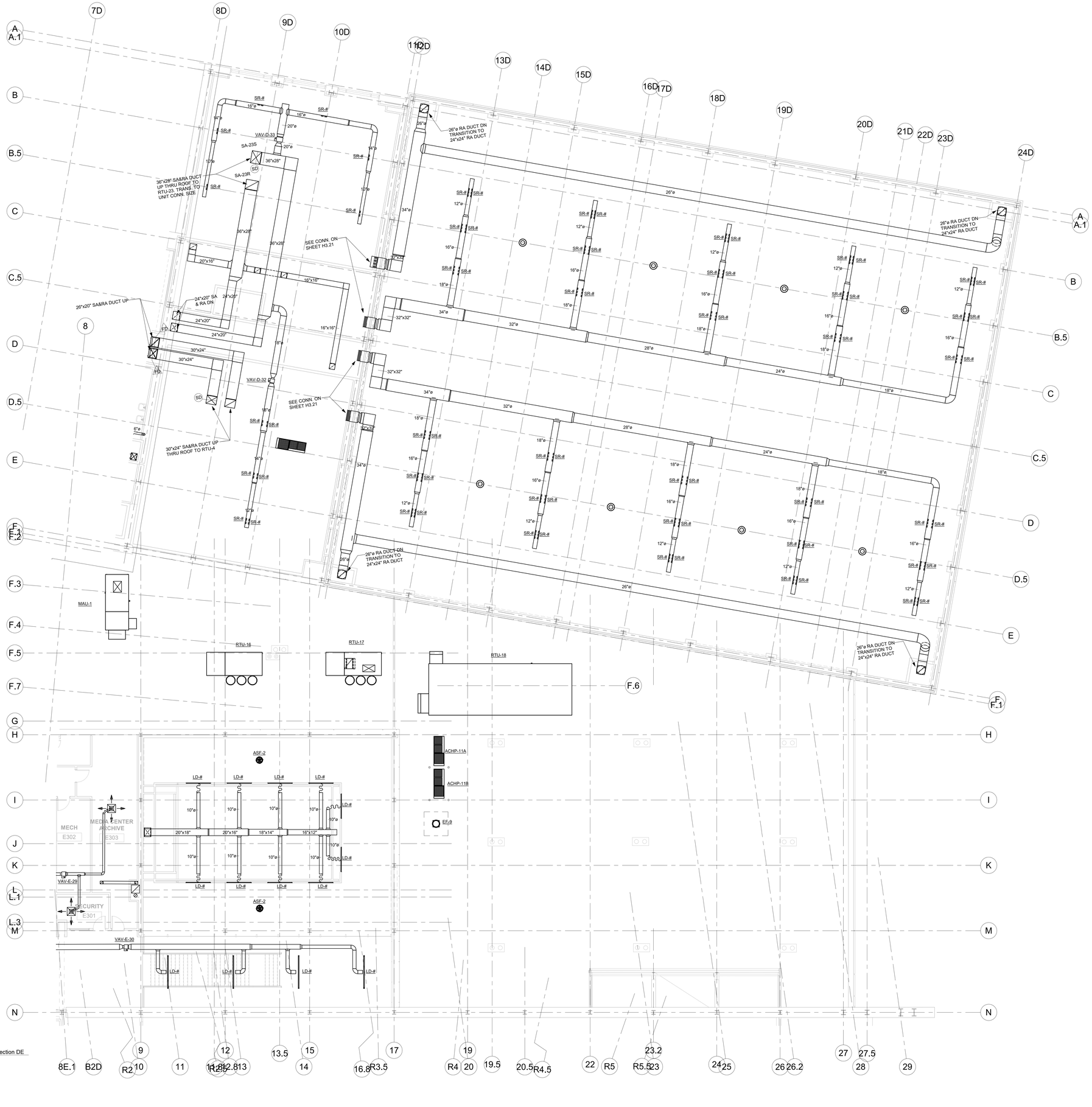
REVISIONS

No.	Description	Date

FILE:
JOB NO: #1904
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DRAWING TITLE

Level 3 HVAC Plan Section DE

Locus Map

True North

Key Plan

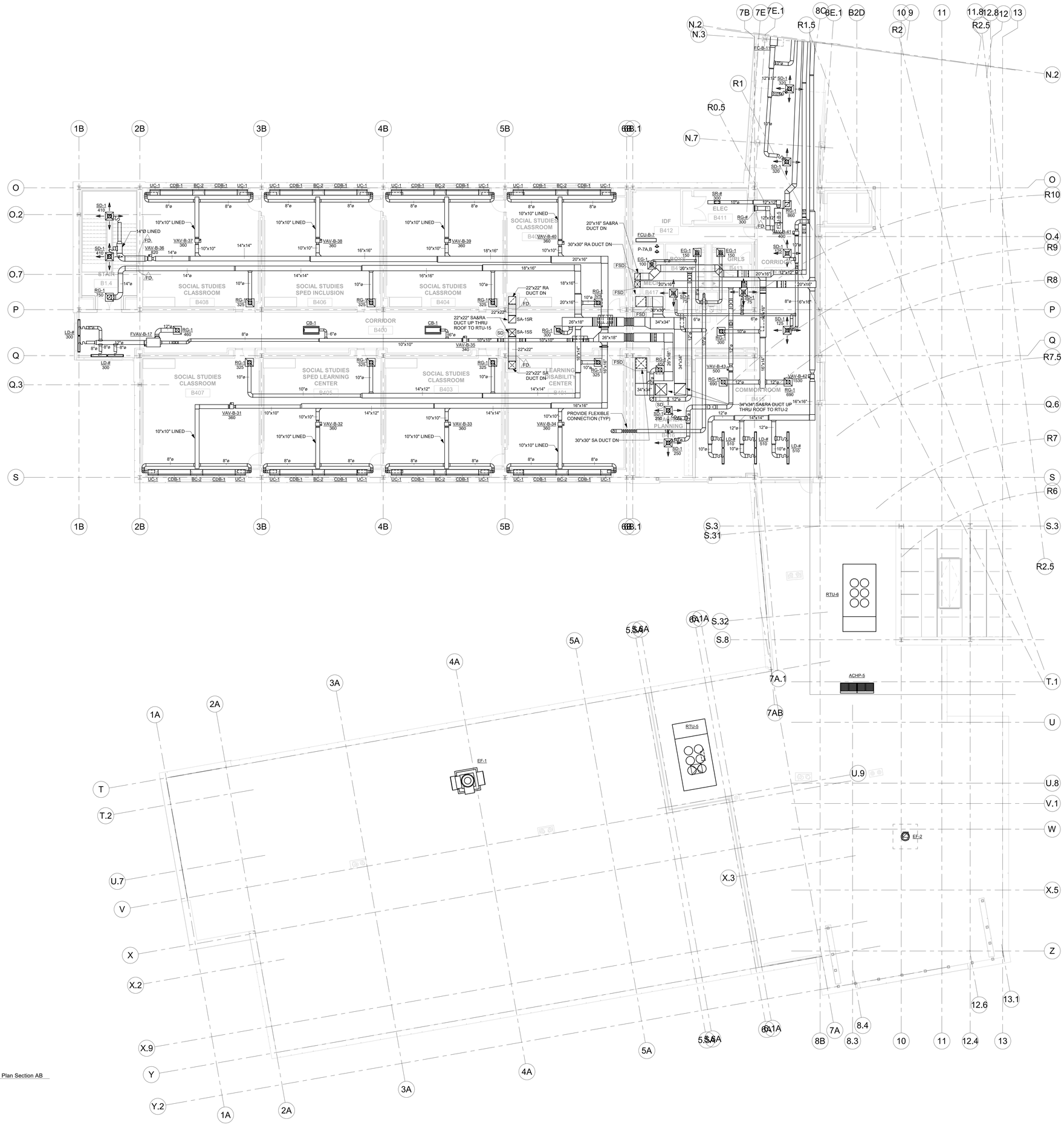
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No.	Description	Date

FILE:	
JOB NO:	#1904
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DRAWING TITLE

Level 4 HVAC Plan Section AB

Locus Map

True North

Key Plan

REVISIONS

No.	Description	Date

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DRAWING TITLE

Level 4 HVAC Plan Section CD

Locus Map

True North

Key Plan

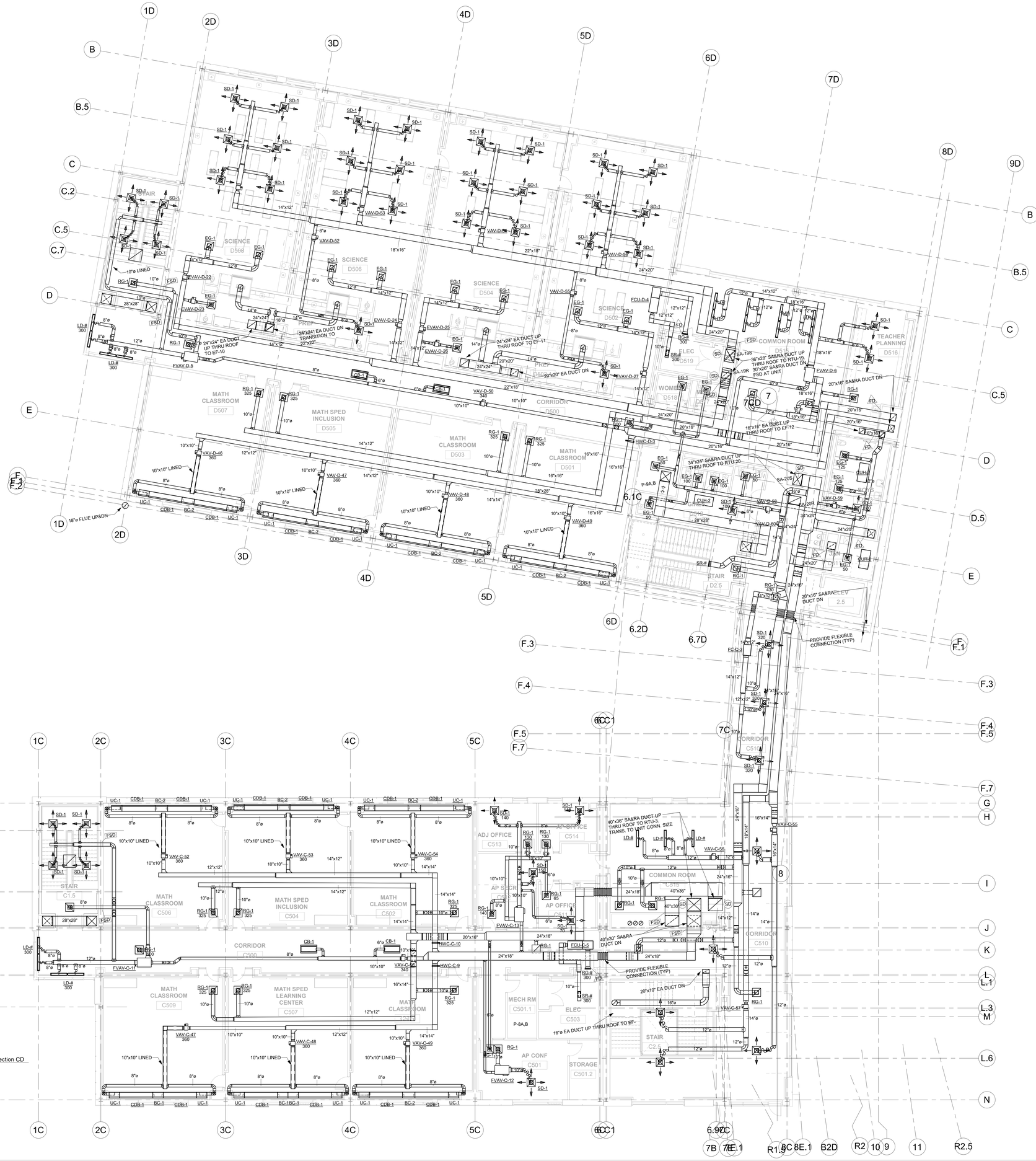
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No.	Description	Date

FILE:
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DRAWING TITLE

Level 5 HVAC Plan Section CD

Locus Map

True North

Key Plan

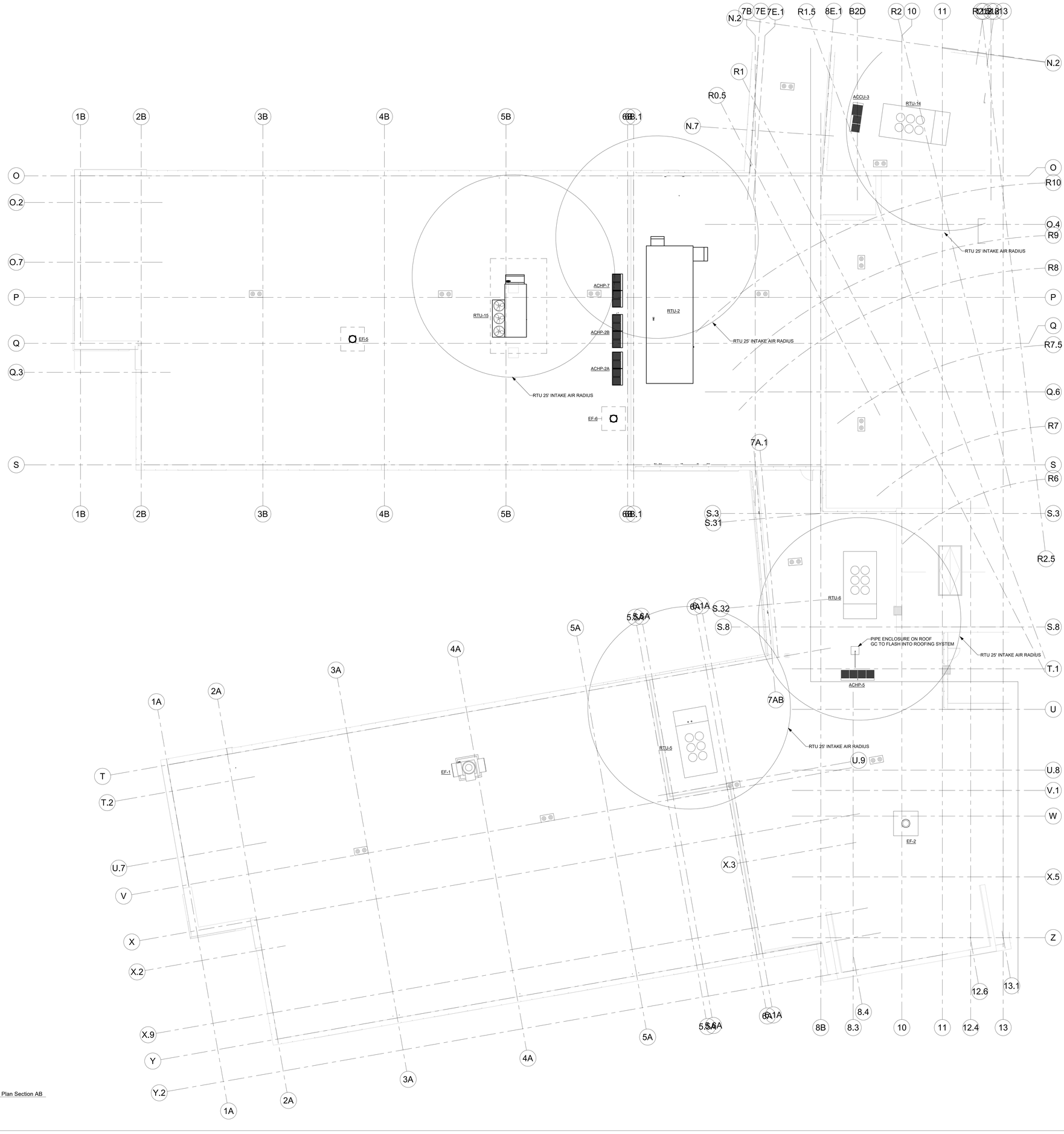
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No.	Description	Date

FILE:	
JOB NO:	#1904
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DRAWING TITLE

Roof HVAC Plan Section AB

Locus Map

True North

Key Plan

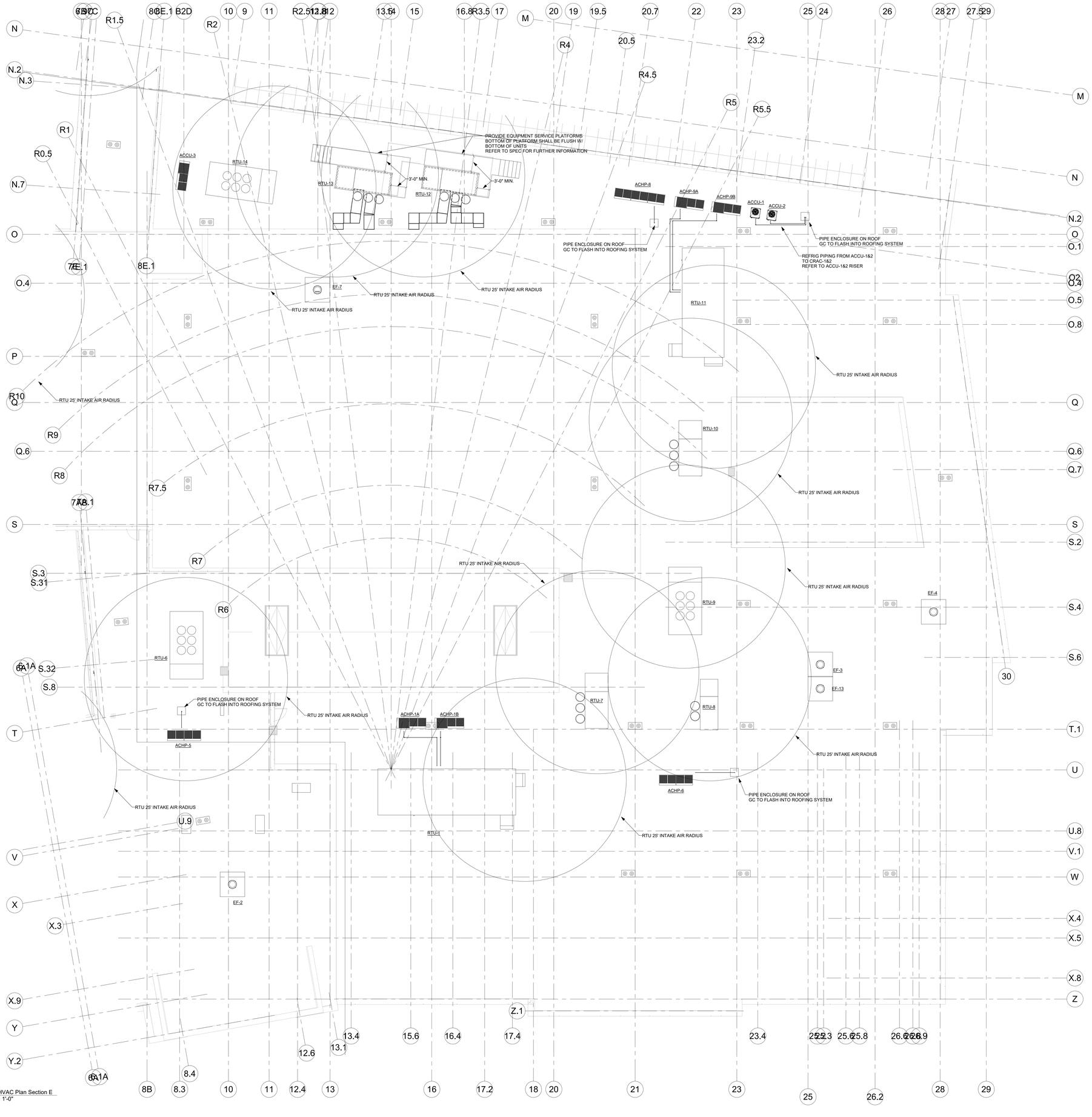
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No.	Description	Date

FILE:	
JOB NO:	#1904
SCALE:	1/8" = 1'-0"
DWN. BY:	FJG
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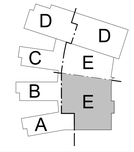
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Roof HVAC Plan Section E

Locus Map

True North

Key Plan



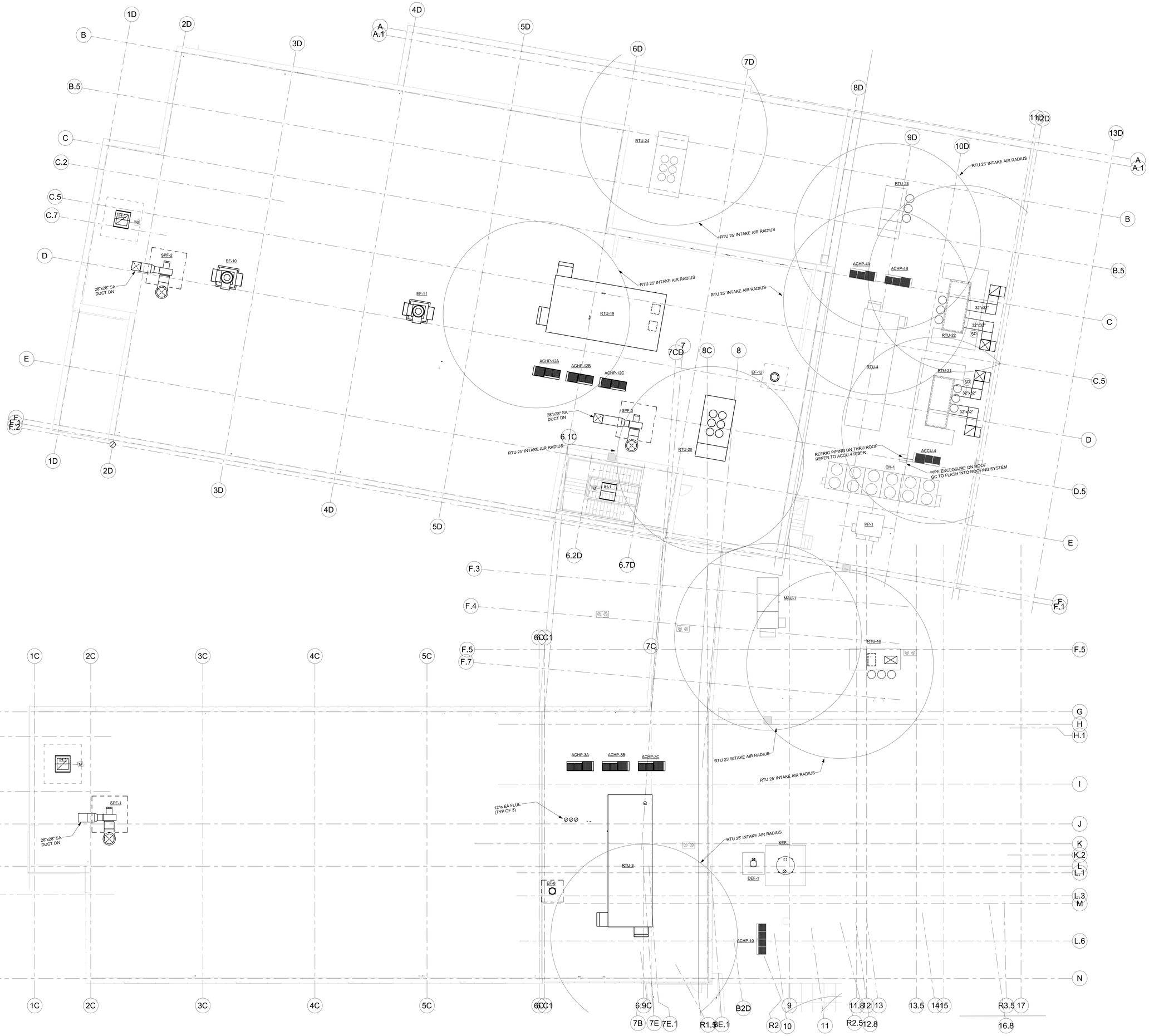
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No.	Description	Date

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JOB NO:	#1904
SCALE:	1/8" = 1'-0"
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DRAWING TITLE

Roof HVAC Plan Section CD

Locus Map

True North

Key Plan

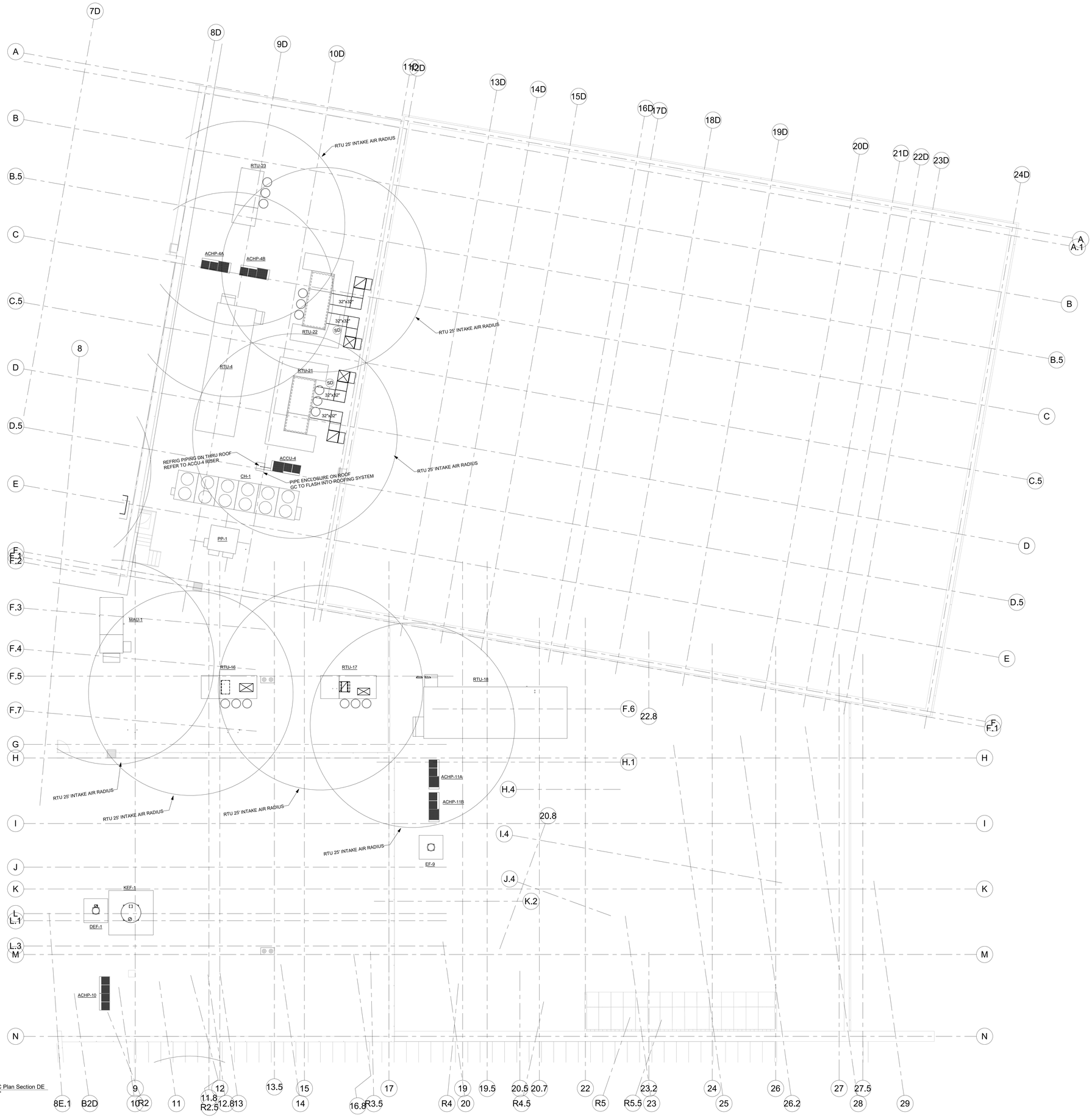
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JOB NO:	#1904
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DWN. BY:	FJG
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DRAWING TITLE

Roof HVAC Plan Section DE

Locus Map

True North

Key Plan

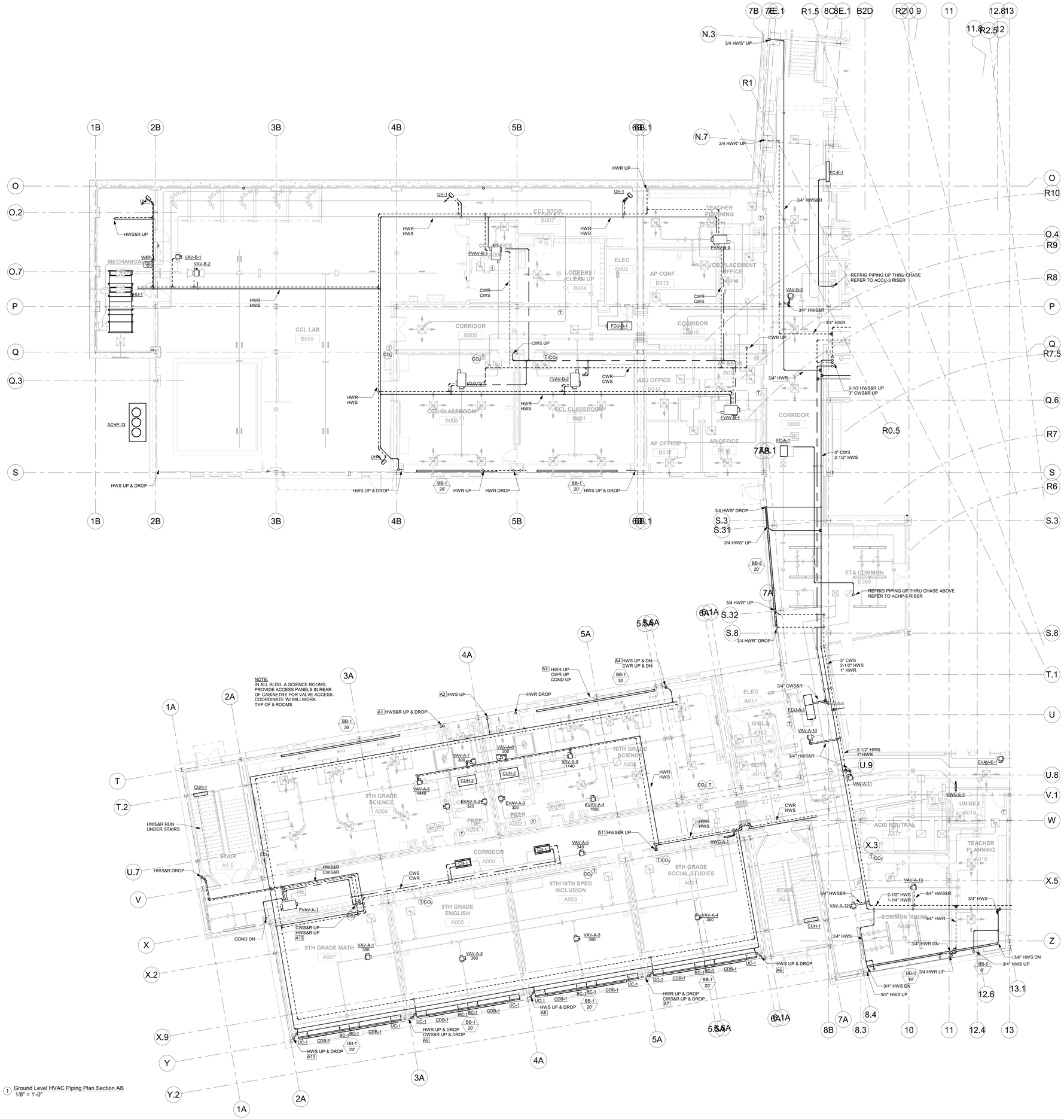
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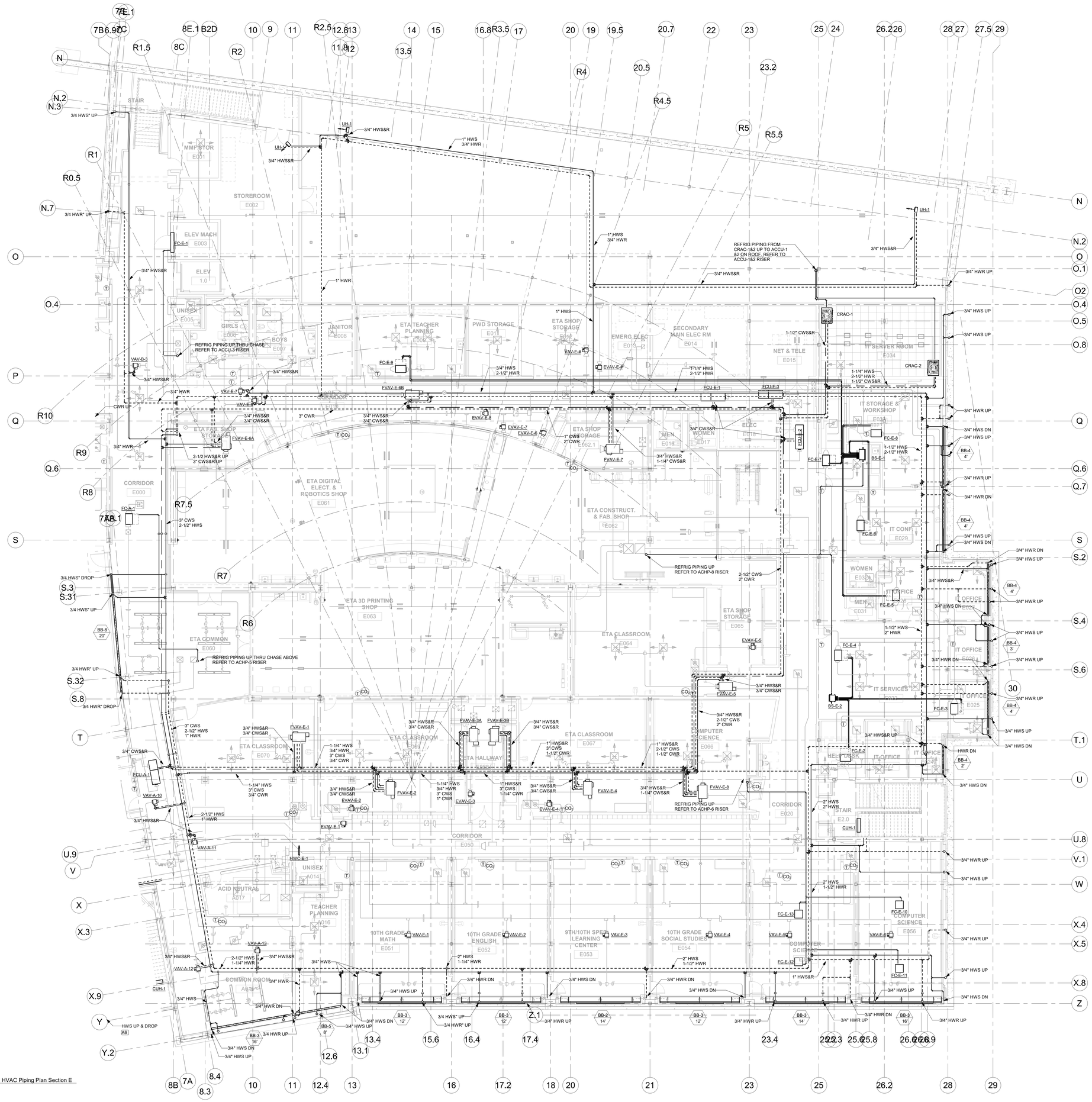
No.	Description	Date

FILE:	
JOB NO:	#1904
SCALE:	1/8" = 1'-0"
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IN ALL BLDG. A SCIENCE ROOMS,
PROVIDE ACCESS PANELS IN REAR
OF CABINETRY FOR VALVE ACCESS.
COORDINATE W/ MILLWORK.
TYP OF 5 ROOMS
CCL STOR B007
TEACHER PLANNING B015
CCL OFFICE B006
ELEC B002
LOCKERS / CLEAN UP B004
AP CONF B013
JOB PLACEMENT OFFICE B012
MECHANICAL
CCL LAB B005
CORRIDOR B000
CORRIDOR B010
ADJ OFFICE B014
CCL CLASSROOM B008
CCL CLASSROOM B001
AP OFFICE B018
AP OFFICE B016
CORRIDOR E000
ETA COMMON E060
9TH GRADE SCIENCE A004
PREP A002.1
PREP A004.1
10TH GRADE SCIENCE A008
ELEC A011
GIRLS A012
BOYS A013
UNISEX A014
ACID NEUTRAL A017
TEACHER PLANNING A016
CORRIDOR A000
9TH/10TH SPED INCLUSION A003
9TH GRADE SOCIAL STUDIES A001
STAIR A1.0
STAIR A2.0
9TH GRADE ENGLISH A005
9TH GRADE MATH A007
COMMON ROOM A015
HWR UP
HWR DROP
HWS UP & DROP
HWS UP
HWR UP
CWR UP
COND UP
HWS&R UP & DROP
HWS&R UP
HWS&R DROP
HWS&R RUN UNDER STAIRS
CWS UP
CWS&R UP HWS&R UP
CWS&R UP & DROP
HWR UP & DROP CWS&R UP & DROP
HWS UP & DROP
HWR UP & DROP
HWS UP & DROP
HWS UP & DROP
HWS UP & DROP
HWR UP & DROP
HWS UP & DROP
HWS UP & DROP
HWS



1 Ground Level HVAC Piping Plan Section E
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DRAWING TITLE

Ground Level HVAC Piping Plan Section E

Locus Map

True North

Key Plan

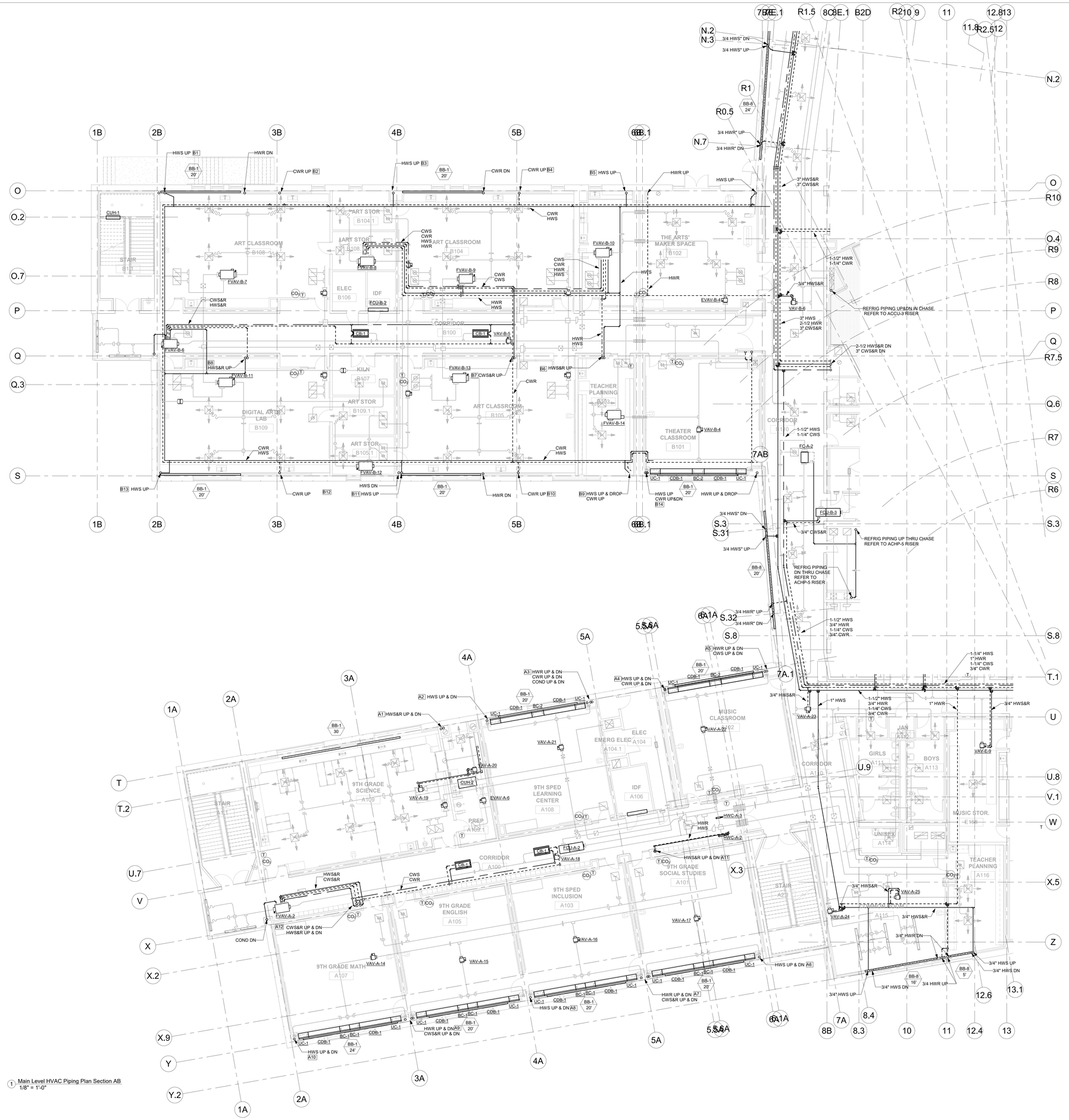
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No.	Description	Date

FILE:
JOB NO: #1904
SCALE: 1/8" = 1'-0"
DWN. BY: FJG
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1 Main Level HVAC Piping Plan Section AB
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DRAWING TITLE

Main Level HVAC Piping Plan Section AB

Locus Map

True North

Key Plan

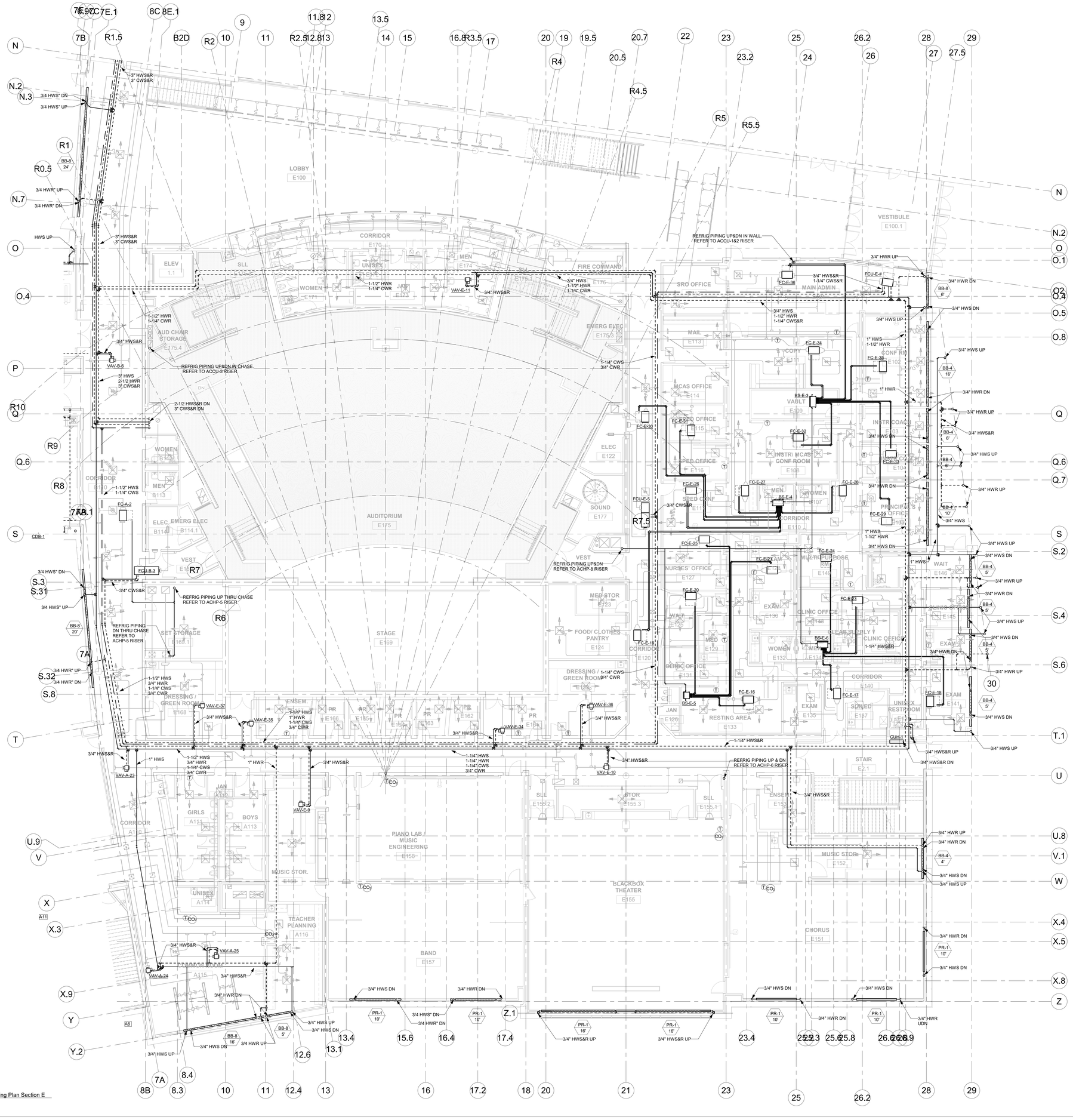
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No.	Description	Date

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JOB NO: #1904
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Doherty Memorial High School

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DRAWING TITLE

Main Level HVAC Piping Plan Section E

Locus Map

True North

Key Plan

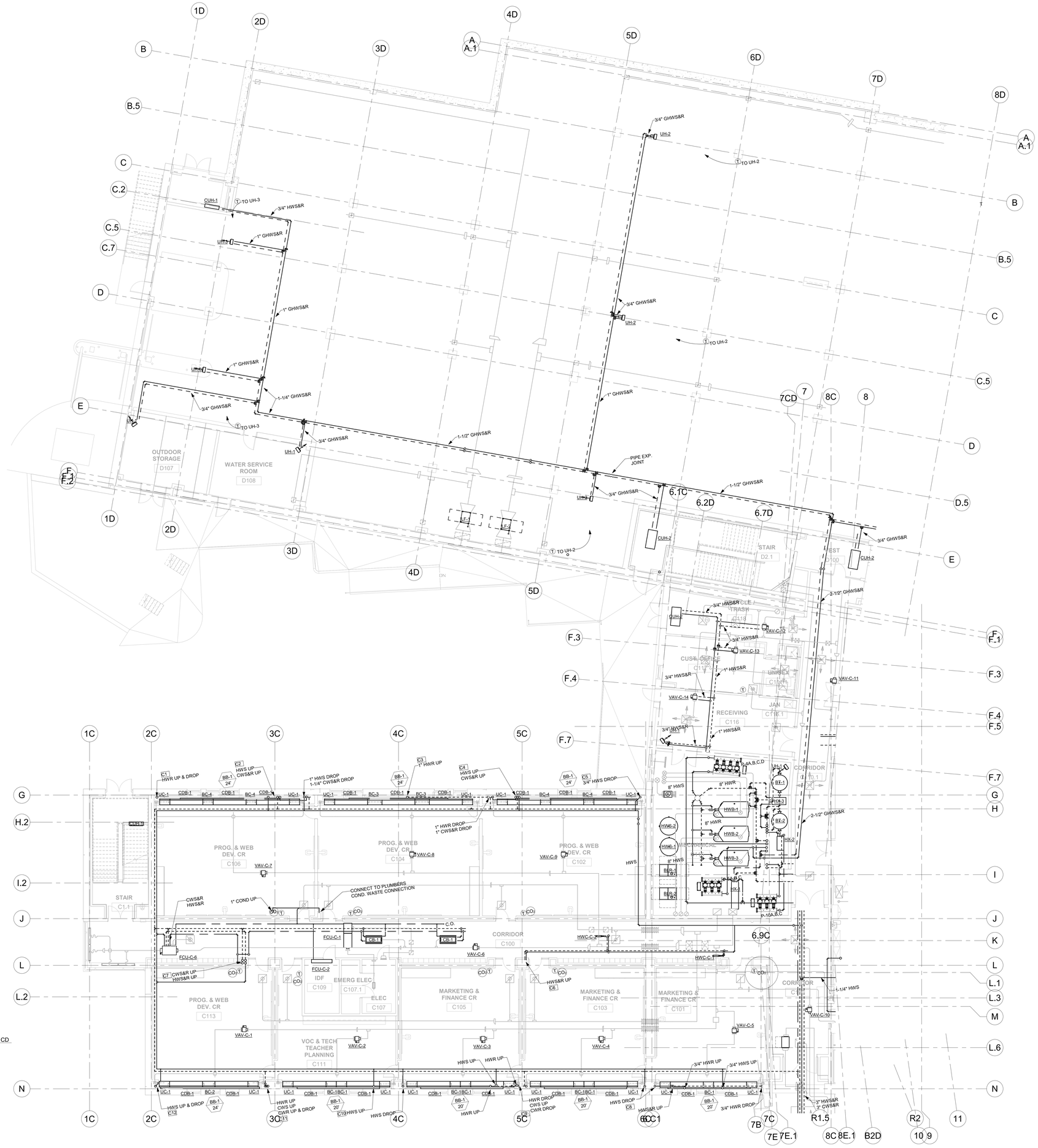
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No.	Description	Date

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OUTDOOR STORAGE D107
WATER SERVICE ROOM D108
STAIR C1.1
PROG. & WEB DEV. CR C106
PROG. & WEB DEV. CR C104
PROG. & WEB DEV. CR C102
PROG. & WEB DEV. CR C113
IDF C109
EMERG ELEC C107.1
ELEC C107
MARKETING & FINANCE CR C105
MARKETING & FINANCE CR C103
MARKETING & FINANCE CR C101
CORRIDOR C100
VOC & TECH TEACHER PLANNING C111
STAIR D2.1
RECEIVING C116
JAN C116.1
CUST. OFF. C117
UNISEX C118
TRASH C119
CORRIDOR C114
CORRIDOR C115
3/4" GHWS&R
1" GHWS&R
1-1/4" GHWS&R
1-1/2" GHWS&R
2-1/2" GHWS&R
3/4" HWS&R
1" HWS&R
3/4" HWR UP
3/4" HWS UP
1" HWR DROP 1" CWS&R DROP
1" HWS DROP 1-1/4" CWS&R DROP
3/4" HWS DROP
HWR UP CWS UP CWR UP & DROP
HWS UP CWS&R UP
HWR UP & DROP
HWS UP & DROP
HWR DROP CWS UP CWR DROP
HWS DROP
HWSR UP
3" HWS&R 3" CWS&R
1" COND UP
CONNECT TO PLUMBERS COND. WASTE CONNECTION
CWS&R HWS&R
CWS&R UP HWS&R UP
HWR UP
HWS UP
1-1/4" HWS
PIPE EXP. JOINT
C.O.
TO UH-1
TO UH-2
TO UH-3
UH-1
UH-2
UH-3
CUH-1
CUH-2
CUH-3
CUH-4
CUH-5
CUH-6
VAV-C-1
VAV-C-2
VAV-C-3
VAV-C-4
VAV-C-5
VAV-C-6
VAV-C-7
VAV-C-8
VAV-C-9
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VAV-C-13
VAV-C-14
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HWC-C-2
CB-1
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HWB-1
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HWB-3
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HWC-37
HWC-38
HWC-39
HWC-40



1 Main Level HVAC Piping Plan Section DE
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DRAWING TITLE

Main Level HVAC Piping Plan Section DE

Locus Map

True North

Key Plan

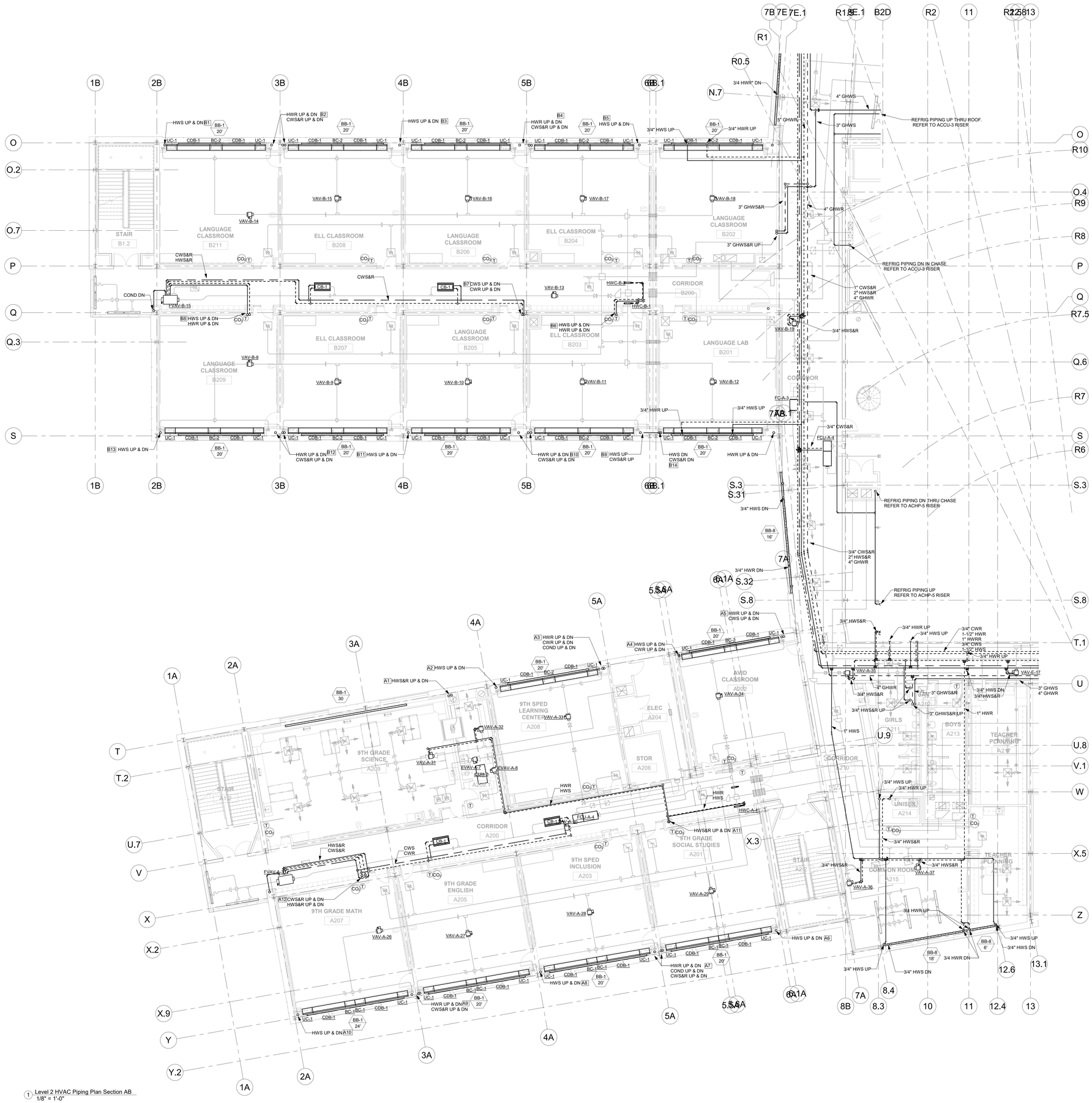
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DRAWING TITLE

Level 2 HVAC Piping Plan Section AB

Locus Map

True North

Key Plan

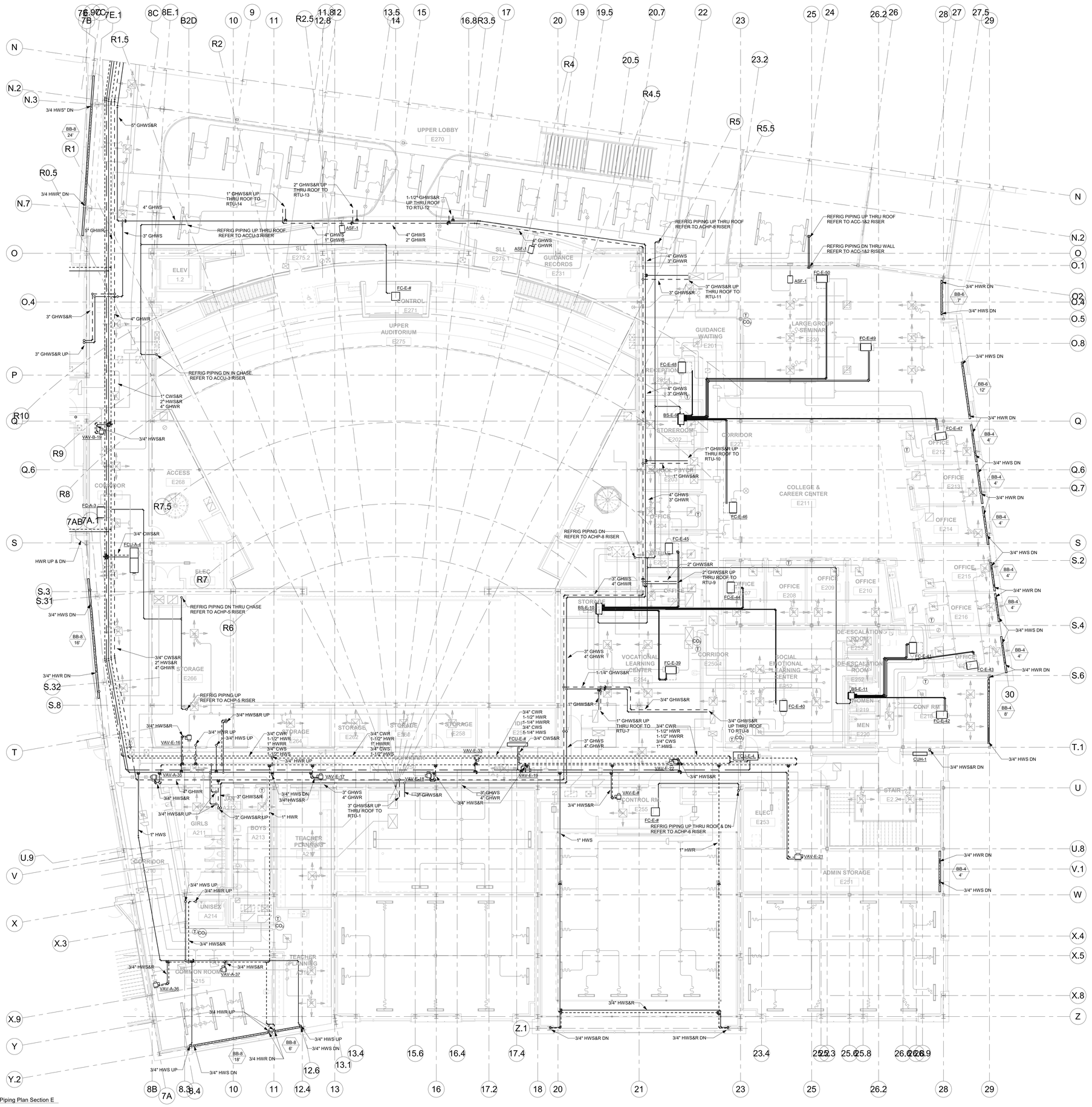
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DRAWING TITLE

Level 2 HVAC Piping Plan Section E

Locus Map

True North

Key Plan

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DRAWING TITLE

Level 2 HVAC Piping Plan Section CD

Locus Map

True North

Key Plan

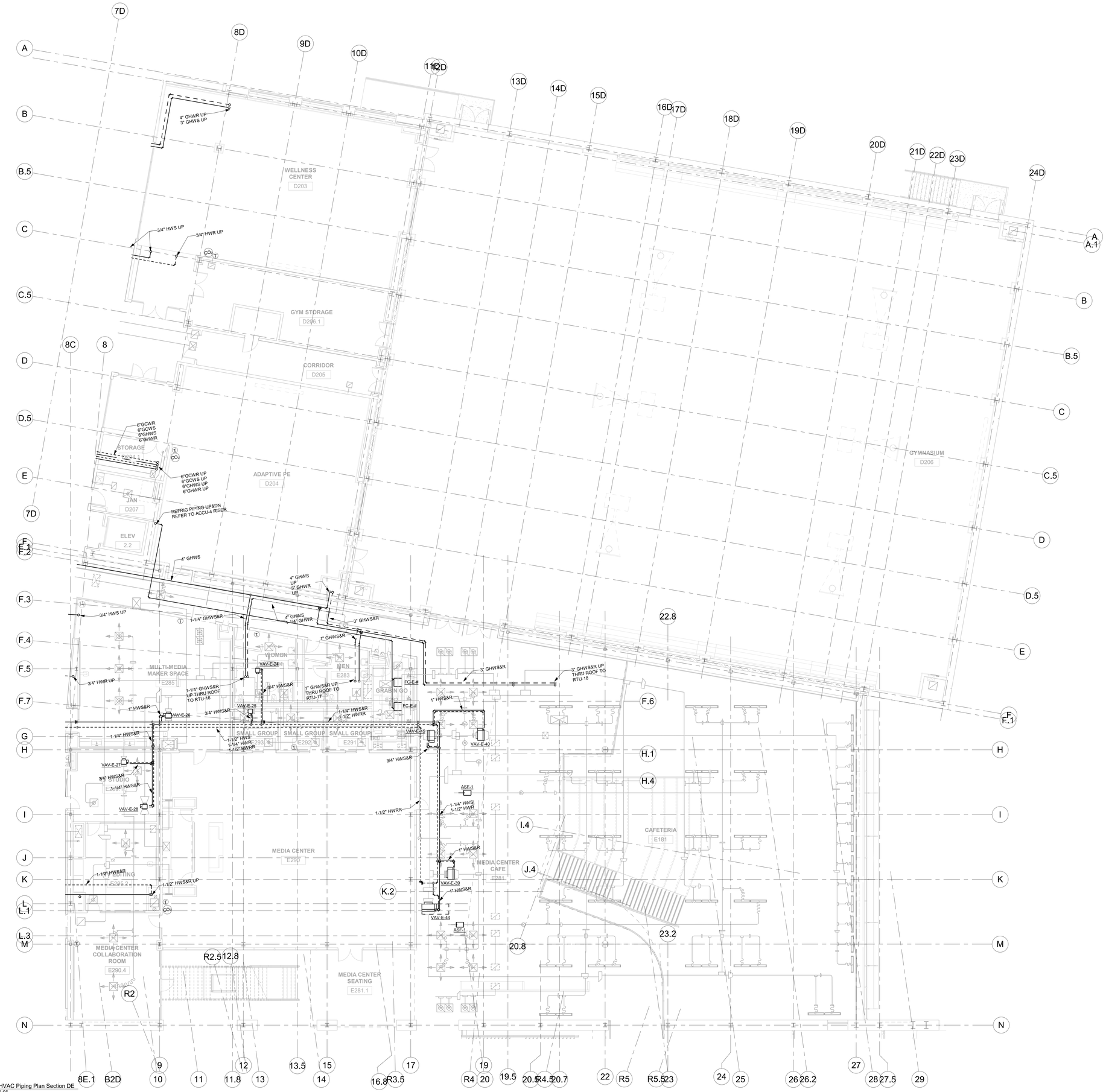
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Level 2 HVAC Piping Plan Section DE

Locus Map

True North

Key Plan

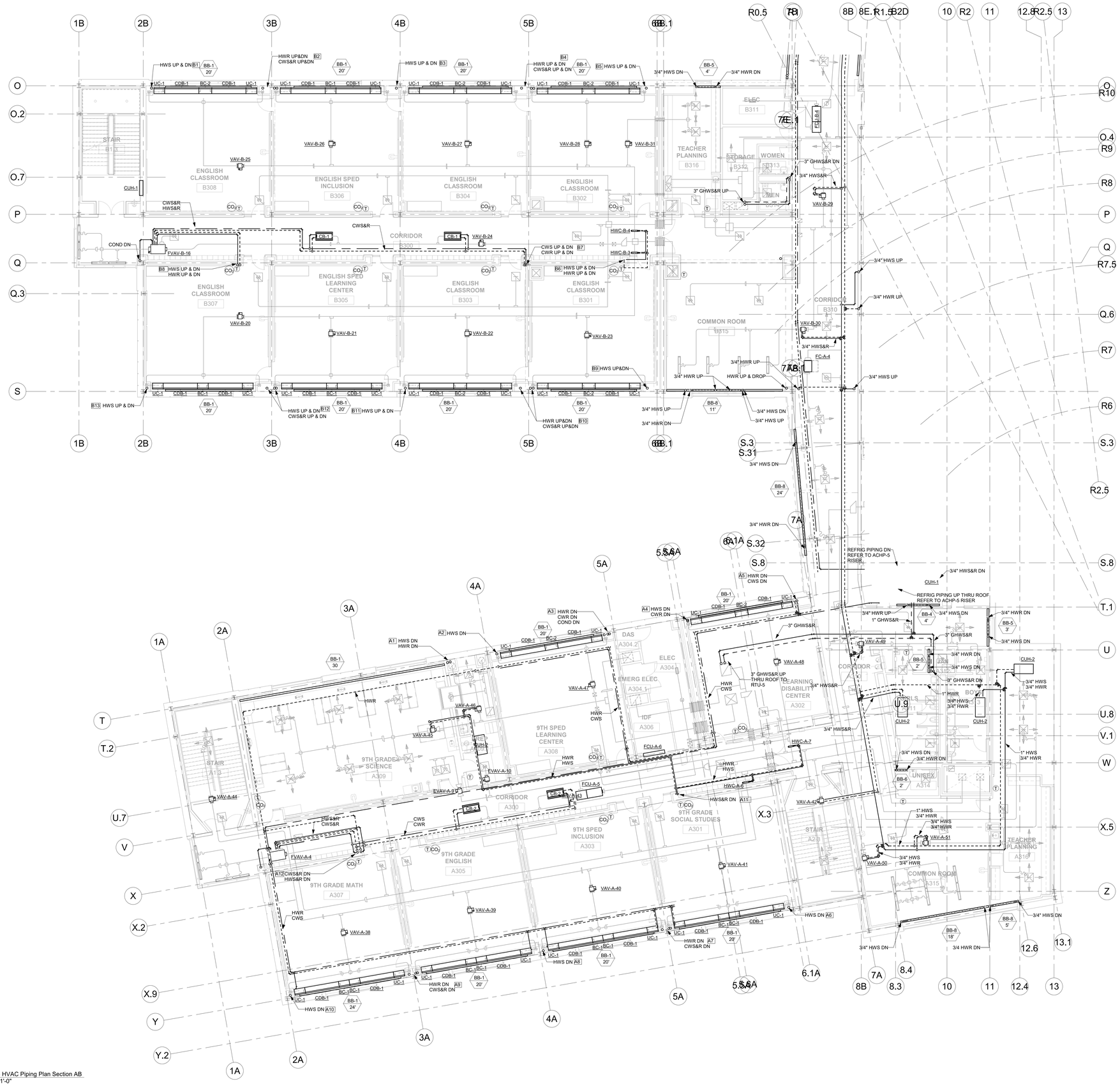
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Locus Map

True North

Key Plan

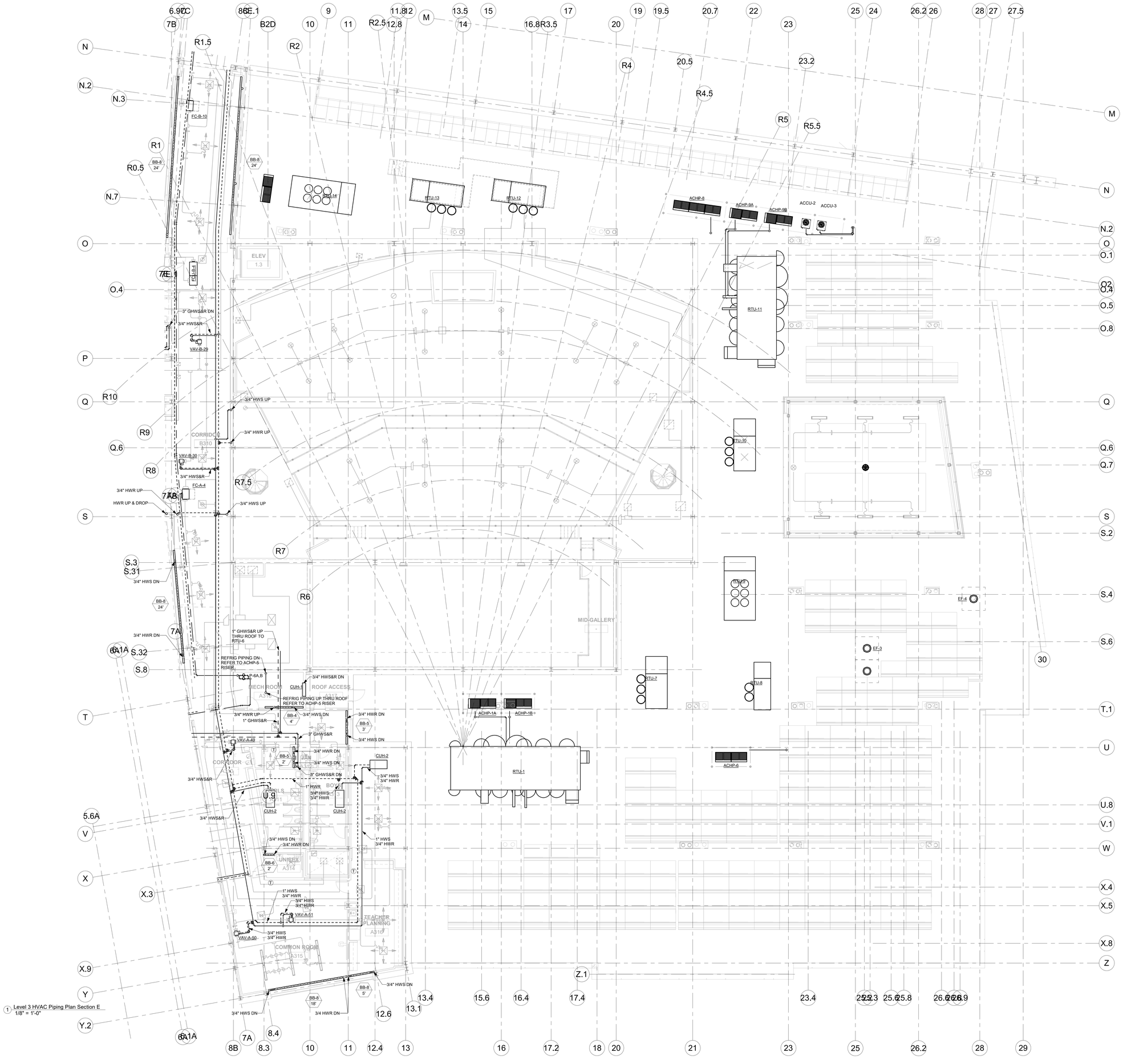
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DRAWING TITLE

Level 3 HVAC Piping Plan Section E

Locus Map

True North

Key Plan

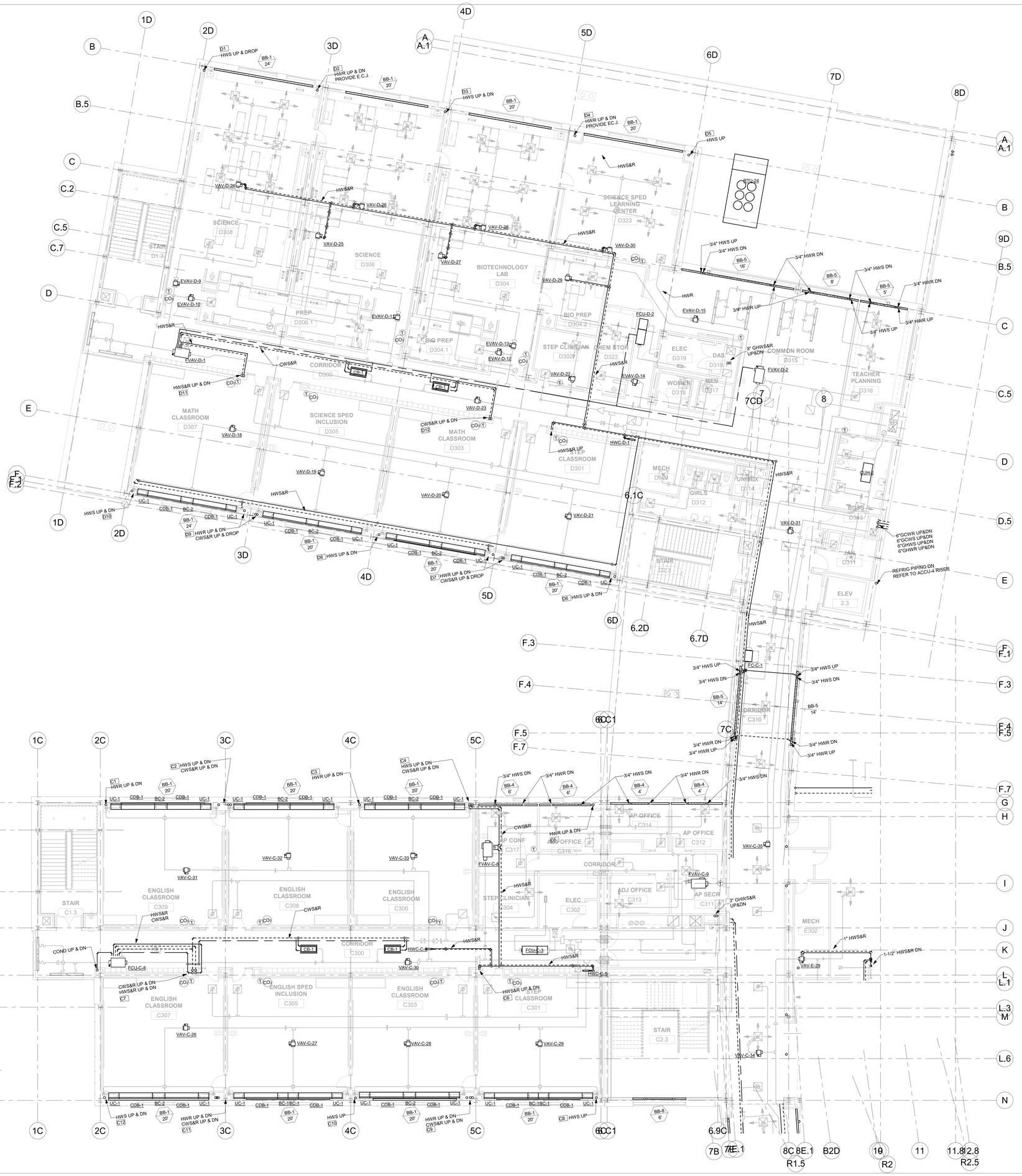
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Level 3 HVAC Piping Plan Section CD

Locus Map

True North

Key Plan

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Level 3 HVAC Piping Plan Section DE

Locus Map

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Key Plan

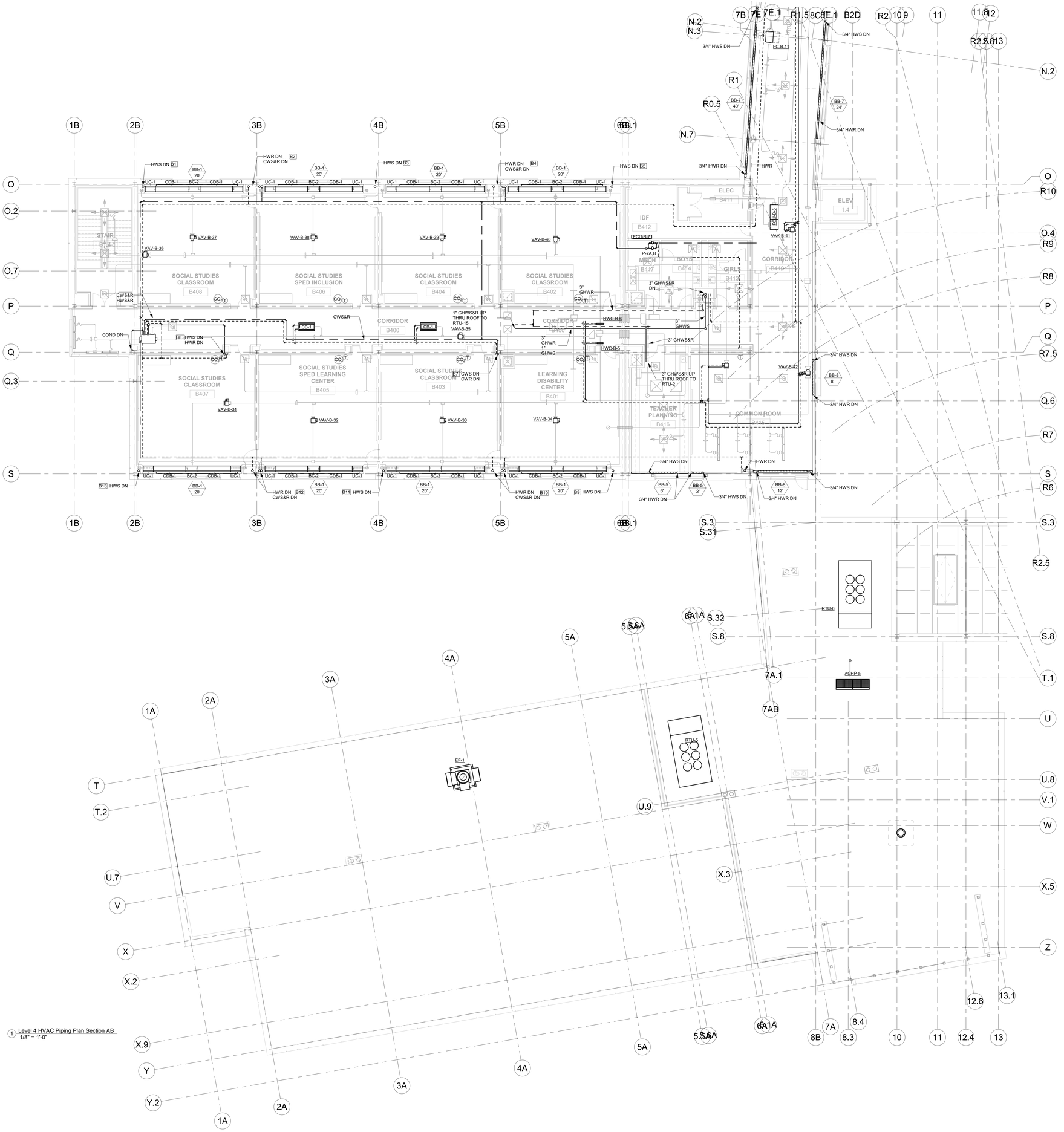
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Locus Map

True North

Key Plan

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Locus Map

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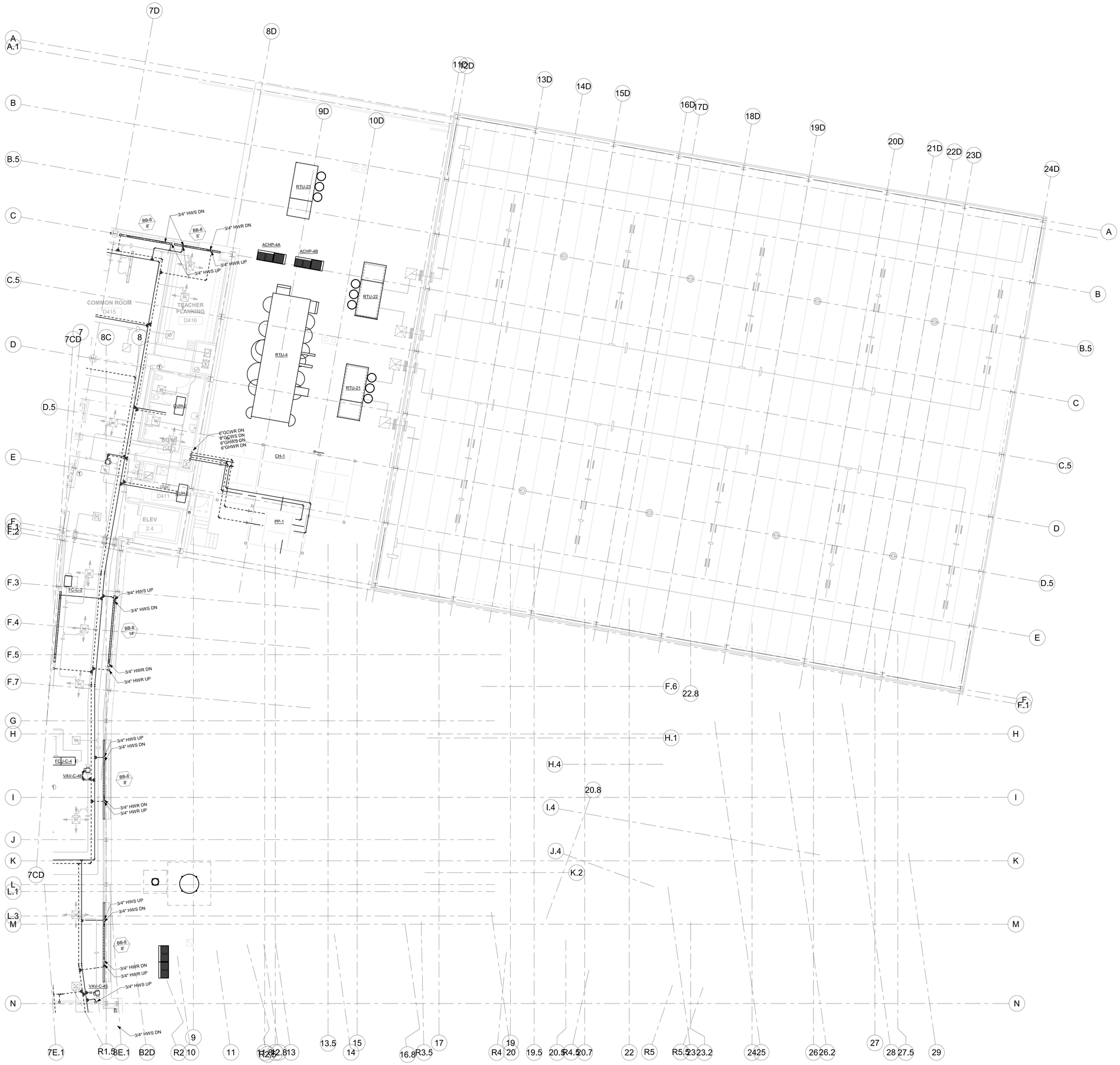
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Locus Map

True North

Key Plan

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1 Level 5 HVAC Piping Section CD
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Level 5 HVAC Piping Plan Section CD

Locus Map

True North

Key Plan

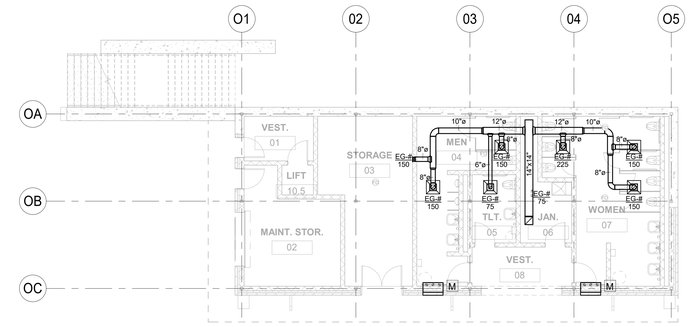
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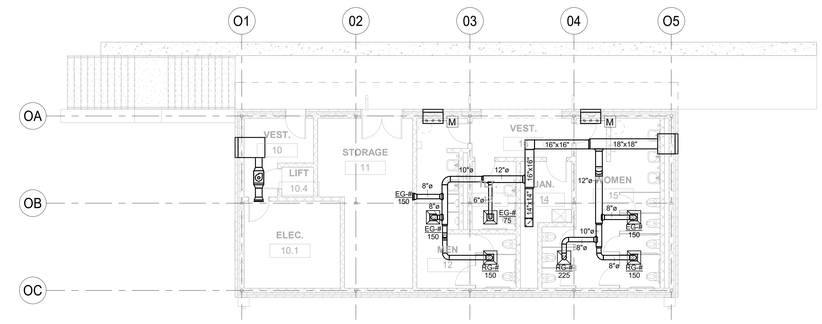
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1 First Floor HVAC Plan
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2 Second Floor HVAC Plan
1/8" = 1'-0"

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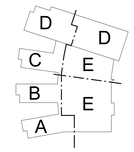
DRAWING TITLE

Field Building HVAC Plans

Locus Map

True North

Key Plan



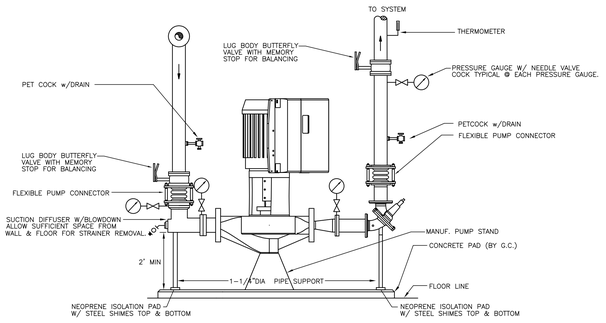
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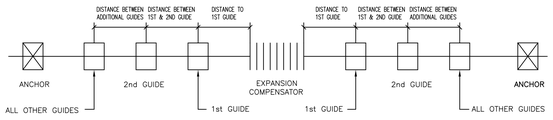
H3.22

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NOTE:
FOR SKID MOUNTED PUMPS REMOVE ISOLATION PADS AND ANCHOR PUMP SLED TO CONCRETE PAD.

TYPICAL VERTICAL IN-LINE PUMP DETAIL
NOT TO SCALE

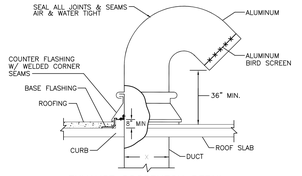


NOTE: 1) EXPANSION JOINT NEAR CENTER OF PIPING.
2) GUIDE SPACING SHALL BE SIMILIAR FOR EXPANSION LOOPS

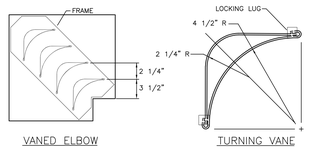
TYPICAL PIPE GUIDE INSTALLATION
NOT TO SCALE
TYPICAL

PIPE SIZE (D)	MAXIMUM DISTANCE FROM BELLOWS TO 1st GUIDE OR ANCHOR	APPROX. DISTANCE BETWEEN 1st TO 2nd GUIDE	APPROX. DISTANCE BETWEEN ADDITIONAL PIPE GUIDES (IN FEET)	
			STEEL PIPE	COPPER PIPE
3/4"	4"	1'-4"	21'	15'
1"	4"	1'-4"	21'	15'
1-1/4"	5"	1'-5"	23'	17'
1-1/2"	6"	1'-9"	28'	20'
2"	8"	2'-4"	32'	23'
2-1/2"	10"	2'-11"	35'	28'
3"	1'-0"	3'-6"	38'	
3-1/2"	1'-2"	4'-1"	45'	
4"	1'-4"	4'-8"	52'	
5"	1'-8"	5'-10"	63'	
6"	2'-0"	7'-0"	68'	
8"	2'-8"	9'-4"	87'	

PIPE GUIDE INSTALLATION DETAIL AND SPACING SCHEDULE
NOT TO SCALE
TYPICAL

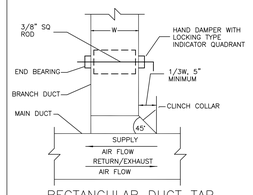


EXHAUST GOOSENECK DETAIL
NO SCALE
TYPICAL



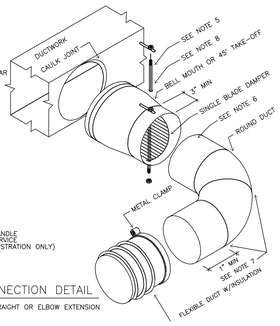
NOTES:
1. LOCKING LUGS INTEGRAL WITH VANE
2. MAXIMUM UNSUPPORTED VANE LENGTH 48"
3. FRAMES-BOLTED OR RIVETED TO ELBOW
4. VANES AND FRAMES-SAME GAUGE AS ELBOW

DOUBLE THICKNESS TURNING VANES FOR SQUARE ELBOW
NO SCALE
TYPICAL

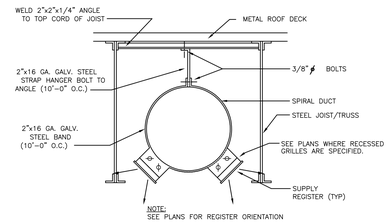


RECTANGULAR DUCT TAP WITH VOLUME DAMPER
NO SCALE TYPICAL

NOTES:
1 SUPPORT AS RECOMMENDED BY SMACNA
2 BAND FLEX TO COLLAR 1/2" MIN FROM OUTBOARD END OF COLLAR
3 INSTALL DAMPER IN OPEN POSITION. FINAL ADJUSTMENT BY TAB CONTRACTOR
4 PROVIDE INSULATION OVER ROUND DUCT ELL TO EDGE OF RECTANGULAR DUCTWORK; SEAL VAPOR BARRIER WITH GREY TAPE TO PREVENT MOISTURE MIGRATION
5 PROVIDE EXTENSION RODS TO ACCOMMODATE INSULATION, PULL TO EDGE OF DUCTWORK AS REQD AND SEAL TO EFFECT VAPOR BARRIER
6 SHEET METAL SCREWS, MIN 3 EA AT 120° INTERVALS, CONNECTING 90 ELL TO TAKE-OFF. ENSURE THAT SCREWS DO NOT INTERFERE W/DAMPER
7 SEAL JOINTS TO PREVENT LEAKAGE
8 INSTALL LOCKING QUADRANT AND HANDLE ON BOTTOM OF DUCT FOR EASY SERVICE (SHOWN ON TOP FOR EASE OF ILLUSTRATION ONLY)

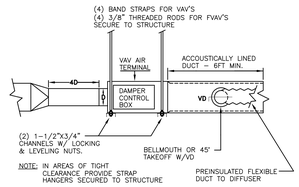


FLEXIBLE DUCT CONNECTION DETAIL
NO SCALE TYP. FOR BOTH STRAIGHT OR ELBOW EXTENSION

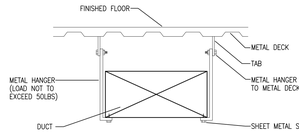


NOTE:
SEE PLANS FOR REGISTER ORIENTATION

TYPICAL EXPOSED SPIRAL DUCT SUPPORT DETAIL
NO SCALE
TYPICAL

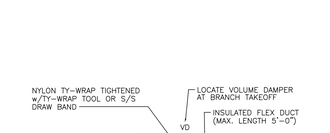


VAV TERMINAL INSTALLATION DETAIL
NOT TO SCALE
TYPICAL

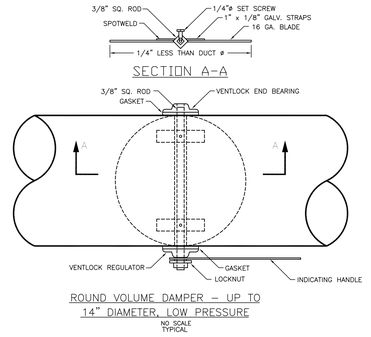


NOTES:
1. DUCTS SHALL NOT BE HUNG FROM OR SUPPORTED BY HUNG CEILING
2. FOR DUCTS NOT EXCEEDING 2 SQ.FT. IN CROSS-SECTIONAL AREA, HANGERS SHALL BE OF METAL NOT LESS THAN 1" BY 1/16"
3. FOR DUCTS LARGER THAN 2 SQ.FT. IN CROSS-SECTIONAL AREA, HANGERS SHALL BE OF METAL NOT LESS THAN 1/8"
4. FOR ALL DUCTS, HANGERS SHALL BE TURNED UNDER AND FASTENED TO THE BOTTOM OF DUCT AS SHOWN ABOVE
5. WHERE CROSS-SECTIONAL AREA OF DUCT EXCEEDS 8 SQ.FT., HANGERS SHALL BE SPACED NOT MORE THAN 4 FT. ON CENTERS
6. NO DUCTWORK SHALL BE HUNG FROM ROOF DECK; TOP LEVEL DUCTS SHALL BE SUPPORTED FROM STEEL BEAMS OR SUPPLEMENTAL STEEL BETWEEN STEEL BEAMS

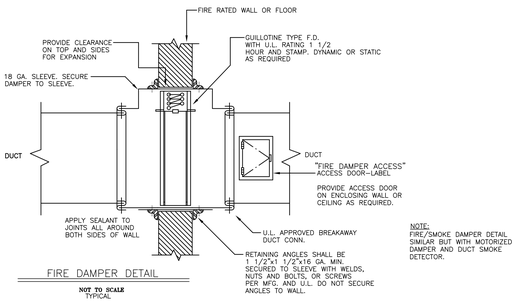
DUCT SUPPORT FROM METAL DECK
NO SCALE



LINEAR DIFFUSER CONNECTION
NO SCALE
TYPICAL

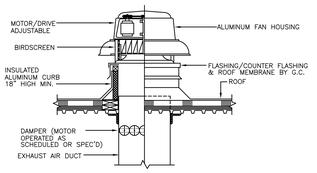


ROUND VOLUME DAMPER - UP TO 14" DIAMETER, LOW PRESSURE
NO SCALE
TYPICAL

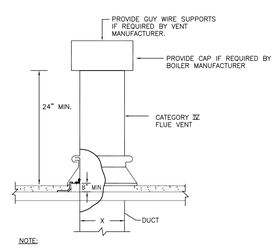


NOTE:
FIRE/SMOKE DAMPER DETAIL SIMILAR BUT WITH MOTORIZED DAMPER AND DUCT SMOKE DETECTOR.

FIRE DAMPER DETAIL
NOT TO SCALE
TYPICAL

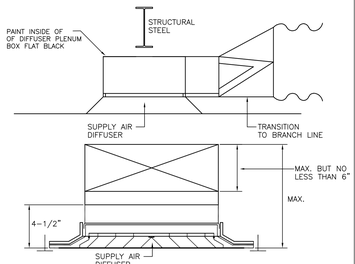


TYPICAL ROOF EXHAUST FAN DETAIL
NOT TO SCALE
TYPICAL

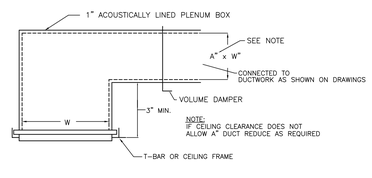


NOTE:
LOCATE FLUE TO TERMINATE 3 FEET ABOVE ANY OUTDOOR AIR INTAKE PROVIDE GUY WIRES AS REQUIRED TYPICAL OF (2)

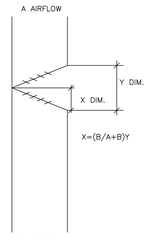
BOILER FLUE VENT DETAIL
NOT TO SCALE
TYPICAL OF (2)



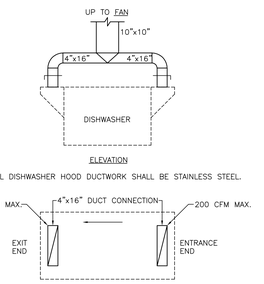
SUPPLY AIR DIFFUSER CONNECTION TYPICAL AT ALL OBSTRUCTIONS TO STRUCTURAL STEEL OR OTHER
NO SCALE TYPICAL



TYPICAL RETURN/EXHAUST GRILLE DETAIL
NOT TO SCALE

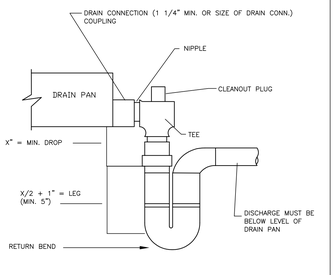


TYPICAL DUCTWORK SPLIT DETAIL
NOT TO SCALE



NOTE: ALL DISHWASHER HOOD DUCTWORK SHALL BE STAINLESS STEEL.

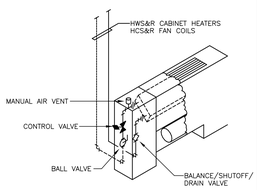
DISHWASHER HOOD DETAI TYPICAL
NOT TO SCALE



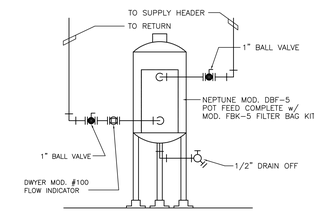
X = NEGATIVE INTERNAL STATIC PRESSURE AT FAN INLET

NOTES:
1. ALLOW SUFFICIENT SPACE BELOW DRAIN PAN FOR TRAP
2. PITCH DRAIN FOR PROPER RUN-OFF
3. MANUALLY PRIME FILL TRAP BEFORE START-UP TO FORM INITIAL DRAIN SEAL
4. SUPPORT LENGTHY DRAIN LINES TO PREVENT SAG AND CONDENSATE OVERFLOW

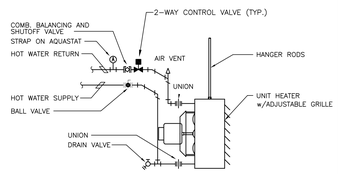
DRAIN PAN WATER SEAL PIPING - DETAIL - TYPICAL
NOT TO SCALE



TYPICAL CABINET HEATER
NOT TO SCALE



HEATING SYSTEM CHEMICAL FEED DETAIL
NO SCALE



TYPICAL HOT WATER UNIT HEATER DETAIL
NO SCALE

PREFERRED TAKE-OFF FITTING: BELLMOUTH FITTING MODEL BMD
ALTERNATE * TAKE-OFF FITTING: BELLMOUTH MODEL BMD WITH END FLAPS BENT OVER
ALTERNATE * TAKE-OFF FITTING: MINI-BELLMOUTH CONNECTION MODEL MBMD
AIR FLOW
ALTERNATE * TAKE-OFF FITTING: STANDARD 45° RECTANGULAR TO ROUND BOOT CONNECTION MODEL 3300D

VD
BRANCH

DUCT SIZE	HOLE SIZE	MINIMUM DUCT HEIGHT
5"	8"	9"
6"	9"	10"
7"	10"	11"
8"	11"	12"
9"	12"	13"
10"	13"	14"
12"	15"	16"
14"	17"	18"
16"	19"	20"

DUCT SIZE	HOLE SIZE	MINIMUM DUCT HEIGHT
5"	–	–
6"	7"	9"
7"	–	–
8"	9"	11"
9"	–	–
10"	11"	13"
12"	–	–
14"	–	–
16"	–	–

DUCT SIZE	HOLE SIZE	MINIMUM DUCT HEIGHT
5"	5"x10"	7"
6"	6"x12"	8"
7"	6"x12"	8"
8"	6.5"x12"	8.5"
9"	6.5"x14"	8.5"
10"	6.5"x16"	8.5"
12"	8.5"x18"	12"
14"	10"x20"	10.5"
16"	–	–

* ALTERNATE FITTINGS TO BE USED WHEN DUCT HEIGHT DOES NOT PERMIT THE USE OF THE FULL SIZE BELLMOUTH.

ALTERNATE ROUND BRANCH DUCT TAKE-OFF | NTS

DUCT SIZE	HOLE SIZE	MINIMUM DUCT HEIGHT
6x4	7.5x5.5	7.5
10x4	13.5x5.5	7.5
16x4	17.5x5.5	7.5
24x4	25.5x5.5	7.5
6x5	7.5x6.5	8.5
10x5	13.5x6.5	8.5
16x5	17.5x6.5	8.5
24x5	25.5x6.5	8.5
6x6	7.5x7.5	9.5
10x6	13.5x7.5	9.5
16x6	17.5x7.5	9.5
24x6	25.5x7.5	9.5
8x8	9.5x9.5	11.5
16x8	17.5x9.5	11.5
24x8	25.5x9.5	11.5
10x10	13.5x11.5	13.5
16x10	17.5x11.5	13.5
24x10	25.5x11.5	13.5

NOTES:
ALL ROUND AND RECTANGULAR BELLMOUTH FITTINGS SHALL BE INCLUDED WITH THE FOLLOWING STANDARD FEATURES:
1. NEOPRENE GASKET TO MINIMIZE AIR LEAKAGE.
2. PRE-DRILLED HOLES FOR QUICK MOUNTING.
3. CONSTRUCTED OF HEAVY DUTY GALVANIZED STEEL.

OPTIONAL FEATURES SHALL INCLUDE THE FOLLOWING:
1. 26 GUAGE GALVANIZED QUANDRANT VOLUME DAMPER WITH TIGHT FITTING GASKETING TO MINIMIZE LEAKAGE AT DAMPER PIVOT POINTS.
2. HEAVY DUTY HARDWARE IS AVAILABLE FOR APPLICATIONS WITH INCREASED STATIC PRESSURE.

PREFERRED TAKE-OFF FITTING: RECTANGULAR BELLMOUTH FITTING MODEL RBMD
AIR FLOW
ALTERNATE TAKE-OFF FITTING: ALTERNATE 45° RECTANGULAR TAKE-OFF
VD
BRANCH

ALTERNATE RECTANGULAR BRANCH DUCT TAKE-OFF | NTS

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Millbury, MA 01527 fx:508-865-1401

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PROJECT

100% Construction Documents
Final Bid Package #4

Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

DRAWING TITLE

HVAC Details

Locus Map

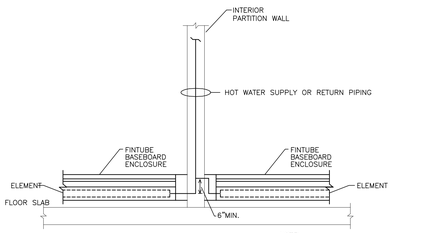
True North

Key Plan

FILE:	
JOB NO:	#1904
SCALE:	NO SCALE
DWN. BY:	FJG
CKD. BY:	KRS
DATE:	JANUARY 20, 2022

H5.1

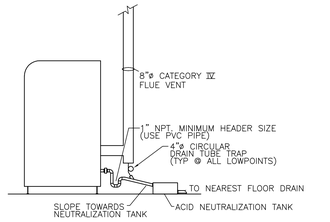
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NOTE:
1. PROVIDE AT EVERY LOCATION WHERE RADIATION IS FED OR RETURNED FROM A COMMON RISER.
2. VALVING NOT SHOWN FOR CLARITY.

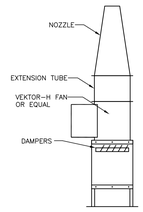
FIN-TUBE EXPANSION CONTROL DETAIL-TYPICAL

NOT TO SCALE



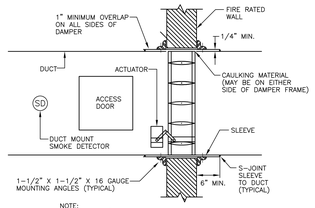
BOILER & FLUE CONDENSATE DETAIL

NOT TO SCALE



EF-1,10&11 ROOF MOUNTED HOOD EXHAUST FAN DETAIL

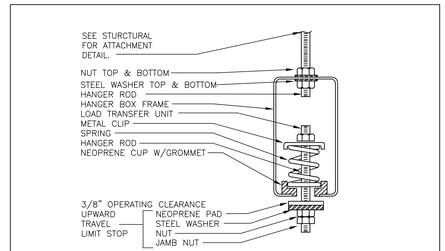
NO SCALE



NOTE:
PROVIDE FIRE/SMOKE DAMPER THAT MEETS THE REQUIREMENTS ESTABLISHED BY UL STANDARDS 555 AND 555S. DAMPER DETAIL BASED ON RUSKIN #FSD-36 WITH UL555 LISTING AND UL555S LISTING.

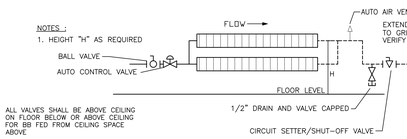
TYPICAL FIRE/SMOKE DAMPER DETAIL

NOT TO SCALE



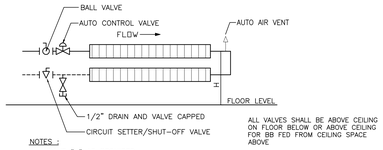
NOTES:
1. ADJUST VERTICAL TRAVEL LIMIT STOP AFTER SYSTEM IS OPERATIONAL.
2. UPWARD TRAVEL LIMIT STOP MUST NOT SHORT CIRCUIT ISOLATOR OR REDUCE ISOLATION PERFORMANCE.
3. REFER TO SPECIFICATIONS FOR SEISMIC REQUIREMENTS.

VIBRATION ISOLATOR DETAIL | NTS



HOT WATER 2 TIER FINNED-TUBE RADIATION DETAIL - WHERE SUPPLY AND RETURN ON OPPOSITE END.

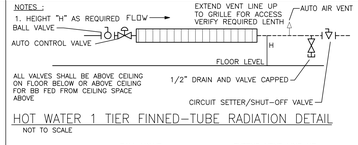
NOT TO SCALE



NOTES :
1. HEIGHT "H" AS REQUIRED

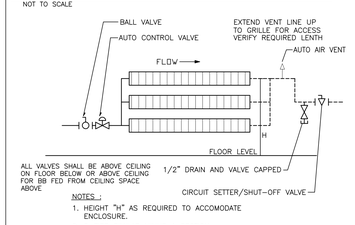
HOT WATER 2 TIER FINNED-TUBE RADIATION DETAIL - WHERE SUPPLY AND RETURN ON SAME END.

NOT TO SCALE



HOT WATER 1 TIER FINNED-TUBE RADIATION DETAIL

NOT TO SCALE

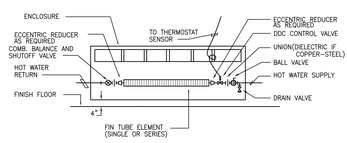


NOTES :
1. HEIGHT "H" AS REQUIRED TO ACCOMODATE ENCLOSURE.
2. 2-TIER SIMILAR MINUS 1 SECTION.

HOT WATER MULTI TIER FINNED-TUBE RADIATION DETAIL - WHERE SUPPLY AND RETURN ON OPPOSITE END.-TYPICAL

NOT TO SCALE

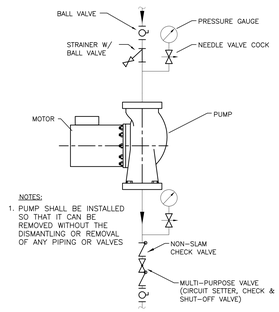
NOTE: ALL BASEBOARD LOCATED WITHIN MILLWORK, ZONE & SHUTOFF VALVES SHALL BE LOCATED ABOVE ACCESSIBLE CLG.



TYPICAL HOT WATER RADIATION W/ COVER PIPING DETAIL - 1 TIER

NO SCALE

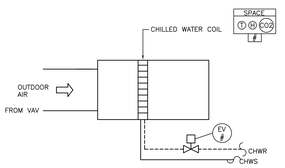
REFER TO BARE-ELEMENT PIPING DETAILS FOR MULTI-TIER SYSTEMS



NOTES:
1. PUMP SHALL BE INSTALLED SO THAT IT CAN BE REMOVED WITHOUT THE DISMANTLING OR REMOVAL OF ANY PIPING OR VALVES

TYPICAL IN-LINE PUMP DETAIL

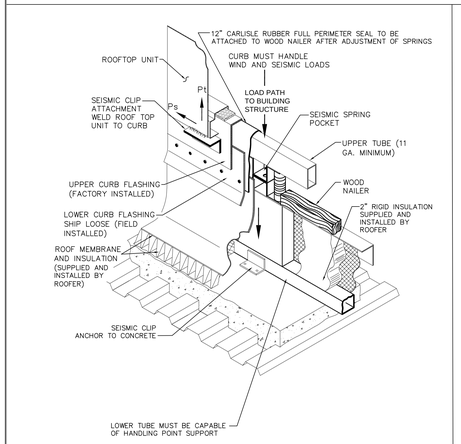
NO SCALE



NOTE:
SEE PLANS FOR LOCATIONS WHEN MULTIPLE CHILLED BEAMS ARE SERVED BY COMMON CONTROL VALVES.

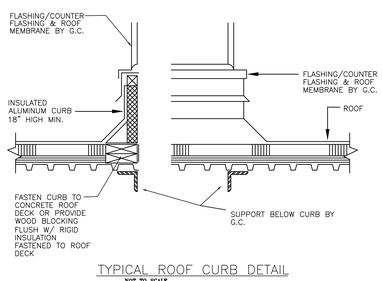
TYPICAL CHILLED BEAM CONTROL DIAGRAM

NO SCALE



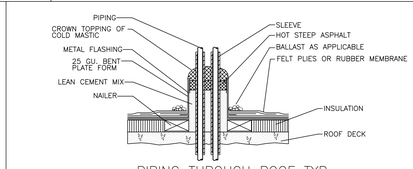
ATTACHMENT OF ISOLATED WIND AND SEISMIC ROOF CURB ON LEVEL CONCRETE ROOF

NO SCALE
TYPICAL FOR ALL RTU'S AND AHU'S



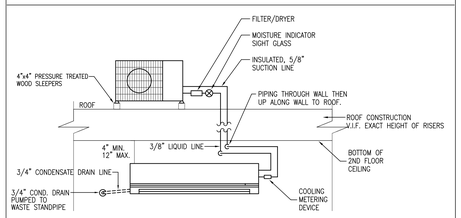
TYPICAL ROOF CURB DETAIL

NOT TO SCALE
TYPICAL



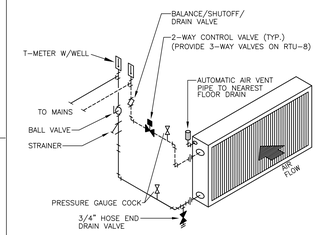
PIPING THROUGH ROOF TYP.

NO SCALE



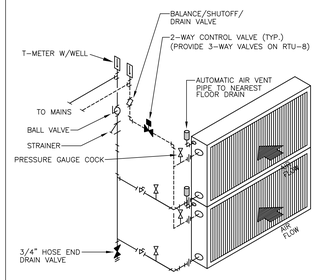
WALL HUNG DUCTLESS SPLIT SYSTEM PIPING DIAGRAM

NO SCALE



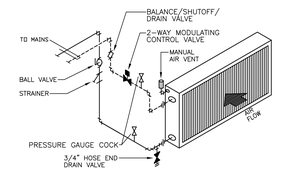
MAU & RTU HOT WATER COIL PIPING DETAIL - ONE HIGH

NOT TO SCALE



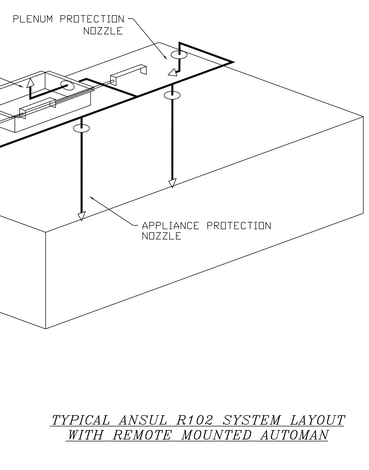
AHU, MAU & RTU HOT WATER COIL PIPING DETAIL - TWO HIGH

NOT TO SCALE

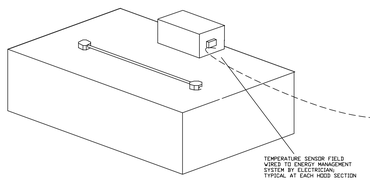


TYPICAL UH, CUH, VAV, FVAV, CB AND FCU'S HOT AND CHILLED WATER COIL PIPING DETAIL

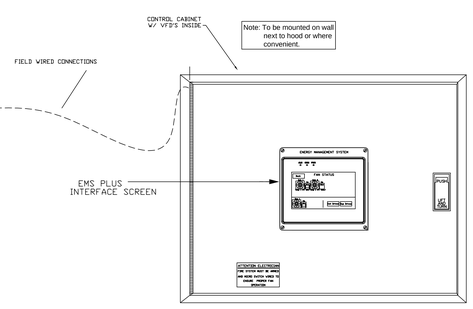
NOT TO SCALE



TYPICAL ANSUL R102 SYSTEM LAYOUT WITH REMOTE MOUNTED AUTOMAN

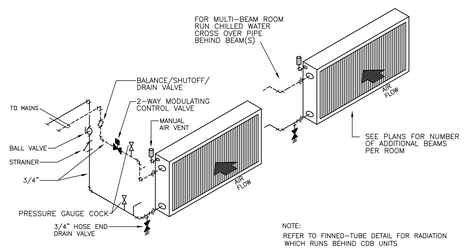


TYPICAL ENERGY MANAGEMENT SYSTEM



DETAIL OF REMOTE S/S BOX

PRE-WIRE PACKAGE



NOTE:
REFER TO FINNED-TUBE DETAIL FOR RADIATION WHICH RUNS BEHIND CDB UNITS

TYPICAL CDB CHILLED WATER COIL PIPING DETAIL

NOT TO SCALE

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Worcester MA 01602

PROJECT

100% Construction Documents
Final Bid Package #4

Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

DRAWING TITLE

HVAC Details

Locus Map

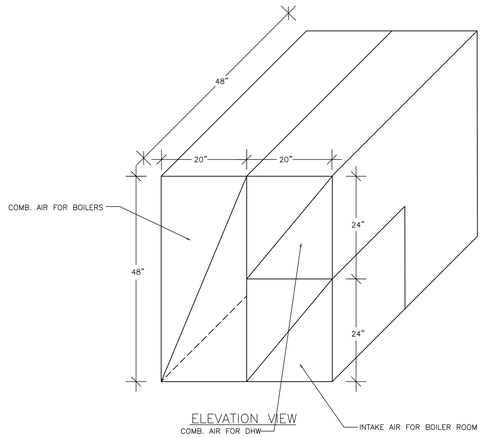
True North

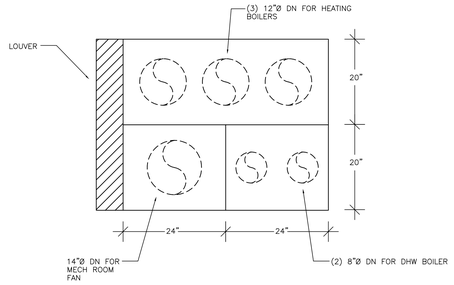
Key Plan

FILE:	
JOB NO:	#1904
SCALE:	NO SCALE
DWN. BY:	FJG
CKD. BY:	KRS
DATE:	JANUARY 20, 2022

H5.2

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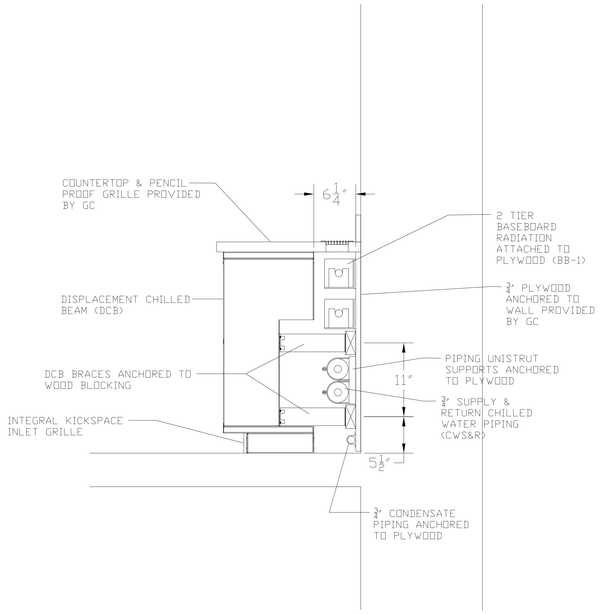




NOTE:
LOUVER LOCATED ON 2ND FLOOR BUILDING C

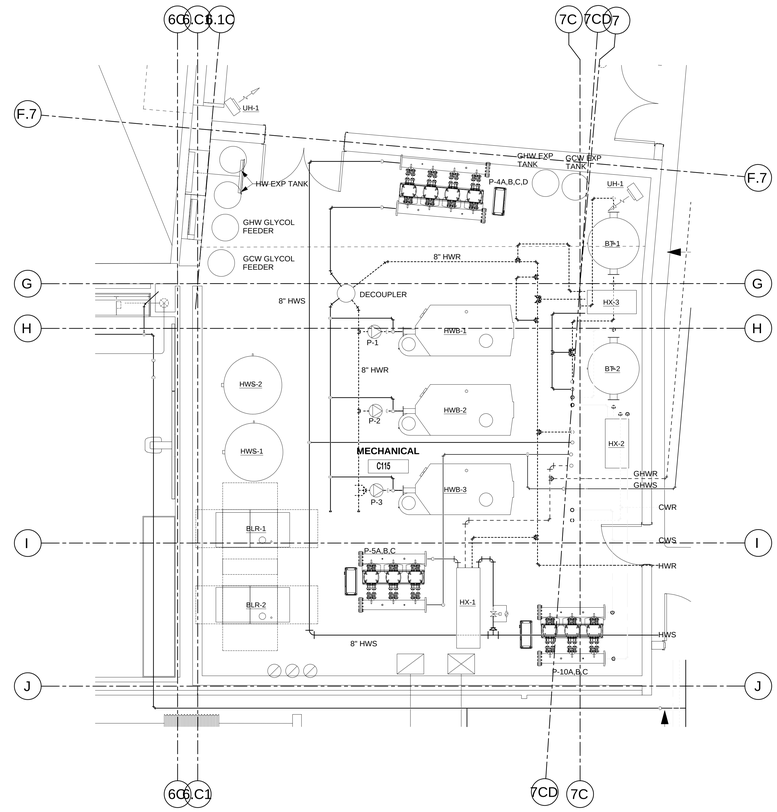
BOILER ROOM INTAKE LOUVER PLENUM DETAIL

NOT TO SCALE



CLASSROOM DISPLACEMENT CHILLED BEAM DETAIL

NOT TO SCALE



ENLARGED MECHANICAL ROOM PLAN

1/4"=1'-0"

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299 Highland Street, Worcester, MA 01602

DRAWING TITLE

HVAC Details & Enlarged Mechanical Room Plan

Locus Map

True North

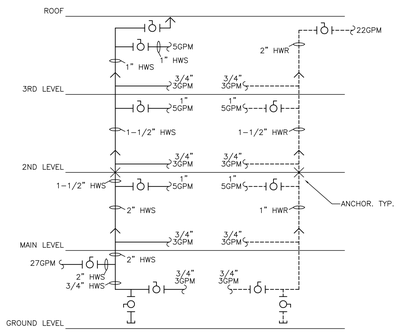
Key Plan

FILE:
JOB NO: #1904
SCALE: NO SCALE
DWN. BY: FJG
CKD. BY: KRS
DATE: JANUARY 20, 2022

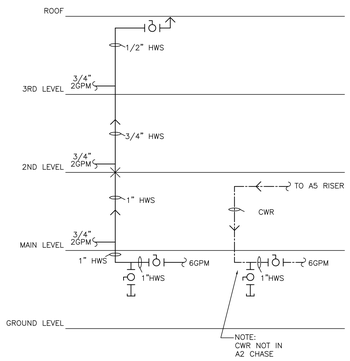
H5.3

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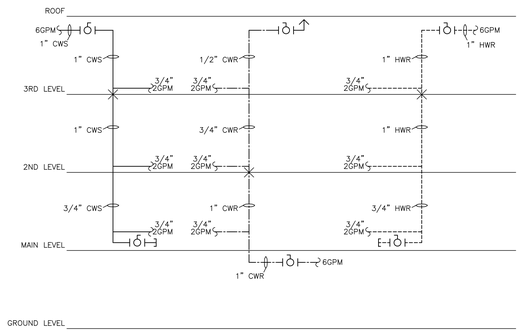
A1



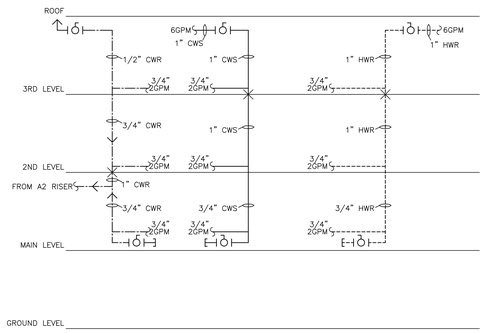
A2,A4



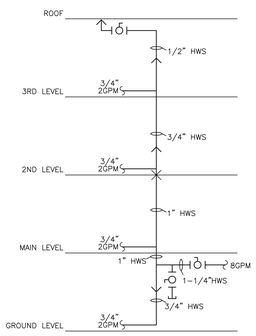
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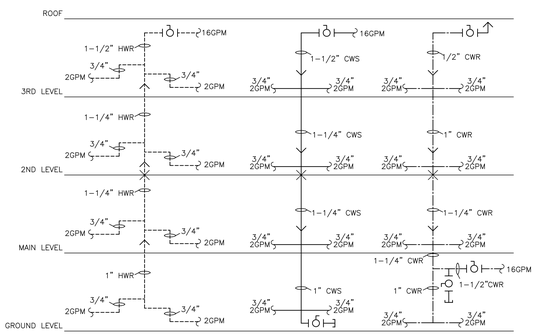
A5



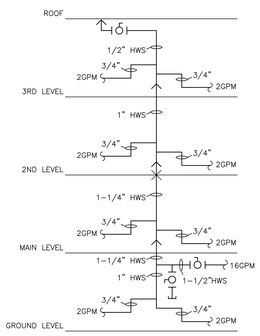
A6,A10



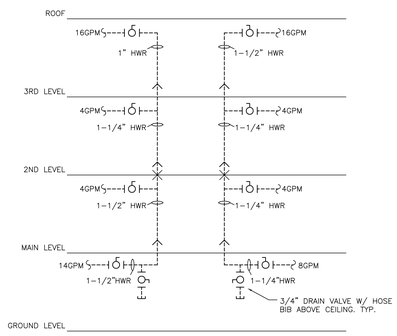
A7,A9



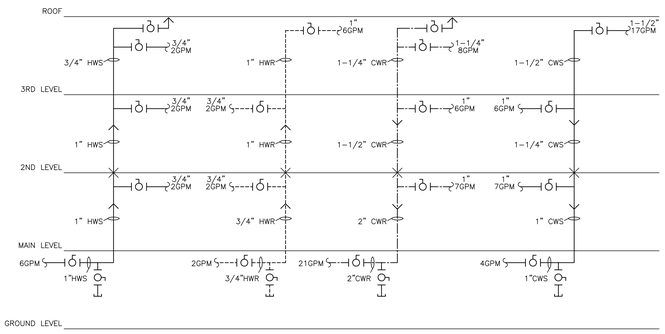
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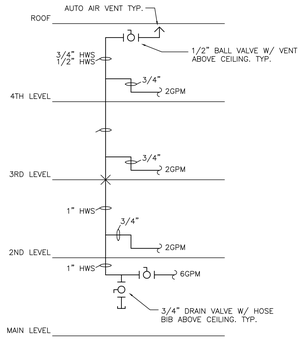
A11



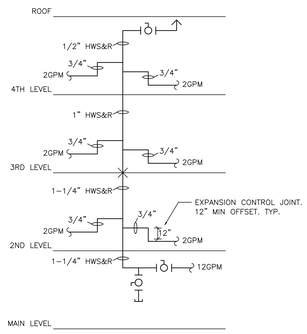
A12



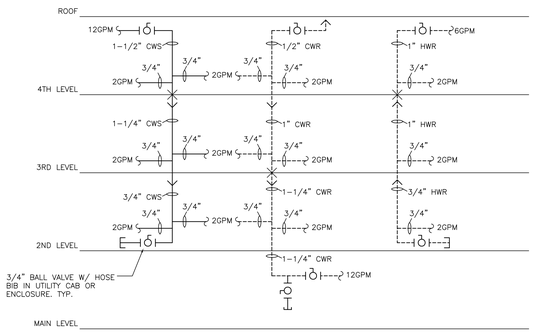
B1,B5,B9,B13



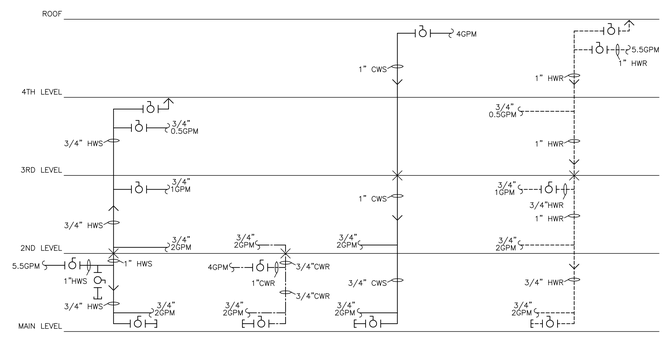
B3,B11



B2,B4,B10,B12



B14-14A



PIPING RISER DIAGRAMS - A & B BUILDINGS

NOT TO SCALE

RISER DIAGRAM NOTES:

1. PIPING SHOWN SHALL CONTINUE TO RUN OUT TO BRANCH MAIN, TERMINAL UNIT, OR RADIATION AS APPLICABLE.
2. REFER TO HVAC DETAILS FOR ADDITIONAL VALVING & ACCESSORIES.
3. ALL VALVING, VENTS, AND DRAINS SHALL BE LOCATED OUTSIDE OF RATED ENCLOSURES ACCESSIBLE ABOVE CEILING, IN UTILITY CABINETS, RADIATION ENCLOSURES, OR MILLWORK AS APPLICABLE.
4. GPM'S LISTED ARE APPROXIMATE. REFER TO SCHEDULES & CONNECTED LOAD FOR FINAL VALUES.

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Doherty Memorial
High School

299 Highland Street, Worcester, MA 01602

DRAWING TITLE

HVAC Piping
Riser Diagrams

Locus Map

True North

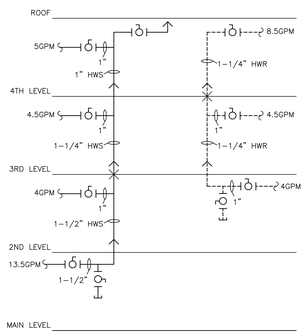
Key Plan

FILE:	
JOB NO:	#1904
SCALE:	NO SCALE
DWN. BY:	FJG
CKD. BY:	KRS
DATE:	JANUARY 20, 2022

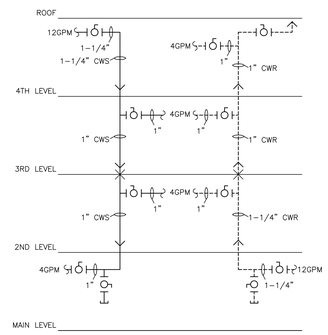
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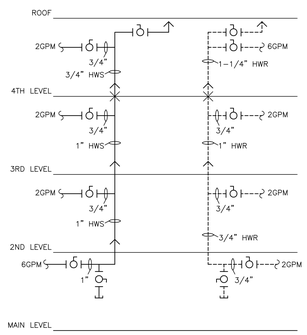
B6



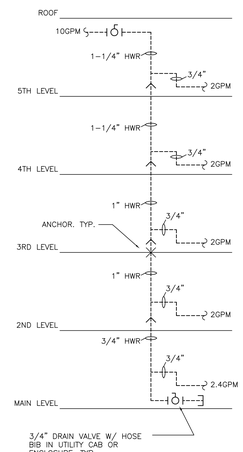
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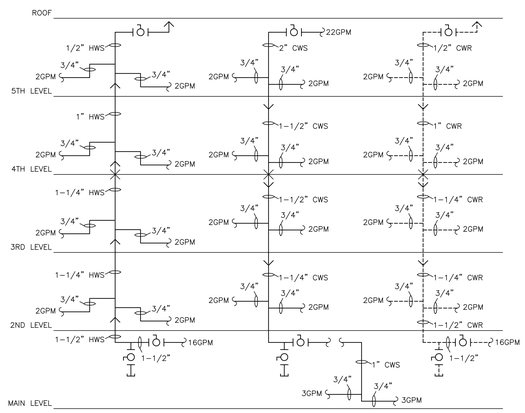
B8



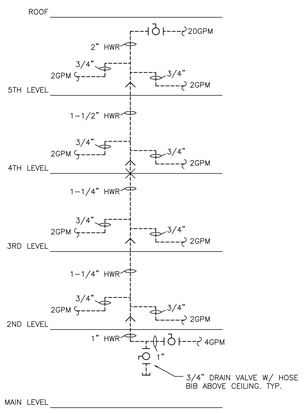
C1



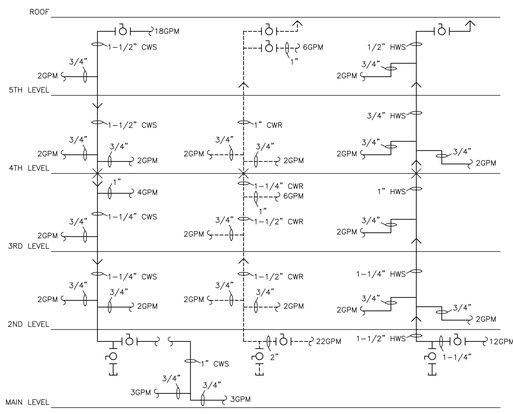
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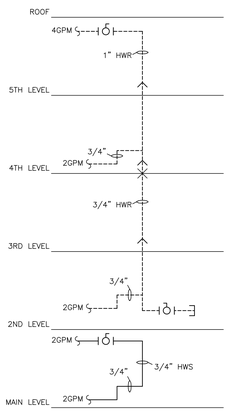
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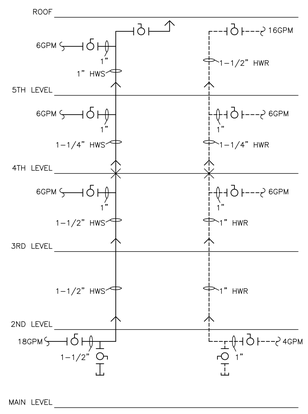
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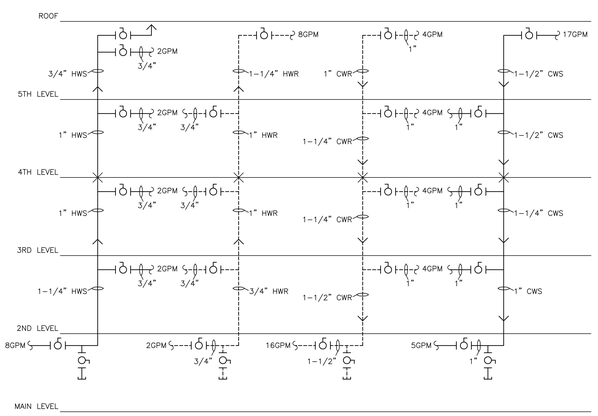
C5



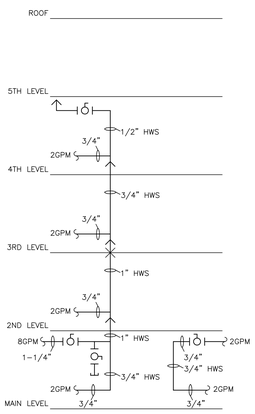
C6



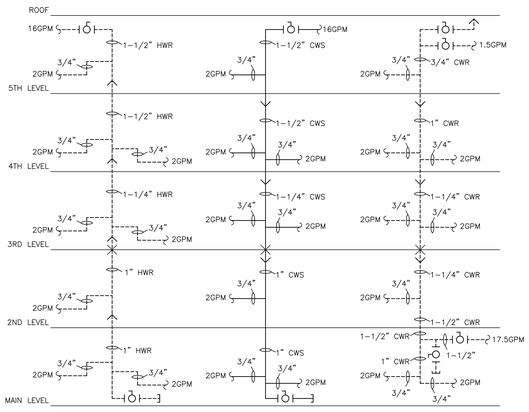
C7



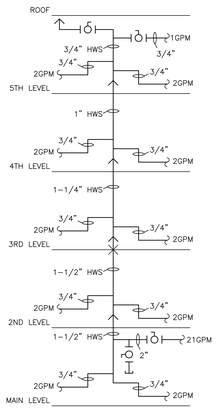
C8



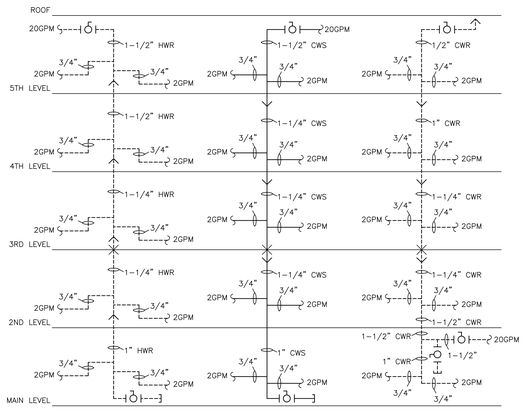
C9



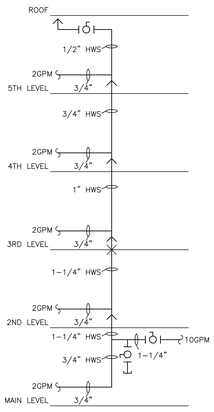
C10



C11



C12



PIPING RISER DIAGRAMS – B & C BUILDING

NOT TO SCALE

RISER DIAGRAM NOTES:

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3. ALL VALVING, VENTS, AND DRAINS SHALL BE LOCATED OUTSIDE OF RATED ENCLOSURES ACCESSIBLE ABOVE CEILING, IN UTILITY CABINETS, RADIATION ENCLOSURES, OR MILLWORK AS APPLICABLE.
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DRAWING TITLE

HVAC Piping Riser Diagrams

Locus Map

True North

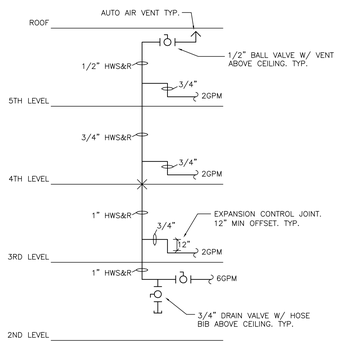
Key Plan

FILE:	
JOB NO:	#1904
SCALE:	NO SCALE
DWN. BY:	FJG
CKD. BY:	KRS
DATE:	JANUARY 20, 2022

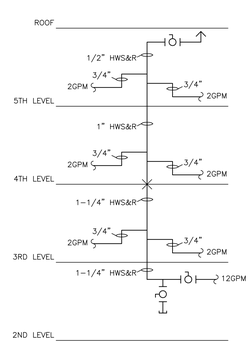
H5.5

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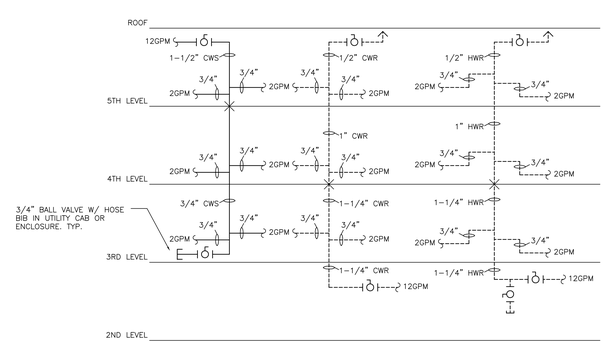
D1,D5,D6,D10



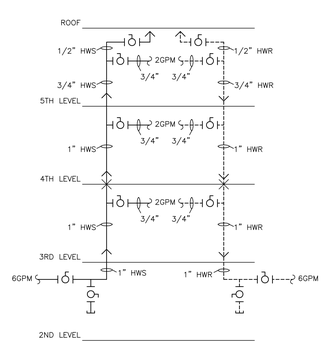
D2,D3,D4,D8



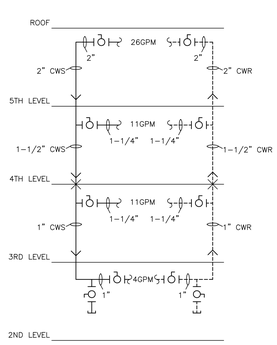
D7,D9



D11



D12



PIPING RISER DIAGRAMS – D BUILDING

NOT TO SCALE

RISER DIAGRAM NOTES:

1. PIPING SHOWN SHALL CONTINUE TO RUN OUT TO BRANCH MAIN, TERMINAL UNIT, OR RADIATION AS APPLICABLE.
2. REFER TO HVAC DETAILS FOR ADDITIONAL VALVING & ACCESSORIES.
3. ALL VALVING, VENTS, AND DRAINS SHALL BE LOCATED OUTSIDE OF RATED ENCLOSURES ACCESSIBLE ABOVE CEILING, IN UTILITY CABINETS, RADIATION ENCLOSURES, OR MILLWORK AS APPLICABLE.
4. GPM'S LISTED ARE APPROXIMATE. REFER TO SCHEDULES & CONNECTED LOAD FOR FINAL VALUES.

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299 Highland Street, Worcester, MA 01602

DRAWING TITLE

HVAC Piping Riser Diagrams

Locus Map

True North

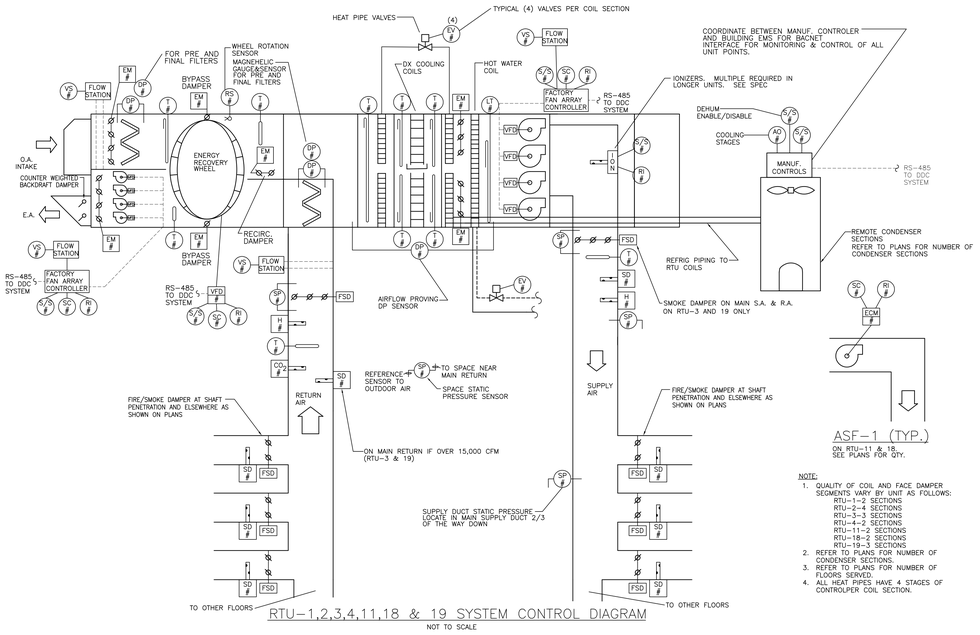
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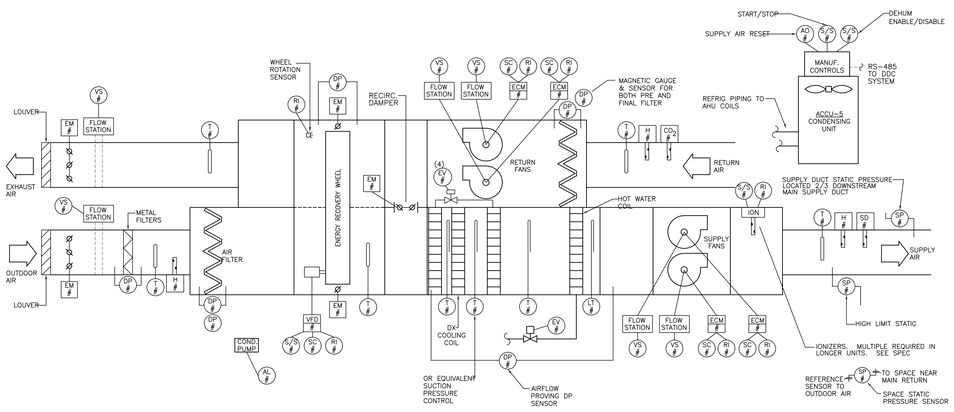
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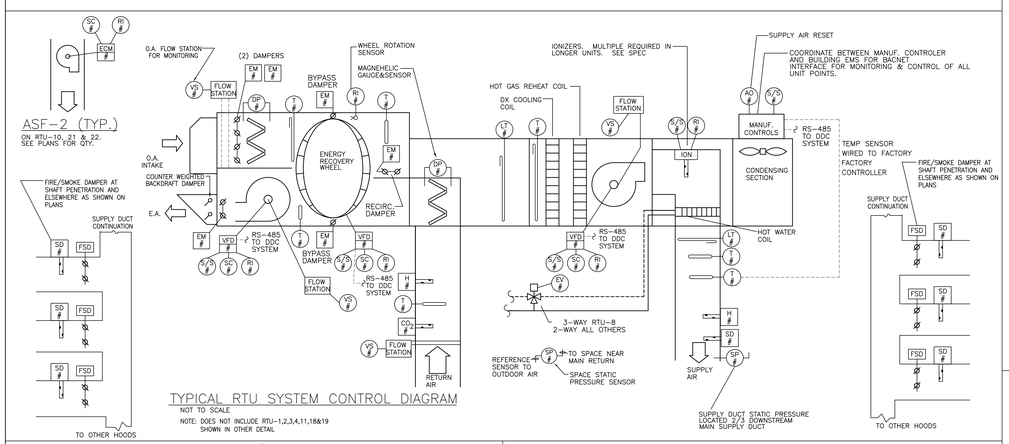
RTU-1,2,3,4,11,18 & 19 SYSTEM CONTROL DIAGRAM

NOT TO SCALE



AHU-1 SYSTEM CONTROL DIAGRAM

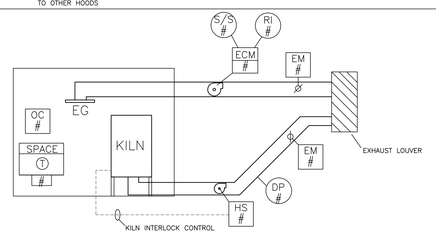
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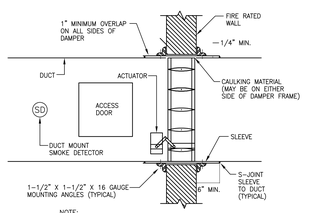
TYPICAL RTU SYSTEM CONTROL DIAGRAM

NOT TO SCALE

NOTE: DOES NOT INCLUDE RTU-1,2,3,4,11,18&19 SHOWN IN OTHER DETAIL



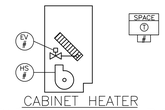
KILN ROOM EXHAUST FAN CONTROL DIAGRAM



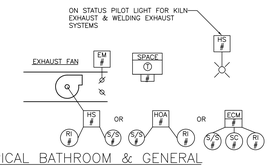
NOTE:
PROVIDE FIRE/SMOKE DAMPER THAT MEETS THE REQUIREMENTS ESTABLISHED BY UL STANDARDS 555 AND 555S. DAMPER DETAIL BASED ON RUSKIN #FSD-56 WITH UL555 LISTING AND UL555S LISTING.

TYPICAL FIRE/SMOKE DAMPER DETAIL

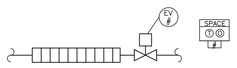
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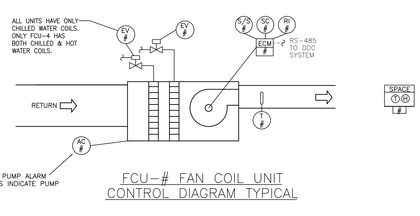
CABINET HEATER CONTROL DIAGRAM – TYP.



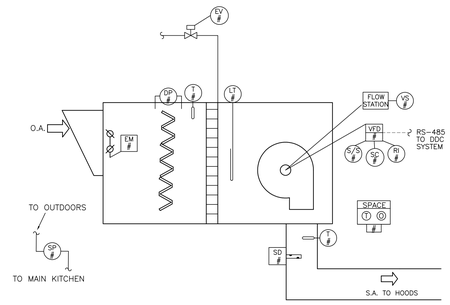
TYPICAL BATHROOM & GENERAL EXHAUST FAN CONTROL DIAGRAM



BASEBOARD HEAT CONTROL DIAGRAM – TYP.

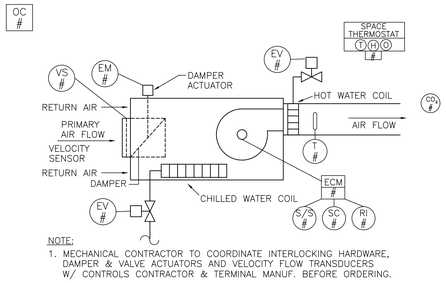


FCU-# FAN COIL UNIT CONTROL DIAGRAM TYPICAL



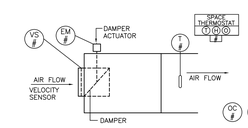
MAU-1 CONTROL DIAGRAM

NOT TO SCALE



NOTE:
1. MECHANICAL CONTRACTOR TO COORDINATE INTERLOCKING HARDWARE, DAMPER & VALVE ACTUATORS AND VELOCITY FLOW TRANSDUCERS W/ CONTROLS CONTRACTOR & TERMINAL MANUF. BEFORE ORDERING.

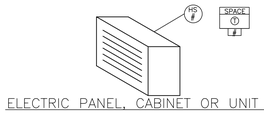
FAN POWERED SENSIBLE COOLING AND HEATING VAV TERMINAL CONTROL DIAGRAM – TYP.

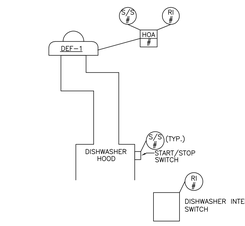


NOTE:
1. MECHANICAL CONTRACTOR TO COORDINATE INTERLOCKING HARDWARE, DAMPER & VALVE ACTUATORS AND VELOCITY FLOW TRANSDUCERS W/ CONTROLS CONTRACTOR & TERMINAL MANUF. BEFORE ORDERING.
2. INTERLOCK HEAT WITH PERIMETER RADIATION IN APPLICABLE ZONES.

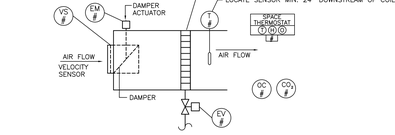
VAV TERMINAL CONTROL DIAGRAM – TYP.

NO SCALE





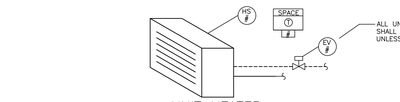
DISHWASHER EXHAUST CONTROL DIAGRAM



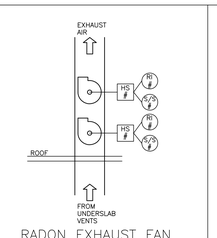
NOTE:
1. MECHANICAL CONTRACTOR TO COORDINATE INTERLOCKING HARDWARE, DAMPER & VALVE ACTUATORS AND VELOCITY FLOW TRANSDUCERS W/ CONTROLS CONTRACTOR & TERMINAL MANUF. BEFORE ORDERING.
2. INTERLOCK HEAT WITH PERIMETER RADIATION IN APPLICABLE ZONES.

VAV TERMINAL WITH HOT WATER COIL CONTROL DIAGRAM – TYP.

NO SCALE

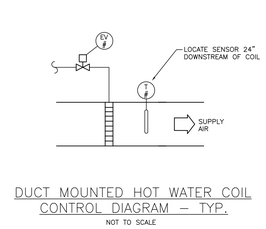


UNIT HEATER CONTROL DIAGRAM – TYP.



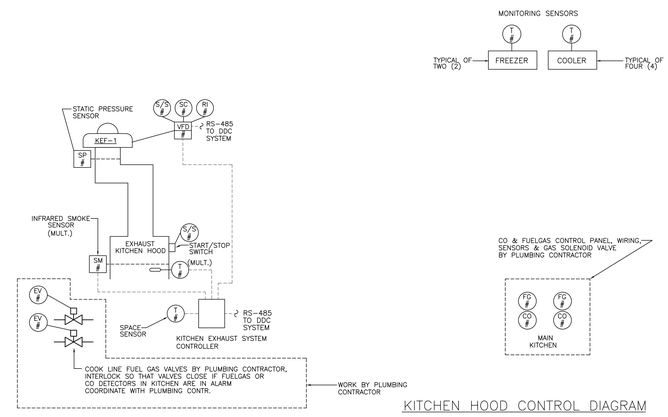
RADON EXHAUST FAN CONTROL DIAGRAM

NOT TO SCALE

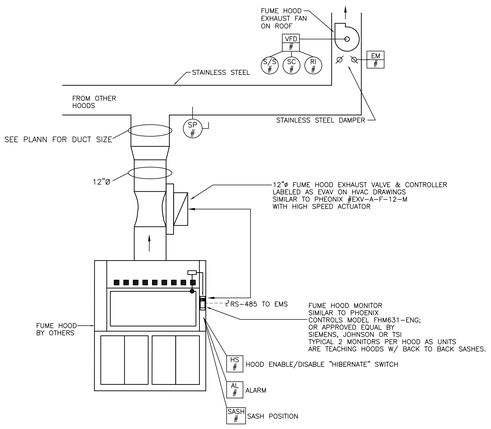


DUCT MOUNTED HOT WATER COIL CONTROL DIAGRAM – TYP.

NOT TO SCALE



KITCHEN HOOD CONTROL DIAGRAM



FUME HOOD MONITOR/CONTROL DETAIL

NOT TO SCALE — TYPICAL

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DRAWING TITLE

HVAC Controls

Locus Map

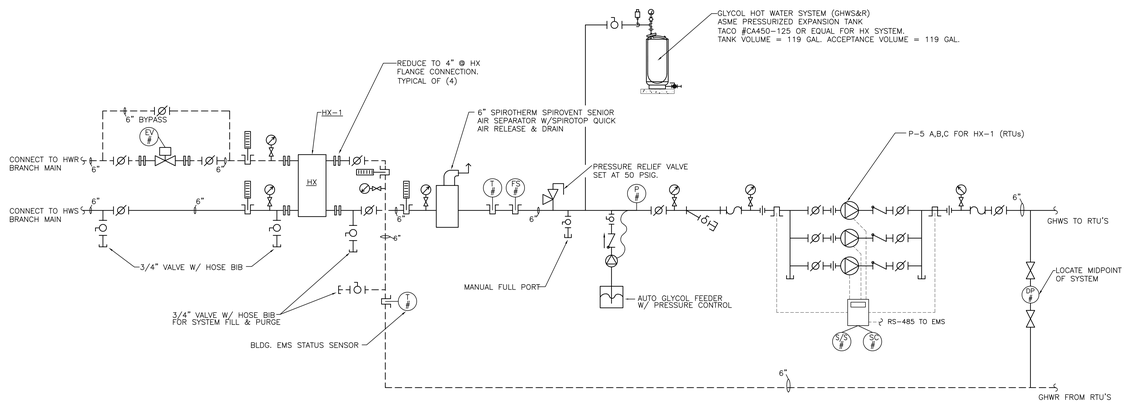
True North

Key Plan

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SCALE:	No Scale
DWN. BY:	FJG
CKD. BY:	KRS
DATE:	JANUARY 20, 2022

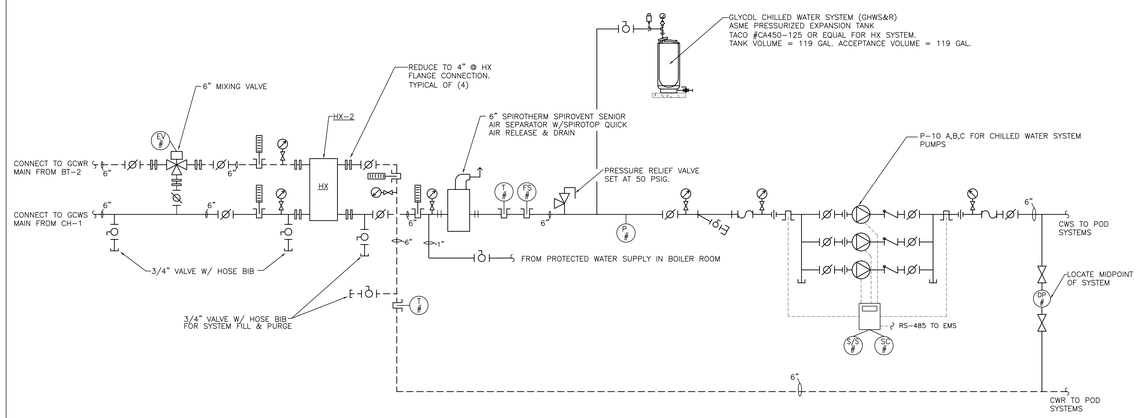
H6.1

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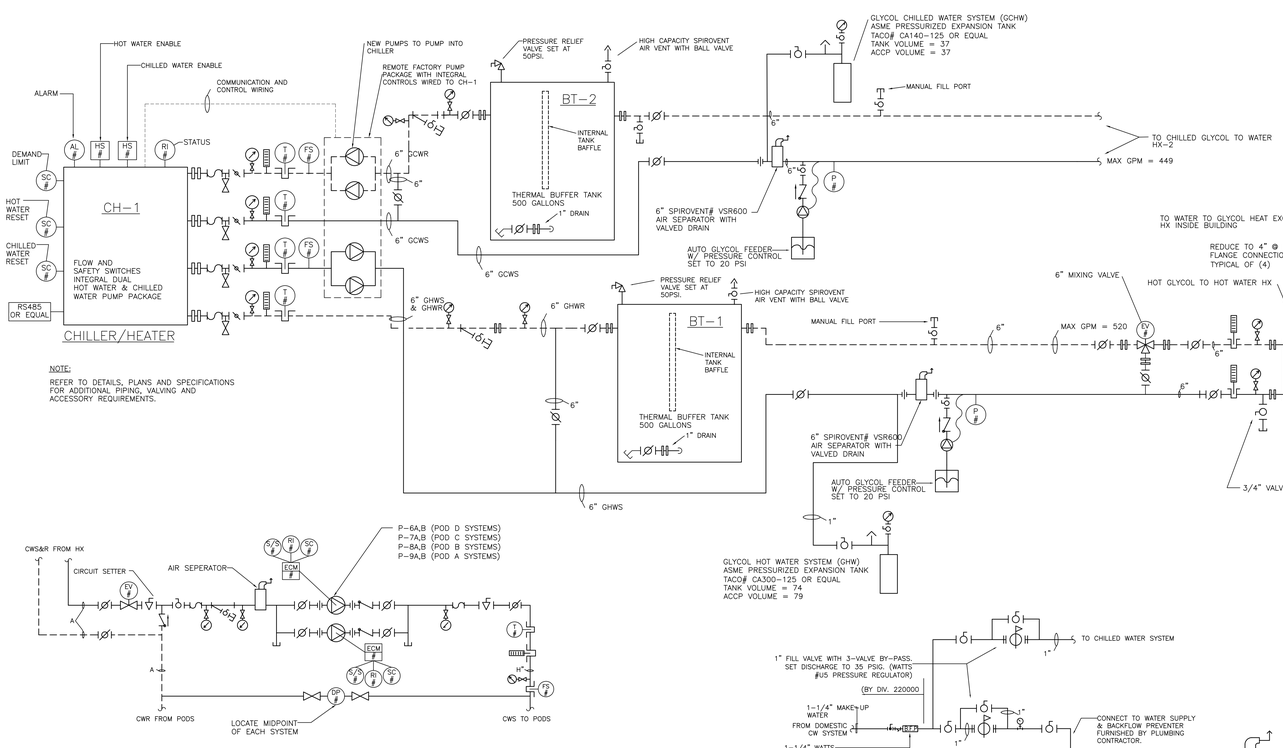
HOT WATER TO HOT GLYCOL HEAT EXCHANGER PIPING & CONTROL DIAGRAM

NO SCALE



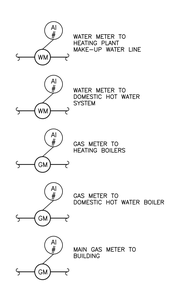
CHILLED GLYCOL TO CHILLED WATER HEAT EXCHANGER PIPING & CONTROL DIAGRAM

NO SCALE

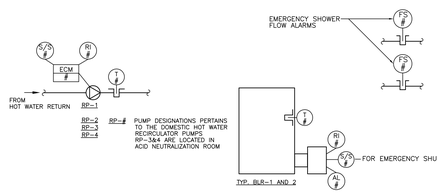


BOILER & CHILLER HEATER PLANT PIPING & CONTROL DIAGRAM

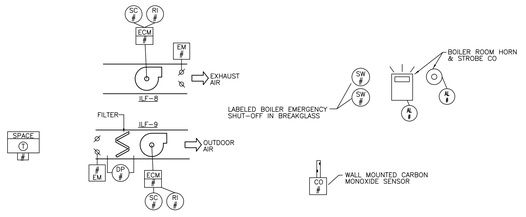
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UTILITY METERING DIAGRAM



DOMESTIC WATER
CONTROL DIAGRAM



BOILER ROOM VENTILATION
CONTROL DIAGRAM

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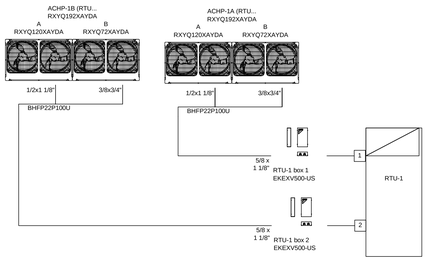
True North

Key Plan

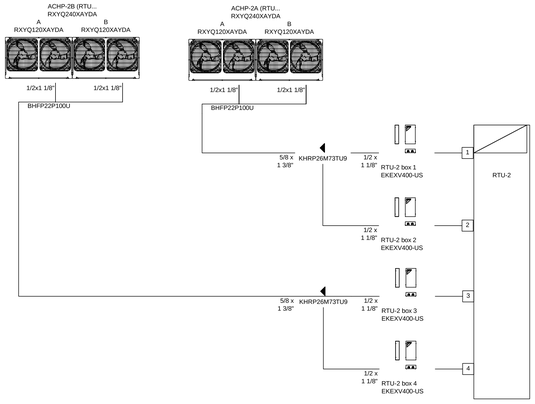
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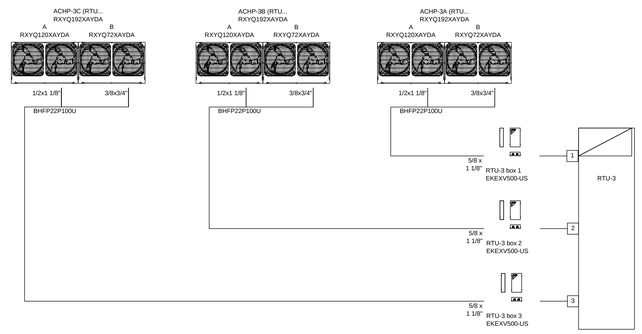
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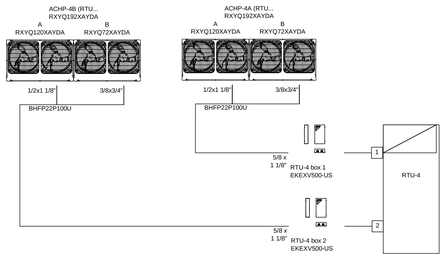
RTU-1 REFRIGERANT PIPE DIAGRAM



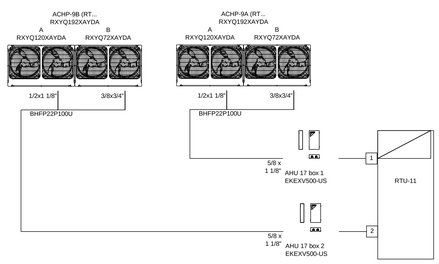
RTU-2 REFRIGERANT PIPE DIAGRAM



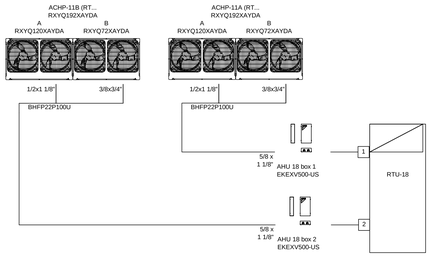
RTU-3 REFRIGERANT PIPE DIAGRAM



RTU-4 REFRIGERANT PIPE DIAGRAM

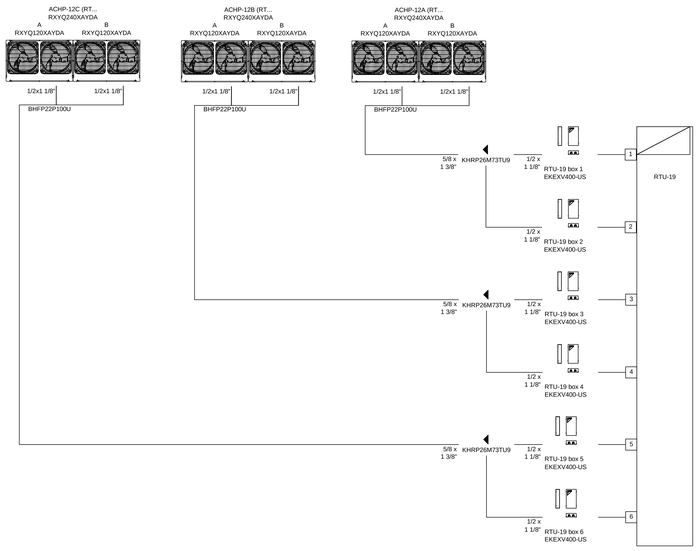


RTU-11 REFRIGERANT PIPE DIAGRAM

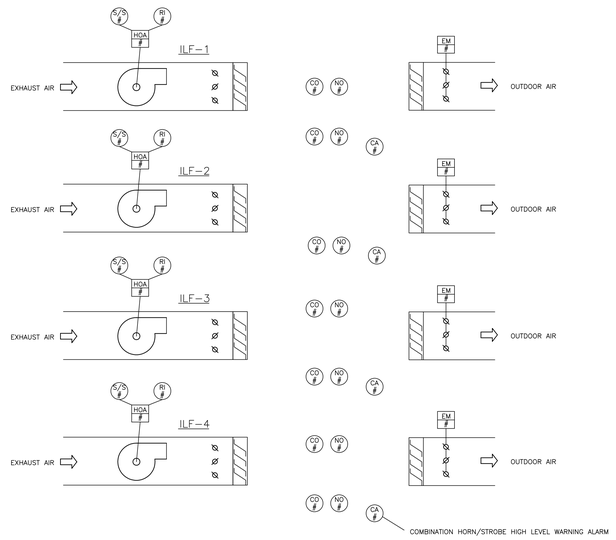


RTU-18 REFRIGERANT PIPE DIAGRAM

NOTE:
1. REFER TO PLANS FOR FINAL REQUIRED PIPE LENGTHS AND COORDINATE PIPE SIZES WITH EQUIPMENT MANUFACTURE.
2. REFER TO HVAC CONTROL DRAWINGS FOR ADDITIONAL INFORMATION.



RTU-19 REFRIGERANT PIPE DIAGRAM



NOTE:
1. ILF-1 AND 2 AND ASSOCIATED AREA INTAKE DAMPERS SHALL OPERATE IN CONJUNCTION WITH THE (3) PAIRS OF CO AND NO DETECTORS IN THEIR SERVICE ZONE.
2. ILF-3 AND 4 AND ASSOCIATED AREA INTAKE DAMPERS SHALL OPERATE IN CONJUNCTION WITH THE (4) PAIRS OF CO AND NO DETECTORS IN THEIR SERVICE ZONE.

GARAGE VENTALATION CONTROL DRAWING

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PROJECT

FINAL BID PACKAGE

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299 Highland Street, Worcester, MA 01602

DRAWING TITLE

HVAC VRF SCHEMATICS & CONTROLS

Locus Map

True North

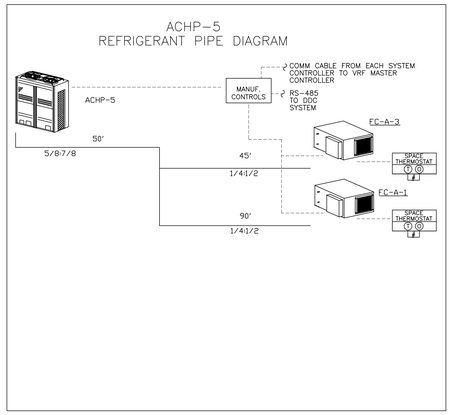
Key Plan

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CKD. BY: KRS
DATE: JANUARY 20, 2022

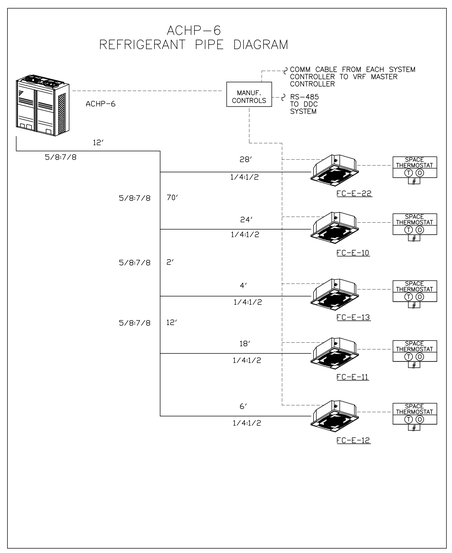
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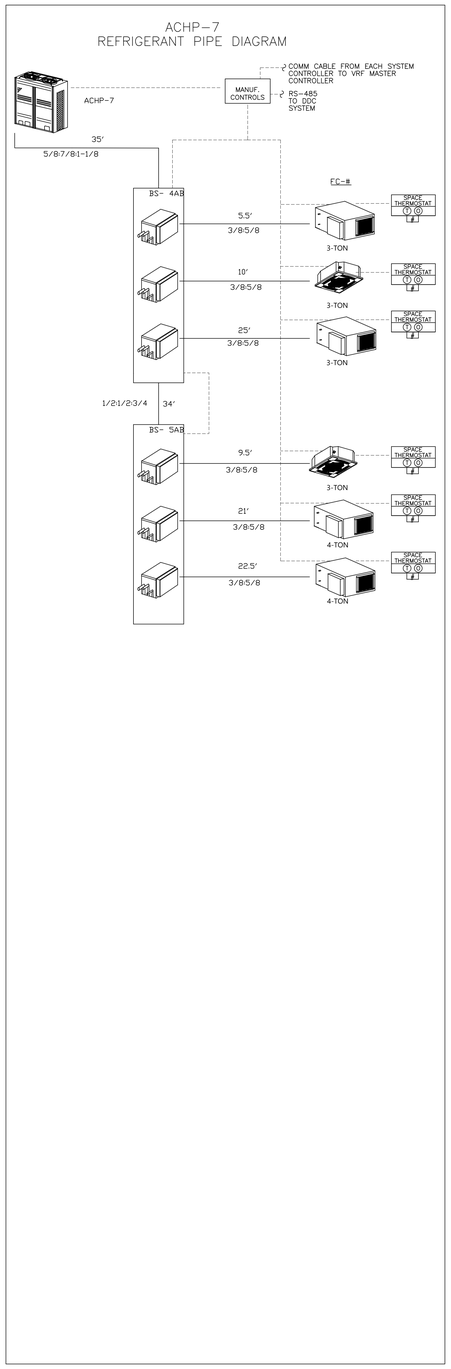
ACHP-5 REFRIGERANT PIPE DIAGRAM



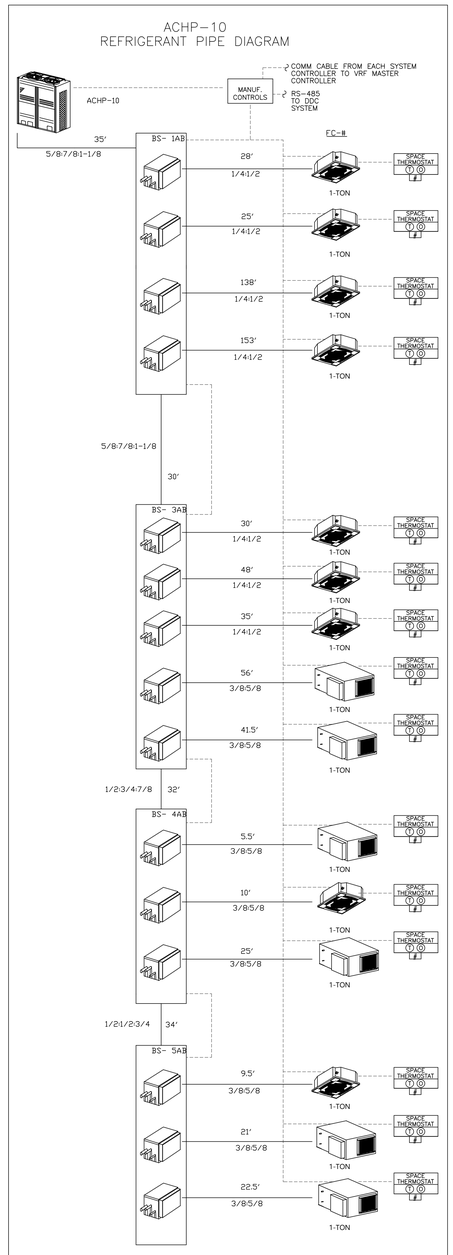
ACHP-6 REFRIGERANT PIPE DIAGRAM



ACHP-7 REFRIGERANT PIPE DIAGRAM



ACHP-10 REFRIGERANT PIPE DIAGRAM



NOTE:

REFER TO PLANS FOR FINAL REQUIRED LINE LENGTHS AND COORDINATE PIPE SIZES WITH EQUIP. MANUFACTURER.

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Final Bid Package #4

Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

DRAWING TITLE

HVAC VRF SCHEMATICS & CONTROLS

Locus Map

True North

Key Plan

FILE:

JOB NO: #1904

SCALE: NO SCALE

DWN. BY: FJG

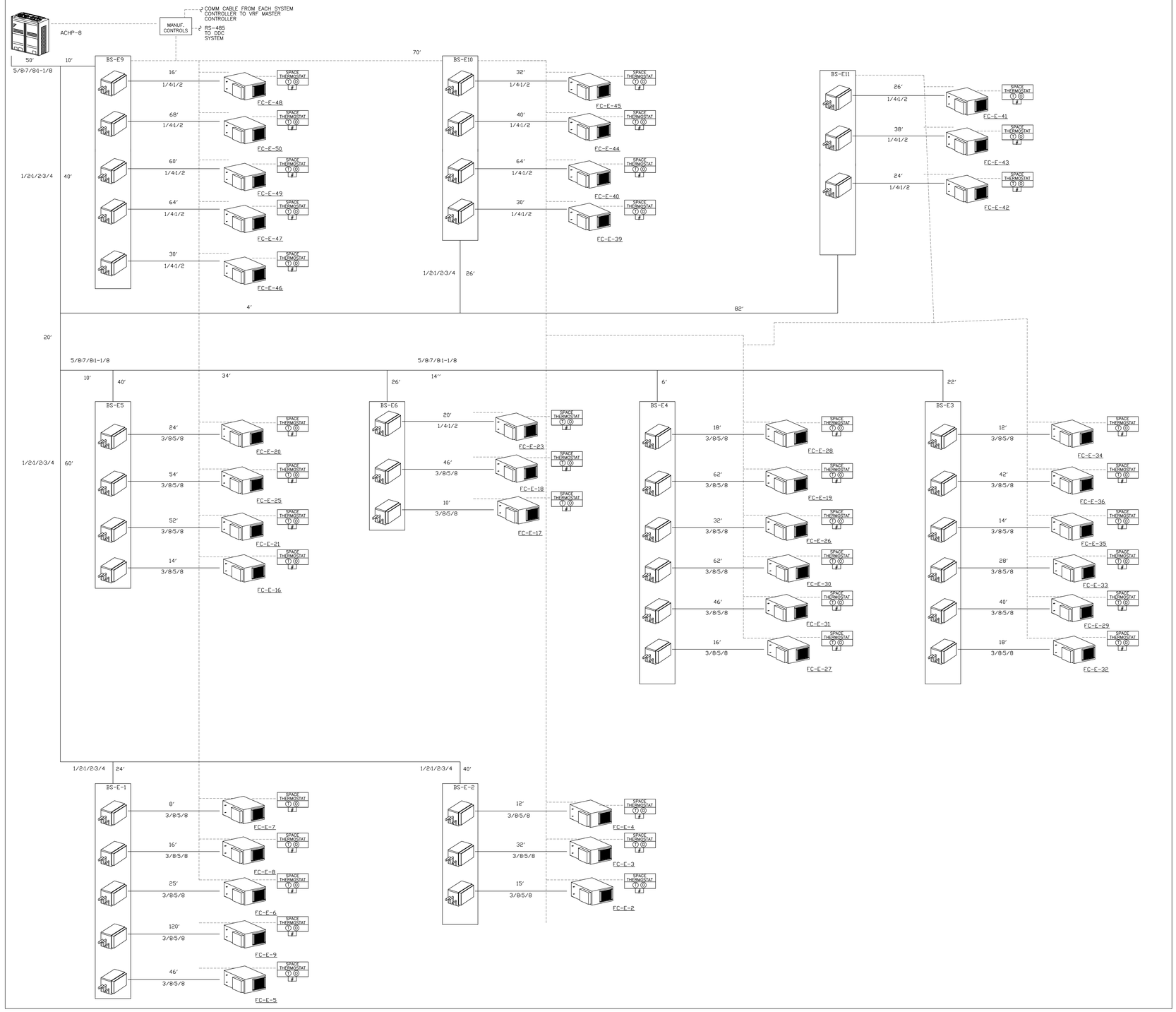
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ACHP-8
REFRIGERANT PIPE DIAGRAM



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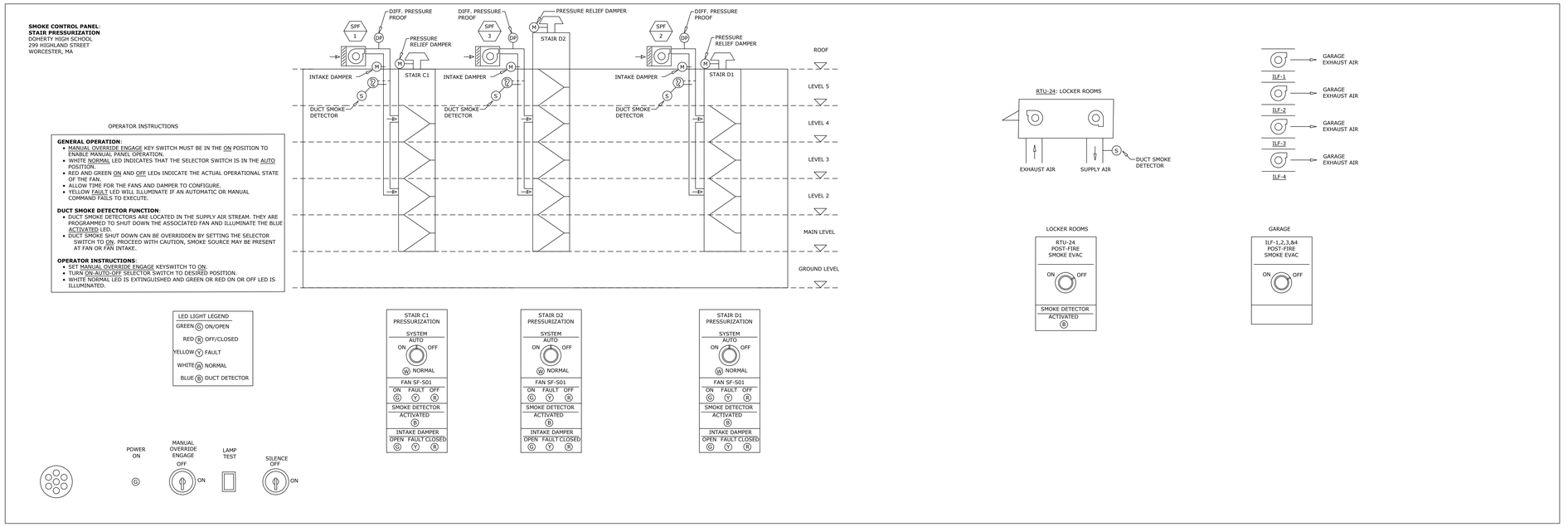
True North

Key Plan

FILE:	
JOB NO:	#1904
SCALE:	NO SCALE
DWN. BY:	FJG
CKD. BY:	KRS
DATE:	JANUARY 20, 2022

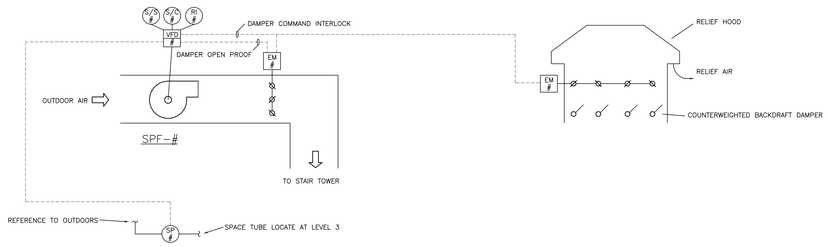
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1 FIREFIGHTER'S SMOKE CONTROL PANEL-
STAIR PRESSURIZATION & POST-FIRE SMOKE REMOVAL
NO SCALE

NOTE:
SMOKE CONTROL PANEL FURNISHED & INSTALLED BY FIRE ALARM CONTRACTOR



STAIR TOWER PRESSURIZATION CONTROL DRAWING – TYPICAL OF (3)

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DRAWING TITLE

HVAC STAIR PRESSURE CONTROLS

Locus Map

True North

Key Plan

FILE:
JOB NO: #1904
SCALE: NO SCALE
DWN. BY: FJG
CKD. BY: KRS
DATE: JANUARY 20, 2022

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CUSTOM FABRICATED ROOFTOP UNIT SCHEDULE

Unit Tag	Manufacturer	Model	Airflow			Supply Fan					Exhaust/Return Fan					Filters			OA Energy Recovery Wheel								
																OA Pre-Filter	SA Main Filter	RA Filter		Total Recovered Capacity		Cooling SA LAT		Heating SA LAT			Effectiveness			
			Design Ventilation OA (CFM)	SA (CFM)	RA (CFM)	Fan Airflow (CFM)	ESP (in H_2O)	TSP (in H_2O)	Motor Size (Qty @ HP)	Motor BHP (HP)	Fan Airflow (CFM)	ESP (inH$_2$O)	TSP (in H_2O)	Motor Size (HP)	Motor BHP (HP)	Depth & MERV Rating	Depth & MERV Rating	Depth & MERV Rating	Wheel Model Number	Cooling (Btu/hr)	Heating (Btu/hr)	LDB (°F)	LWB (°F)	LDB (°F)	LWB (°F)	SAPD (inH$_2$O)	Total Cooling	Sensible Cooling	Total Heating	Sensible Heating
RTU-1	Haakon	Custom	11,650	11,650	0	11,650	3.00	5.8	2 @ 10	7.6	0	1.00	3.5	2 @ 7.5	6.2	2" MERV 8	12" MERV 13	2" MERV 8	HPC-2000-T20	225,205	945,178	79.8	65.3	49.5	42.4	0.78	68.9	69.4	69.1	70.8
RTU-2	Haakon	Custom	12,150	12,150	0	12,150	3.00	5.8	2 @ 10	8.1	0	1.00	3.5	2 @ 7.5	6.4	2" MERV 8	12" MERV 13	2" MERV 8	HPC-2000-T20	230,939	975,081	80	65.4	49	42.1	0.81	67.8	68.3	68.3	70.1
RTU-3	Haakon	Custom	16,250	16,250	0	16,250	3.00	5.8	2 @ 15	12.2	0	1.75	3.5	2 @ 10	8.1	2" MERV 8	12" MERV 13	2" MERV 8	HPC-2150-T20	289,070	1,253,876	80.7	65.8	47.2	40.8	0.94	63.4	63.9	65.4	67.5
RTU-4	Haakon	Custom	6,450	6,450	0	6,450	3.00	5.8	2 @ 7.5	6.1	0	1.50	3.5	2 @ 5	3.2	2" MERV 8	12" MERV 13	2" MERV 8	HPC-1500-T20	125,524	525,626	79.8	65.2	49.7	42.5	0.77	69.4	69.9	69.4	71.1
RTU-11	Haakon	Custom	2,500	10,205	7,705	10,205	3.00	5.8	2 @ 10	7.6	7,705	1.00	3.5	2 @ 7.5	6.2	2" MERV 8	12" MERV 13	2" MERV 8	HPC-1500-T20	65,982	7,371	76.8	64.2	63.4	51.9	1.21	54.0	54.6	59.4	61.4
RTU-18	Haakon	Custom	5,000	10,700	5,700	10,700	3.00	5.8	2 @ 10	7.6	5,700	1.00	3.5	2 @ 7.5	6.2	2" MERV 8	12" MERV 13	2" MERV 8	HPC-1700-T20	78,538	7,603	76.5	63.9	64.2	51.9	1	61.3	61.8	64.0	66.2
RTU-19	Haakon	Custom	22,000	22,000	0	22,000	3.00	5.8	2 @ 20	12.1	0	1.50	3.5	2 @ 15	12.2	2" MERV 8	12" MERV 13	2" MERV 8	HPC-2900-T20	428,713	1,794,426	79.8	65.2	49.8	42.5	0.76	69.5	70.0	69.5	70.0

CUSTOM FABRICATED ROOFTOP UNIT SCHEDULE continued

Unit Tag	HPT Pre-Cool Coil							VRV DX Coil														HPT Re-Heat Coil		Electrical High Voltage			Electrical Low Voltage			Shipping Weight (LBS)
				EAT	LAT	APD								Cooling				Heating				EAT	LAT							
														EAT		LAT														
	Max Face Velocity (FPM)	FPI	Rows	EDB (°F)	EWB (°F)	in. H20	Heat Transferred (Btu/hr)	Max Face Velocity (FPM)	Coil Airflow (CFM)	Number of Coils	Coil Type	Expansion Valves	Associated Condensing Units	EDB (°F)	EWB (°F)	LDB (°F)	LWB (°F)	Total Capacity (Btu/hr)	Sensible Capacity (Btu/hr)	EDB (°F)	Max LDB at 0F for VRV CU (°F)	Total Capacity at 0F from VRV CU (Btu/hr)	EAT (°F)	LAT (°F)	Voltage	MCA (A)	MOP	Voltage	MCA (A)	MOP	
RTU-1	451	12	2	79.8	65.3	0.21	113,394	448	11,650	2	Double Stacked & Interlaced	4	ACHP-1A & 1B	70.8	62	49	48.7	422,996	276,050	51.3	76.8	320,912	57.45	51.83	460/60/3	68	70	120/60/1	15	15	23,340
RTU-2	432.9	12	2	80	65.4	0.2	115,856	449	12,150	2	Double Stacked & Interlaced	4	ACHP-2A & 2B	70.8	62.1	48.7	48.5	451,601	291,312	50.8	75.3	320,912	57.42	52.32	460/60/3	70	70	120/60/1	15	15	23,570
RTU-3	444.2	12	2	80.7	65.8	0.21	163,566	442	16,250	3	Triple Stacked	3	ACHP-3A, 3B, & 3C	70.5	62	49.2	48.8	586,023	376,140	52.5	78.3	452,436	57.55	52.45	460/60/3	92	100	120/60/1	15	15	28,700
RTU-4	442.3	12	2	79.8	65.2	0.21	63,501	442	6,450	2	Double Stacked	2	ACHP-4A & 4B	70.5	61.8	48	47.8	244,457	157,379	52.6	75.6	160,456	57.46	52.68	460/60/3	55	60	120/60/1	15	15	17,540
RTU-11								444	10,205	2	Double Stacked	2	ACHP-9A & 9B	76.8	64.2	52.1	50.9	386,943	273,822	63.4	87.7	268,076			460/60/3	59	60	120/60/1	15	15	23,340
RTU-18								446	10,700	2	Double Stacked	2	ACHP-11A & 11B	76.5	63.9	52.1	50.9	395,952	283,397	64.2	90.3	301,624			460/60/3	54	60	120/60/1	15	15	20,840
RTU-19	445.6	12	2	79.8	65.2	0.2	214,495	444	22,000	3	Triple Stacked & Interlaced	6	ACHP-12A, 12B, 12C	70.4	61.9	48.4	48.2	820,351	524,885	68	89.5	511,758	56.89	51.94	460/60/3	119	125	120/60/1	15	15	20,840

① PROVIDE MERV 8 PRE-FILTERS & MERV 13 FINAL FILTERS. REFER TO SPEC FOR SPARE FILTERS.
② PROVIDE PREMIUM EFFICIENCY O.D.P. MOTORS, PROVIDE V-F-D ON SUPPLY AND EXHAUST FAN
③ PROVIDE ROOF CURB, DOUBLE WALL CONSTRUCTION & IAQ DRAIN PAN.
④ HOT WATER COILS SIZED FOR 125F ENTERING AND 105°F LEAVING WATER TEMPERATURES 35% PROPYLENE GLYCOL.
⑤ MANUFACTURER TO PROVIDE FLOW STATIONS ON OUTDOOR, EXHAUST AND SUPPLY AIR.
⑥ REFER TO SPECIFICATIONS FOR CONTROL REQUIREMENTS
⑦ PROVIDE NEMA 3R DISCONNECT SWITCH. SINGLE POINT POWER; PROVIDE (1)120 VOLT CIRCUIT TO EACH UNIT; REFER TO SCHEDULE
⑧ REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION
⑨ ALL UNITS SHALL HAVE HEAT RECOVERY SYSTEM
⑩ RTUs BASED ON HAAKON, ACCEPTABLE MANUFACTURERS INNOVENT OR ENERGY LABS INC.
⑪ ALL UNITS SHALL HAVE INTEGRAL SOUND ATTENUATORS; REFER TO SA SCHEDULE FOR REQUIREMENTS
⑫ ACHP SHALL BE REMOTE MOUNTED ADJACENT TO RTU. REFER TO CUSTOM ACHP SCHEDULE AND SPECIFICATIONS.

AIR HANDLER SCHEDULE

Unit Tag	Manufacturer	Model	Airflow			Supply Fan					Exhaust/Return Fan					Filters			OA Energy Recovery Wheel								
																OA Pre-Filter	SA Main Filter	RA Filter		Total Recovered Capacity		Cooling SA LAT		Heating SA LAT			Effectiveness			
			Design Ventilation OA (CFM)	SA (CFM)	RA (CFM)	Fan Airflow (CFM)	ESP (in H_2O)	TSP (in H_2O)	Motor Size (Qty @ HP)	Motor BHP (HP)	Fan Airflow (CFM)	ESP (inH$_2$O)	TSP (in H_2O)	Motor Size (HP)	Motor BHP (HP)	Depth & MERV Rating	Depth & MERV Rating	Depth & MERV Rating	Wheel Model Number	Cooling (Btu/hr)	Heating (Btu/hr)	LDB (°F)	LWB (°F)	LDB (°F)	LWB (°F)	SAPD (inH$_2$O)	Total Cooling	Sensible Cooling	Total Heating	Sensible Heating
MAU-1	Valent	VXE-212-58-30H	6,900	6,900	0	6,900	1.50	3.659	7.5	6.49	6,900	1.00	2.636	7.5	5.6	2" MERV 8	2" MERV 8	2" MERV 8		136,620	346,518	80.2	65.6	46.5	45.4	0.78	64.8	66.8	64.7	62.8
AHU-1	Daikin	Vision	5,000	5,000	0	5,000	1.50	5.06	2 @ 3.5	2.9	0	1.50	3.5	2 @ 3.5	2.9	2" MERV 8	2" MERV 8	2" MERV 8	ECW 546	101,439	322,882	80	65.2	47.3	38.2	0.69	69.4	71.3	72.6	73.4
NOTES																											①②③④⑤			

AIR HANDLER SCHEDULE continued

Unit Tag	HPT Pre-Cool Coil							VRV DX Coil														HPT Re-Heat Coil		Electrical High Voltage			Electrical Low Voltage			Shipping Weight (LBS)
				EAT	LAT	APD								Cooling				Heating				EAT	LAT							
														EAT		LAT														
	Max Face Velocity (FPM)	FPI	Rows	EDB (°F)	EWB (°F)	in. H20	Heat Transferred (Btu/hr)	Max Face Velocity (FPM)	Coil Airflow (CFM)	Number of Coils	Coil Type	Expansion Valves	Associated Condensing Units	EDB (°F)	EWB (°F)	LDB (°F)	LWB (°F)	Total Capacity (Btu/hr)	Sensible Capacity (Btu/hr)	EDB (°F)	Max LDB at 0F for VRV CU (°F)	Total Capacity at 0F from VRV CU (Btu/hr)	EAT (°F)	LAT (°F)	Voltage	MCA (A)	MOP	Voltage	MCA (A)	MOP	
MAU-1																				46.5	77.0			460/60/3	23.1	30				
AHU-1	400	12	2	79.8	65.2	0.23	57,836	503	5,000	1	Single	1	ACHP-13	69.5	58.7	52	50.3	112,292	94,688	43	43.0	0	62.57	54.75	460/60/3	43	60	120/60/1	15	15	20,840
NOTES																														

① PROVIDE FOUR (4) SPARE SETS OF FILTERS, IN ADDITION TO THOSE SUPPLIED IN THE UNIT. FILTER EFFICIENCY SHOULD BE MERV 13
② PROVIDE PREMIUM EFFICIENCY O.D.P. MOTOR
③ PROVIDE INTERNAL SPRING VIBRATION ISOLATION, PERFORATED DOUBLE WALL CONSTRUCTION & IAQ DRAIN PAN.
④ HOT WATER COIL SIZED FOR 125°F ENTERING AND 105°F LEAVING WATER TEMPERATURES, 30% PROPYLENE GLYCOL.
⑤ MINIMUM OA & EA CFM'S ARE DESIGN AIRFLOWS. THE ACTUAL MINIMUM OA & EA MAY BE AS LOW AS 25% OF MINIMUM SCHEDULED DURING CO2 RESET. EA FANS MUST BE ABLE TO TURN DOWN TO THIS REDUCED AIRFLOW. MAXIMUM OA IS DESIGN SUPPLY CFM.

CHILLED BEAM SCHEDULE

UNIT NUMBER/CALLOUT		CB-1
MANUFACTURER		PRICE
MODEL #		ACBL24_2W
COIL TYPE		2P1C
COIL LENGTH (FT)		4
AIR INLET SIZE (INCHES)		5
CHILLED WATER DATA	FLUID	WATER
	FLOW RATE (GPM)	1.5
	TEMP. ENTERING (F)	57
	TEMP. LEAVING (F)	61.6
	PRESS. DROP (FT. HD.)	5.2
HOT WATER HEATING DATA	FLUID	–
	FLOW RATE (GPM)	–
	TEMP. ENTERING (F)	–
	TEMP. LEAVING (F)	–
	PRESS. DROP (FT. HD.)	–
	HEATING OUTPUT, BTUH	–
AIR-SIDE HEATING & COOLING DATA	TERMINAL PRIMARY AIR (CFM)	100
	AIR PRESSURE DROP (IN W.G.)	0.56
	HEATING EAT/LAT	–
	COOLING EAT (DB/WB)	52°F / 50.4°F
	COOLING LAT (DB)	55.1°F
	TOTAL SENSIBLE COOLING (BTUH)	5953
	NC SOUND	27
	TERMINAL THROW (VEL. < 100 FPM)	10'

AIR COOLED CONDENSING UNIT SCHEDULE

UNIT NUMBER		ACCU-1	ACCU-4
SERVICE		FC-E-13	FC-E
MANUFACTURER		DAIKEN	DAIKEN
MODEL		–	–
NOMINAL CAPACITY (TONS)		3	5
NOMINAL COOLING TOTAL CAPACITY (MBH)		36000	60000
DESIGN COOLING AMBIENT TEMP (F)		90	90
–		–	–
–		–	–
REFRIGERANT		R-410A	R-410A
LINE SIZE O.D. GAS		(2)1-3/8"	(2)1-3/8"
LINE SIZE O.D. LIQUID		5/8"	3/4"
LINE SIZE O.D. HOT GAS REHEAT		(3/8"	(3/8"
EER / SEER		12.66 / –	12.66 / –
CONDENSER FAN MOTOR QTY		1	1
–		–	–
ELECTRICAL DATA	VOLTAGE	208V-3ø-60	208V-3ø-60
	MCA	15	15
	MOCP	20	20
	RLA / LRA	– / –	– / –
NOTES		①②③	①②③

① REFRIGERANT LINE SIZES SHALL BE BY EQUIP. MFR. RECOMMENDED SIZES PER RUN LGTH. VERIFY W/ MFR.
② SPACING BETWEEN BLDG & ADJ CU UNITS SHALL BE PROVIDED AS SPEC. BY EQUIP. MFR.
③ EQUIP ON CONCRETE PAD; PAD BY OTHERS. COORDINATE, SIZE & LOCATION W/ G.C.

PACKAGED ROOFTOP UNIT SCHEDULE

Tag	Area Served	Manufact	Model	Mounting	Weight (lb)	Supply Air Volume (CFM)	Outdoor Air Volume (CFM)	Supply SP (in. wg)	Supply Motor (hp)	Exhaust Air Volume (CFM)	Exhaust SP (in. wg)	Exhaust Motor (hp)	Recirc Air Volume (CFM)	Voltage (V)	Frequency (Hz)	Phase	One Point MCA	One Point MOP	Two Point MCA	Two Point MOP	Exhaust MCA	Exhaust MOP
RTU-5	Science Classrooms Pod D	Valent	VXE-312-40	Outdoor	7,613	13,300	13,300	3	10	13,300	1.5	7-1/2	0	460	60	3	124.4	150			0	0
RTU-6	Corridor A	Valent	VXE-212-17.5	Outdoor	4,738	8,450	1,500	2.25	10	1,500	1.25	7-1/2	6950	460	60	3	60.6	70			0	0
RTU-7	Chorus & Band	Valent	VXE-212-15	Outdoor	4,651	7,060	2,500	3.5	10	2,500	1.5	7-1/2	4560	460	60	3	50.2	60			0	0
RTU-8	BlackBox Theater	Valent	VXE-112-10	Outdoor	3,375	5,100	1,400	2.5	7-1/2	1,400	1	5	3700	460	60	3	39.3	45			0	0
RTU-9	ETA Shops	Valent	VXE-352-40	Outdoor	9,477	9,305	9,305	3	7-1/2	9,305	1	3	0	460	60	3	112.8	125			0	0
RTU-10	Office, Nurse, IT, & Guidance	Valent	VXE-212-15	Outdoor	4,399	5,000	5,000	2	7-1/2	5,000	0.5	5	0	460	60	3	17.5	25	26.8	35	0	0
RTU-12	Auditorium A	Valent	VXE-212-17.5	Outdoor	4,454	7,300	3,500	2.75	10	3,500	1.5	5	3800	460	60	3	57.3	70			0	0
RTU-13	Auditorium B	Valent	VXE-212-17.5	Outdoor	4,501	7,400	3,500	2.5	10	3,500	1.5	7-1/2	3900	460	60	3	60.5	70			0	0
RTU-14	Corridor B	Valent	VXE-212-17.5	Outdoor	4,501	8,450	1,500	2	10	1,500	0.5	7-1/2	6950	460	60	3	60.5	70			0	0
RTU-15	Art Rooms	Valent	VXE-212-17.5	Outdoor	4,486	5,000	5,000	2	7-1/2	5,000	0.5	5	0	460	60	3	54.6	70			0	0
RTU-16	Media Center	Valent	VXE-212-15	Outdoor	4,594	9,035	3,210	3	7-1/2	3,210	1	3	2100	460	60	3	41.8	50			0	0
RTU-17	Kitchen & Servery	Valent	VXE-212-15	Outdoor	4,604	7,075	2,500	2	10	2,500	1	5	4575	460	60	3	47	50			0	0
RTU-20	Corridor CD	Valent	VXE-212-17.5	Outdoor	4,738	7,700	2,600	2.5	10	2,600	1	7-1/2	5100	460	60	3	60.6	70			0	0
RTU-21	Gymnasium A	Valent	VXE-212-15	Outdoor	4,683	7,000	4,100	2	7-1/2	4,100	1	7-1/2	2900	460	60	3	44.3	50	26.9	35	0	0
RTU-22	Gymnasium B	Valent	VXE-212-15	Outdoor	4,683	7,000	4,100	2	7-1/2	4,100	1	7-1/2	2900	460	60	3	44.3	50	26.9	35	0	0
RTU-23	Wellness Center Adapative PE	Valent	VXE-212-15	Outdoor	4,604	6,100	2,300	3	7-1/2	2,300	1	5	3800	460	60	3	44.3	50	26.9	35	0	0
RTU-24	Locker Rooms	Valent	VXE-312-25	Outdoor	6,796	9,100	9,100	3	7-1/2	9,100	1	3	0	460	60	3	31.5	40	47.2	60	0	0

PACKAGED ROOFTOP UNIT SCHEDULE continued

Cont. Tag	Energy Recovery Performance															Cooling Specification DX						Heating Specification DX						Heating Specification (Hot Water)					Calculated Efficiency		
	Summer OA DB (F)	Summer OA WB (F)	Summer RA DB (F)	Summer RA WB (F)	Summer SA DB (F)	Summer SA WB (F)	Winter OA DB (F)	Winter OA WB (F)	Winter RA DB (F)	Winter RA WB (F)	Winter SA DB (F)	Winter SA WB (F)	ASHRAE 90.1 Summer Enthalpy Recovery Ratio (%)	ASHRAE 90.1 Winter Enthalpy Recovery Ratio (%)	Cooling Load Reduction (Tons)	Heating Load Reduction (BTU)	Total Capacity (MBH)	Sensible Capacity (MBH)	Coil (DB/WB) EAT (F)	Coil (DB/WB) LAT (F)	Reheat Capacity (MBH)	Reheat Capacity LAT (F)	Total Capacity (MBH)	Coil (DB/WB) EAT (F)	Coil (DB/WB) LAT (F)	Ambient Air (F)		Flow Rate GPM	Fluid PD (ft wg)	Capacity (MBH)	Coil (DB) EAT (F)	Coil (DB) LAT (F)	EER/IEER	COP At 17F	COP At 47F
RTU-5	91	71	75	62.5	80.8	65.9	0	-1.5	72	62.5	43.8	43.2	62.9	58.8	20.95	629143	538.2	408.4	80.8/65.9	52.3/52.3	274.5	71						49.4	6.9	470.5	43.8	76.5			
RTU-6	91	71	75	62.5	77.3	64.1	0	-1.5	72	62.5	60.2	54.2	82.9	80.3	3.09	97524	225.5	196.7	75.4/62.8	54.1/53.7	116.1	71	92.8	70.2	80.4	10	5.5	0.1	52.1	69.9	75.6	10.6/14	2.16	3.25
RTU-7	91	71	75	62.5	78.2	64.6	0	-1.5	72	62.5	55.9	51.4	77.4	74.4	4.88	150930	195	167.1	76.1/63.3	54.5/53.9	103.2	72	79.8	67.2	77.6	10	5.8	0.1	55.2	66.3	73.5	10.7/14.3	2.24	3.32
RTU-8	91	71	75	62.5	77.8	64.3	0	-1.5	72	62.5	57.9	53.3	81.2	78.5	2.84	87545	128.7	116.5	75.8/63	54.9/54.4	68.4	70.5	52.4	68.7	78.2	10	3.7	0.1	35.3	68.1	74.5	11.1/15.6	2.26	3.49
RTU-9	91	71	75	62.5	79	64.9	0	-1.5	72	62.5	52	49.3	73.9	70.3	18.14	553722	437.7	302.5	79/64.9	49.3/48.4	177.8	67					23.5	1.7	223.9	52	74.2			
RTU-10	91	71	75	62.5	79.8	65.3	0	-1.5	72	62.5	48.4	46.8	69.3	65.4	8.63	261360	193.5	148.1	79.8/65.3	52.8/52.3	112.3	73.6					17.2	0.8	164.1	48.4	78.7			
RTU-12	91	71	75	62.5	79	65.1	0	-1.5	72	62.5	51.9	48.6	72.3	68.8	6.3	196182	222.1	182.6	76.9/63.7	54.1/53.4	137.1	71.5					24.1	1.4	229.7	62.4	91.4	11/13.8		
RTU-13	91	71	75	62.5	79	65.1	0	-1.5	72	62.5	51.9	48.6	72.3	68.8	6.3	196182	222.1	183.7	76.9/63.7	54.2/53.5	138.1	71.5					15.1	0.6	143.2	62.5	80.4	11/13.8		
RTU-14	91	71	75	62.5	77.3	64.1	0	-1.5	72	62.5	60.2	54.2	82.9	80.3	3.09	97524	217.5	190.4	75.4/62.8	54.8/54	148.5	71.1					8.9	0.2	84.8	69.9	79.2	11/13.8		
RTU-15	91	71	75	62.5	79.1	65	0	-1.5	72	62.5	51.8	49.2	73.3	70	9.19	279720	218.6	158.1	79.1/65	50.3/49.9	109.9	70.7					15.9	0.6	151	51.8	79.7			
RTU-16	91	71	75	62.5	78.4	64.7	0	-1.5	72	62.5	55.1	50.8	76.4	73.2	5.16	160672	188.4	139.6	76.9/63.7	50.4/50	87.8	74.5	79.1	63.9	79.2	10	5.8	0.1	54.8	62.5	73	10.7/14.3	2.24	3.32
RTU-17	91	71	75	62.5	78.2	64.6	0	-1.5	72	62.5	55.9	51.4	77.4	74.4	4.88	150930	195.1	167.3	76.1/63.3	54.5/53.9	103.3	72	79.8	67.2	77.6	10	5.8	0.1	55.2	66.3	73.5	10.7/14.3	2.24	3.32
RTU-20	91	71	75	62.5	78.3	64.7	0	-1.5	72	62.5	55.5	51.1	76.9	73.8	4.97	155844	227.4	190.3	76.1/63.2	53.5/53.1	111.3	71.5	94.2	67.3	78.6	10	5.9	0.1	56.1	66.4	73.2	10.6/14	2.16	3.25
RTU-21	91	71	75	62.5	78.6	64.7	0	-1.5	72	62.5	54.4	51	76.9	73.7	7.84	240883	194.4	169.8	77.1/63.8	54.9/54.3	102.8	72.2	82	63.2	74.1	10	6.5	0.1	61.6	61.7	69.8	10.7/14.3	2.24	3.32
RTU-22	91	71	75	62.5	78.6	64.7	0	-1.5	72	62.5	54.4	51	76.9	73.7	7.84	240883	197.4	169.8	77.1/63.8	54.9/54.3	102.8	72.2	82	63.2	74.1	10	6.5	0.1	61.6	61.7	69.8	10.7/14.3	2.24	3.32
RTU-23	91	71	75	62.5	78	64.5	0	-1.5	72	62.5	56.7	51.9	78.5	75.5	4.49	140843	192.5	155.1	76.1/63.3	52.9/52.4	96.6	72.7	79	67.1	79.1	10	5.6	0.1	53.4	66.2	74.3	10.7/14.3	2.24	3.32
RTU-24	91	71	75	62.5	78.9	64.8	0	-1.5	72	62.5	53	50	75	71.7	17.06	520884	298.2	245.6	78.9/64.8	53.9/53.9	185.4	73.1					33.5	3.3	318.4	53	85.3			

① PROVIDE MERV 8 PRE-FILTERS & MERV 13 FINAL FILTERS. REFER TO SPEC FOR SPARE FILTERS.
② PROVIDE PREMIUM EFFICIENCY O.D.P. MOTORS, PROVIDE V-F-D ON SUPPLY AND EXHAUST FAN
③ PROVIDE SPRING CURB VIBRATION ISOLATION, DOUBLE WALL CONSTRUCTION & IAQ DRAIN PAN.
④ HOT WATER COILS SIZED FOR 125F ENTERING AND 105°F LEAVING WATER TEMPERATURES WITH 35% GLYCOL.
⑤ MANUFACTURER TO PROVIDE FLOW STATIONS ON OUTDOOR, RETURN AND SUPPLY AIR.
⑥ REFER TO SPECIFICATION FOR CONTROL REQUIREMENTS
⑦ PROVIDE NEMA 3R DISCONNECT SWITCHES. REFER TO SCHEDULE FOR UNITS REQUIRING DUAL POINT POWER.
⑧ REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION
⑨ ALL UNITS SHALL HAVE TOTAL ENERGY RECOVERY SYSTEMS UNLESS NOTED OTHERWISE
⑩ RTUs BASED ON VALANT, ACCEPTABLE MFR'S INCLUDE DAIKIN OR AAON

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PROJECT

100% Construction Documents
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Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

DRAWING TITLE

HVAC Schedules

Locus Map

True North

Key Plan

FILE:
JOB NO: #1904
SCALE: NO SCALE
DWN. BY: FJG
CKD. BY: KRS
DATE: JANUARY 20, 2022

H7.1

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GAS FIRED BOILER SCHEDULE

UNIT NUMBER		HWB-1,2,3
SERVICE		BUILDING
MFR MAKE AND MODEL		LOCHINVAR
MFR SPEC. TYPE		FBN-4000
GAS INPUT (MBH)		4000
GROSS OUTPUT (MBH)		3720
EFFIECIENCY A.F.U.E.		92%
MAX. WORKING PRESSURE (PSIG)		75
FLUE CONNECTION		12"ø
COMBUSTION AIR CONNECTION		12"ø
WATER SUPPLY TEMPERATURE		130°F
WATER TEMPERATURE RISE		105°F
ELECTRICAL DATA	VOLTAGE	460V-3ø
	MAX AMP DRAW	4
	STARTER	INTEGRAL
	FUSE SIZE	– –
	CONTROL	INTEGRAL
	NEMA SIZE	–
REMARKS		①②③④⑤⑥⑦

① COORDINATE WITH CONTROL SYSTEM
② PROVIDE MASS. CODE GAS TRAIN, LOW WATER CUT-OFF, HIGH LIMIT & FLOW SWITCHES
③ PROVIDE MODULATING GAS VALVE.
④ PROVIDE 2 ACID NEUTRALIZATION KITS PER BOILER
⑤ PROVIDE DISCONNECT SWITCH
⑥ PROVIDE DIRECT VENT VERTICAL CONFIGURATION
⑦ REFER TO SPECIFICATIONS FOR FURTHER INFORMATION.

CHILLER/HEATER SCHEDULE

UNIT NUMBER		CH-1
SERVICE		BLDG. CHILLED WATER
MANUFACTURER		MULTISTACK
MODEL		(6)ARAO30LNHC+ABAA21
COOLING DATA	FLUID	30% PROP GLYCOL
	FLOW RATE (GPM)	448.8
	TEMP. ENTERING (F)	60
	TEMP. LEAVING (F)	50
	PRESS. DROP (FT. HD.)	14.89
	NOMINAL TONS	176
	REFRIGERANT	R410A
HEATING DATA	FLUID	30% PROP GLYCOL
	FLOW RATE (GPM)	240
	TEMP. ENTERING (F)	120
	TEMP. LEAVING (F)	130
	PRESS. DROP (FT. HD.)	6.0
	MBH	1130
HEATING & COOLING DATA	FLUID	30% PROP GLYCOL
	FLOW RATE (GPM)	383/519.6
	TEMP. ENTERING (F)	60/120
	TEMP. LEAVING (F)	50/130
	PRESS. DROP (FT. HD.)	14.89/16.82
	TONS/MBH	150.1/2524
ELECTRICAL DATA	POWER INPUT (kW)	–
	EFFICIENCY (EER)	–
	VOLTAGE-PH-HZ	480-3-60
	MIN. CIRCUIT AMPACITY	78/359
	MOCP	110/400
	CONTROL	INTEGRAL/DDC

– PART-WIND START & DISCONNECT SWITCH
– PRESSURE GAGE PANEL
– FLOW SWITCH & OIL SAFETY SWITCH
– SOUND ENCLOSURE & SPRING VIBRATION ISOLATORS
– COORDINATE INTERFACE WITH CONTROLS CONTRACTOR
– PROVIDE DUAL POINT POWER CONNECTION
– PROVIDE SEPARATE PUMP ENCLOUSRE W/ COOLING & HEATING PRIMARY PUMPS & CONTROLS
– MULTIPLE SCROLL COMPRESSORS

PUMP SCHEDULE

UNIT NUMBER		P-1,2,3	P-4A,B,C,D	P-5A,B,C	P-6A & P-6B	P-7A & P-7B	P-8A & P-8B	P-9A & P-9B	P-10A & P-10B
SERVICE		BOILER PUMPS	BUILDING HW SYSTEM PUMPS	RTU HW GLYCOL PUMPS HX-1	POD A TEMPERED CW SYSTEM	POD B TEMPERED CW SYSTEM	POD C TEMPERED CW SYSTEM	POD D TEMPERED SYSTEM	BUILDING CHILLED WATER
MFR MAKE & MODEL		GRUNDFOS VLSE 50707-4P-7.5HP	GRUNDFOS HYDRO MPC-E (4)CRE 125-2-2	GRUNDFOS HYDRO MPC-E (3)CRE 64-1	GRUNDFOS MAGNA3 65-150	GRUNDFOS MAGNA3 65-150	GRUNDFOS MAGNA3 65-150	GRUNDFOS MAGNA3 65-150	GRUNDFOS CRE – 64-1
MFR SPEC. TYPE		VERTICAL	IN-LINE SKID MOUNT	IN-LINE SKID MOUNT	IN-LINE	IN-LINE	IN-LINE	IN-LINE	IN-LINE
FLUID DATA	FLUID	WATER	WATER	30% PROP. GLYCOL	WATER	WATER	WATER	WATER	WATER
	TEMPERATURE (F)	130°	130°	125°	57°	57°	57°	57°	57°
	FLOW RATE (GPM)	350	1800 TOTAL (600 PER PUMP)	660 TOTAL (320 PER PUMP)	80	80	80	80	440
	T.D.H. (FT)	25'	150'	96'	40'	40'	40'	40'	60'
PUMP DATA	TYPE	IN-LINE	IN-LINE	IN-LINE	IN-LINE	IN-LINE	IN-LINE	IN-LINE	IN-LINE
	SPEED (RPM)	1775	–	–	–	–	–	–	–
	BRAKE H.P.	2.96	–	–	–	–	–	–	–
	MOTOR H.P.	7.5	30HP EACH	15HP EACH	5HP	5HP	5HP	5HP	15HP
	MCA/MOCP	–	170/200	56/80	38/58	38/58	38/58	38/58	38/58
	VOLTAGE-PH-Hz	460 / 3 / 60	460 / 3 / 60	460 / 3 / 60	208 / 1 / 60	208 / 1 / 60	208 / 1 / 60	208 / 1 / 60	460 / 3 / 60
STARTER DATA	TYPE	V-F-D	VFD-FACTORY PACKAGE	VFD-FACTORY PACKAGE	ECM	ECM	ECM	ECM	ECM
	NEMA SIZE	AS REQUIRED	AS REQUIRED	AS REQUIRED	AS REQUIRED	AS REQUIRED	AS REQUIRED	AS REQUIRED	AS REQUIRED
	CONTROL	AS REQUIRED	AS REQUIRED	AS REQUIRED	AS REQUIRED	AS REQUIRED	AS REQUIRED	AS REQUIRED	AS REQUIRED
	AUX. CONTACTS	AS REQUIRED	AS REQUIRED	AS REQUIRED	AS REQUIRED	AS REQUIRED	AS REQUIRED	AS REQUIRED	AS REQUIRED

① COORDINATE WITH CONTROL SYSTEM
② PUMPS P4ABCD, P5ABC, HAVE INTEGRAL DRIVES AND ARE SKID MOUNTED PRE-PIPED PUMP SYSTEM W/ REMOTE CONTROL CENTER. SINGLE POINT POWER CONNECTION
③ REFER TO SPECIFICATIONS FOR FURTHER INFORMATION.

RADIATION SCHEDULE

UNIT NUMBER		BB-1	BB-2	BB-3	BB-4	BB-5	BB-6	BB-7	BB-8
MANUFACTURER		RITTLING	RITTLING	RITTLING	RITTLING	RITTLING	RITTLING	RITTLING	RITTLING
MODEL NUMBER		ELEMENT ONLY	ELEMENT ONLY	ELEMENT ONLY	FS5	FS5	FS5	ETL	ETL
ELEMENT	PIPE SIZE (TYPE)	3/4" (COPPER)	3/4" (COPPER)	3/4" (COPPER)	3/4" (COPPER)	3/4" (COPPER)	3/4" (COPPER)	3/4" (COPPER)	3/4" (COPPER)
	ELEMENT SIZE	4-1/4x4-1/4	4-1/4x4-1/4	4-1/4x4-1/4	4-1/4x4-1/4	4-1/4x4-1/4	4-1/4x4-1/4	4-1/4x4-1/4	4-1/4x4-1/4
	FIN PER FOOT	48	48	48	48	48	48	48	48
	OUTPUT	410 (BTUH PER FT)	610 (BTUH PER FT)	830 (BTUH PER FT)	540 (BTUH PER FT)	760 (BTUH PER FT)	970 (BTUH PER FT)	400 (BTUH PER FT)	700 (BTUH PER FT)
	# OF TIERS	1	2	3	1	2	3	1	2
COVER HEIGHT		–	–	–	14"	20"	24"	6"	12"
MOUNTING HEIGHT		VERIFY	VERIFY	VERIFY	18"	24"	28"	10"	16"
NOTES:		SEE NOTES	SEE NOTES	SEE NOTES	SEE NOTES	SEE NOTES	SEE NOTES	SEE NOTES	SEE NOTES

APPROVED MANUFACTURERS ARE RITTLING, STERLING, VULCAIN.
① PROVIDE CONT. WALL TO WALL ENCLOSURE OR AS SHOWN ON DRAWINGS; HINGED END CAPS AND ALL TRIM NECESSARY FOR COMPLETE INSTALLATION; AND HINGED VALVE COVERS AT BALANCING VALVES & CONTROL VALVE LOCATIONS; ALL COVERS SHALL BE 14 GAUGE; LOCKER ROOMS, WEIGHT ROOM, CORRIDORS, CAFETERIA, CUSTODIAN ROOMS, VESTIBULES, & MEN & WOMEN ROOMS SHALL HAVE S.S. COVERS
② SELECTION BASED ON 125°F EWT, 120°F WATER TEMP. DROP, & 65°F EAT
③ COLOR SELECTION BY ARCH.
④

BB-1 BALANCING SCHEDULE							
FLOW (GPM)	0.5	1.0	1.5	2.0	2.5	3.0	3.5
FEET	<11	12-22	23-33	34-44	45-55	56-66	67-77

BB-2 BALANCING SCHEDULE							
FLOW (GPM)	0.5	1.0	1.5	2.0	2.5	3.0	3.5
FEET	<7	8-14	16-21	22-29	31-36	37-43	44-51

BB-3 BALANCING SCHEDULE							
FLOW (GPM)	0.5	1.0	1.5	2.0	2.5	3.0	3.5
FEET	<5	6-11	12-16	17-22	23-27	28-33	34-38

BB-4 BALANCING SCHEDULE							
FLOW (GPM)	0.5	1.0	1.5	2.0	2.5	3.0	3.5
FEET	<8	9-16	17-25	26-33	34-42	43-50	51-59

BB-5 BALANCING SCHEDULE							
FLOW (GPM)	0.5	1.0	1.5	2.0	2.5	3.0	3.5
FEET	<6	7-12	13-18	19-24	25-31	32-37	38-43

BB-6 BALANCING SCHEDULE							
FLOW (GPM)	0.5	1.0	1.5	2.0	2.5	3.0	3.5
FEET	<10	11-21	22-32	33-43	44-53	64-64	65-75

BB-7 BALANCING SCHEDULE							
FLOW (GPM)	1.0	2.0	3.0	4.0	5.0	6.0	7.0
FEET	<17	18-34	35-51	52-68	69-85	86-103	104+

BB-8 BALANCING SCHEDULE							
FLOW (GPM)	1.0	2.0	3.0	4.0	5.0	6.0	7.0
FEET	<12	13-24	25-36	37-49	50-61	62-73	74+

EQUIPMENT NOTES:

CP-1 LITTLE GIANT MODEL #VCM-20ULS AUTOMATIC CONDENSATE PUMP 30 GPM @ 9' HEAD, 1/50 HP, 115 V – 1ø, PROVIDE SAFETY SWITCH AND CHECK VALVE.

ASF-2 AIRIUS THERMAL EQUALIZER FAN, DESIGNER SERIES MODEL #Q-50-EC-STD-100-130-C 120 VOLT-1 PHASE, 0-110 WATTS, 0-1450 RPM 0-1450 CFM. PROVIDE ELECTRICALLY COMMUTATED 92% EFFICIENT MOTOR PROVIDE EMS INTERFACE, VARIABLE SPEED FAN CONTROL OPTION

WATER TO GLYCOL HEAT EXCHANGER SCHEDULE

UNIT NUMBER		HX-1	HX-2	HX-3
MANUFACTURER & MODEL #		GRUNDFOS GA47	GRUNDFOS GA36	GRUNDFOS GA36
LOCATION		MECH. ROOM C115	MECH. ROOM C115	MECH. ROOM C115
SYSTEM SERVED		BLG. HOT WATER GLYCOL	CHILLED WATER SYSTEMS	HOT WATER SYSTEMS
WATER SIDE	GPM	702	450	330
	P.D. (FT. HD)	14.6	14.0	13.74
	E.W.T. (°F)	130	67	110
	L.W.T. (°F)	111	57	125
35% PROP GLYCOL SIDE	GPM	702	450	520
	E.W.T. (°F)	105	50	130
	L.W.T. (°F)	125	60.8	120
	FOULING FACTOR	–	–	–
	P.D. (FT. HD)	14.8	15.0	14.7
	MBTUH	6969	2252	2434
NUMBER OF PLATES		204	140	118
NUMBER OF PASSES/CHANNELS		1/142	1/70	1/59
REMARKS:		PLATE & FRAME TYPE		

– MODEL & DATA BASED ON GRUNDFOS OR EQUAL BY ALFA LAVAL, BELL & GOSSET OR APPROVED EQUAL

PANEL RADIATOR SCHEDULE

UNIT NUMBER	PR-1
MANUFACTURER	RITTLING
MODEL NUMBER	PR3F-7
ELEMENT: PIPE SIZE (TYPE)	–
ELEMENT: ELEMENT SIZE	–
ELEMENT: FIN PER FOOT	–
ELEMENT: DERATED OUTPUT	1273 (BTUH PER FT)
COVER HEIGHT	20-1/4"
MOUNTING HEIGHT	24"
NOTES:	see notes

APPROVED MANUFACTURERS ARE RITTLING, STERLING, VULCAIN, RUNTAL.
① SELECTION BASED ON 125°F EWT, 20°F WATER TEMP. DROP, & 65°F EAT.
③ PROVIDE ALL TRIM & ACCESSORIES NECESSARY FOR COMPLETE INSTALLATION. CENTER, END, END CAP, AND VERTICAL PIPE TRIM; PROVIDE PERFORATED TOP CAP PANEL RADIATOR SHALL BE CONTINUOUS FROM WALL TO WALL
④ COLOR SELECTION BY ARCH.

PR-1 BALANCING SCHEDULE							
FLOW (GPM)	0.5	1.0	1.5	2.0	2.5	–	–
FEET	<14	15-28	29-43	44-57	58-72	–	–

SYMBOLS LEGEND

DIRECTION OF AIRFLOW
VOLUME DAMPER
LINEAR DIFFUSER
SUPPLY DIFFUSER
RETURN REGISTER/GRILLE
FLEXIBLE DUCTWORK
DUCTWORK
INTERNALLY LINED DUCTWORK AS SHOWN OR AS SPECIFIED
DUCT ELBOW WITH TURNING VANES
SUPPLY RISE OR DROP
RETURN RISE OR DROP
FLEXIBLE DUCT CONNECTOR
SA-# DUCT SILENCER
HOT WATER SUPPLY PIPING (HWS)
HOT WATER RETURN PIPING (HWR)
30% PROPYLENE GLYCOL SUPPLY PIPING (GLYS)
30% PROPYLENE GLYCOL RETURN PIPING (GLYR)
CONDENSATE DRAIN PIPING
REFRIGERANT PIPING
EXPANSION COMPENSATOR W/ PIPE GUIDES
PIPE ANCHOR
SD-1 / CFM — DIFFUSER CALLOUT CUBIC FEET PER MINUTE (CFM)
RTU-1 — EQUIPMENT CALLOUT
T — THERMOSTAT
TL — LINE VOLTAGE THERMOSTAT
SD — DUCT SMOKE DETECTOR
EWT — ENTERING WATER TEMPERATURE
LWT — LEAVING WATER TEMPERATURE
EAT — ENTERING AIR TEMPERATURE
LAT — LEAVING AIR TEMPERATURE
PRESSURE GUAGE W/GAUGE COCK
CHECK VALVE SWING OR NO-SLAM AS SPECIFIED
BALL VALVE (FULL PORT)
2-WAY CONTROL VALVE
3-WAY CONTROL VALVE
BALANCING VALVE
UNION
THERMOMETER W/ WELL
BUTTERFLY VALVE W/ MEMORY STRAP
FLEXIBLE PIPE CONNECTION
FSD — FIRE/SMOKE DAMPER W/ ACCESS DOOR
FIRE DAMPER W/ ACCESS DOOR
COVER / ELEMENT — FINTUBE RADIATION
FINTUBE CALLOUT — TYPE / ELEMENT (FT)
MOTORIZED DAMPER (MOD)
GRAVITY DAMPER

A.L. ALUMINUM
C.O. CLEAN OUT
S.S. STAINLESS STEEL
S.A. SUPPLY AIR
R.A. RETURN AIR
T.A. TRANSFER AIR
S.L. SOUND LINED

DISPLACEMENT CHILLED BEAMS

			SIZE			ROOM CONDITIONS				PRIMARY AIR						PRESSURE DROP & SOUND			TOTAL AIR WITH INDUCTION		LATENT CAPACITY			CHILLED WATER					SENSIBLE COOLING						QLCI COIL HEATING						TOTAL HEATING		DERATE FACTORS					
					AIR	COOLING MODE		HEATING MODE		COOLING MODE		HEATING MODE			TOTAL	NUMBER	MAX.		UNIT	ZONE	LATENT COOLING	ZONE LATENT COOLING				TOTAL	MAX.	AIR	WATER	TOTAL	ZONE	EFFECTIVE	ZONE EFFECTIVE				TOTAL	MAX.	AIR	AIR	WATER	TOTAL	ZONE						
			DEPTH	INLET Ø										FLOW	FLOW	OF UNITS	APD	NC	FLOW	FLOW	COOLING	HEATING	HEATING	EWT	LWT	FLOW	FLOW	WPD	SIDE	SIDE	SENSIBLE	SENSIBLE	SENSIBLE	SENSIBLE	EWT	LWT	FLOW	FLOW	WPD	SIDE	SIDE	SENSIBLE	SENSIBLE	TYPE	PERCENT				
Tag	RoomTag	AREA SERVED	SIZE	(IN)	(IN)	(°F)	RH	(°F)	RH	(°F)	RH	(°F)	RH	(CFM)	(CFM)	IN LINE	(IN WG)	LEVEL	(CFM)	(CFM)	(BTUH)	(BTUH)	(BTUH)	(°F)	(°F)	(GPM)	(GPM)	(FT)	(BTUH)	(BTUH)	(BTUH)	(BTUH)	(BTUH)	(BTUH)	(°F)	(°F)	(GPM)	(GPM)	(FT)	(BTUH)	(BTUH)	(BTUH)	(BTUH)	ADDITIVE	GLYCOL	MODEL NUMBER	REMARKS
CDB-1	See Plans	SEE PLANS	2000	13.5	8	75.0	55%	72.0	30%	52.0	95%	65.0	20%	180	360	1	0.38	30	540	1080	-2052	-2063	-4125	57.0	62.6	1.00	2.00	4.8	-4519	-2795	-7315	-14630	-9405	-18809	120.0	110.3	1.00	2.00	1.6	-1362	4864	3502	7004	0	None	0%	QLCI-4U2M-4-U	(2) QLCI 2000

APPROVED MANUFACTURERS ARE CARSON SOLUTIONS, DAIKEN, OR PRICE

CLASSROOM EQUIPMENT NOTES:

UC-1 PIPE & DUCT ACCESS UTILITY CABINET WITH REMOVABLE FRONT PANEL MODEL BUC-30 AS MANUFACTURED BY CARSON SOLUTIONS OR EQUAL. UC SHALL BE SUPPLIED FORM SAME MANUFACTURER AS DISPLACEMENT CHILLED BEAM SYSTEM. UC SHALL BE 30" WIDE & HAVE KICKSPACE TO MATCH CDB, WITH CONTINUOUS KICKSPACE INTAKE GRILLE; COLOR SELECTION BY ARCH.

RC-1 BOOKCASE CABINET WITH INTEGRAL SHELVES SHALL BE MANUFACTURED BY CARSON SOLUTIONS OR EQUAL. BC SHALL BE SUPPLIED FORM SAME MANUFACTURER AS DISPLACEMENT CHILLED BEAM SYSTEM. BC SHALL BE 30" WIDE & HAVE KICKSPACE TO MATCH CDB, WITH CONTINUOUS KICKSPACE INTAKE GRILLE; COLOR SELECTION BY ARCH.

RC-2 BOOKCASE CABINET WITH INTEGRAL SHELVES SHALL BE MANUFACTURED BY CARSON SOLUTIONS OR EQUAL. BC SHALL BE SUPPLIED FORM SAME MANUFACTURER AS DISPLACEMENT CHILLED BEAM SYSTEM. BC SHALL BE 36" WIDE & HAVE KICKSPACE TO MATCH CDB, WITH CONTINUOUS KICKSPACE INTAKE GRILLE; COLOR SELECTION BY ARCH.

RC-3 BOOKCASE CABINET WITH INTEGRAL SHELVES SHALL BE MANUFACTURED BY CARSON SOLUTIONS OR EQUAL. BC SHALL BE SUPPLIED FORM SAME MANUFACTURER AS DISPLACEMENT CHILLED BEAM SYSTEM. BC SHALL BE 42" WIDE & HAVE KICKSPACE TO MATCH CDB, WITH CONTINUOUS KICKSPACE INTAKE GRILLE; COLOR SELECTION BY ARCH.

RC-4 BOOKCASE CABINET WITH INTEGRAL SHELVE & DUCT CHASE SHALL BE MANUFACTURED BY CARSON SOLUTIONS OR EQUAL. BC SHALL BE SUPPLIED FORM SAME MANUFACTURER AS DISPLACEMENT CHILLED BEAM SYSTEM. BC SHALL BE 30" WIDE & HAVE KICKSPACE TO MATCH CDB, WITH CONTINUOUS KICKSPACE INTAKE GRILLE; COLOR SELECTION BY ARCH.

FAN SCHEDULE

		UNIT NUMBER	EF-1,10,11	EF-2	EF-3	EF-4	EF-5,6	EF-7	EF-8,9	EF-12	KEF-1	DEF-1	UEF-1(2 FANS)	WEF-1	SPF-1,2,3	ILF-1,2	ILF-3	ILF-4	ILF-5	ILF-6	ILF-7	ILF-8	ILF-9	ASF-1
		SERVICE	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS
		TYPE	HOOD EXHAUST FAN	EXHAUST FAN	EXHAUST FAN	EXHAUST FAN	EXHAUST FAN	EXHAUST FAN	EXHAUST FAN	EXHAUST FAN	KITCHEN EXH. FAN	DISHWASH EXH. FAN	UNDERSLAB EXH. FAN	INLINE EXH. FAN	STAIR PRESS. FAN	GARAGE EXH. FAN	GARAGE EXH. FAN	GARAGE EXH. FAN	KILN ROOM	KILN ROOM	DRYER	BOILER RM EXH.	BOILER RM O.A.	ANTI-STRATIFICATION
FANS		MANUFACTURER	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	FANTECH	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	SKUTT	GREENHECK	FANAM	GREENHECK	GREENHECK	GREENHECK
		MODEL #	VEKTOR-H-22	G-163-VG	G-163-VG	G-163-VG	G-098-VG	G-163-VG	G-097-VG	G-103HP-VG	CUBE-360HP-VGD-75	CUE-099-VG	(2)HP220	SQ-140-VG	USF-33	QEID-18-85	QEID-22-95	QEID-22-95	ENVIROVENT 2	CSP-B150	ICF150	SQ-120-VG	SQ-120-VG	SQ-99-VG
		C.F.M.	(MAX)5600(MIN)1400	2250	2250	2250	450	3125	75	300	6000	600	260	2175	15,000	6,000	12,000	11,000	140	140	80	1,100	1,000	500
		STATIC PRESS. (IN WG)	1.5"	1.5"	1.5"	1.5"	1.0"	1.5"	0.5"	1.0"	2.0"	1.0"	1.0"	0.75"	3.0"	0.75"	1.0"	1.0"	0.25"	0.25	0.5"	1.0"	1.0"	0.75"
		FAN RPM	(MAX)1722(MIN)1595	1422	1422	1422	1680	1576	1117	1709	805	1649	–	1458	986	1770	1770	1770	–	1050	–	–	–	1564
		FAN BHP	6.14	1.01	1.01	1.01	0.16	1.48	0.02	0.13	6.34	0.19	–	0.60	10.8	2.2	6.6	6.6	–	–	–	–	–	–
		HVI RATED FAN SCNES	75(do)	16.6	16.6	16.6	10.1	21	4.4	9.9	25	9.6	–	9.6	29	25	36	36	–	–	–	–	–	–
MOTOR & STARTER	MOTOR	TYPE	VFD	ECM	ECM	ECM	ECM	ECM	ECM	ECM	ODP(VFD)	ECM	ECM	ECM	VFD	HOA	HOA	VFD	ODP	ODP	ODP	ECM	ECM	ECM
		H.P	5	2	2	2	1/4	2	1/4	1/4	7-1/2	1/4	–	3/4	15	3	7-1/2	7-1/2	–	–	–	1/2	1/2	1/4
		WATTS	–	–	–	–	–	–	–	–	–	–	(2)1152	–	–	–	–	–	–	–	–	–	–	–
		AMPS	–	–	–	–	–	–	–	–	–	–	(2)1.3	–	–	–	–	–	1.4	–	2.5	–	–	–
		VOLTAGE/PHASE	460-3	208-1	208-1	208-1	115-1	208-1	115-1	115-1	460-3ø	115-1	115-1	115-1	460-3	460-3	460-3	460-3	115-1	115-1	115-1	115-1	115-1	115-1
	STARTER	TYPE	V-F-D	ECM(M)	ECM(M)	ECM(M)	ECM(M)	ECM(M)	ECM(M)	ECM(M)	VFD-F-D	ECM(M)	ECM(M)	ECM(M)	RELAY	RELAY	RELAY	RELAY	INTEGRAL	ECM(M)	ECM(M)	ECM(M)	ECM(M)	ECM
		NEMA SIZE	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
		CONTROL	HOOD CONTROLS	EMS	EMS	EMS	EMS	EMS	EMS	EMS	HOOD CONTROLLER	D.W. INT. & SW.	EMS	EMS	EMS	EMS	EMS	EMS	KILN CONTROL	EMS	EMS	EMS	EMS	EMS
		AUX. CONTACTS	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			②	①	①	①	①	①	①	①	③	④	⑤	⑧	①	⑥	⑥	⑥	①	⑧	⑥	⑥	⑥	⑧

– APPROVED MANUFACTURERS ARE GREENHECK, TWIN CITY, COOK OR EQUAL, ECM(M) = ECM W/MOUNTED POTENTIOMETER DIAL; ECM = ECM WITH INTEGRAL TRANSFORMER FOR 0-10V EMS SIGNAL CONTROL

① PROVIDE INSULATED ROOF CURB, PREMIUM EFFICIENT MOTOR, NEMA 3R WEATHER PROOF DISCONNECT SWITCH, AND MOTORIZED DAMPER. PROVIDE MOTOR-VARI-GREEN ECM(M) W/MOUNTED POTENTIOMETER DIAL.
② PROVIDE INSULATED DOUBLE WALLED SEISMIC ROOF CURB; INLET POSITION A-PLENUM W/ BOTTOM EXHAUST INTAKE LOCATION, MOTORIZED S.S. ISOLATION DAMPER. HI-PRO POLYESTER COATING-INDUSTRIAL GREY, ROOF CURB-GPF-LE. CLASS F MOTOR INSULATION. INVERTER RATED MOTOR. DISCONNECT SWITCH NEMA 3R, UL705 LISTED. 18" NOZZLE SIZE, PLUME HEIGHT 27.7'
③ PROVIDE NFPA 96 VENTILATED HINGED ROOF CURB, PREMIUM EFFICIENT MOTOR. PROVIDE UL-762 LISTED, HEAT BAFFLE, CLEAN OUT PORT, AND GREASE TRAP WITH ABSORBANT AND DRAIN CONNECTION. INTERFACE FAN OPERATION WITH RESPECTIVE HOOD FAN SWITCH.
④ PROVIDE INSULATED ROOF CURB, PREMIUM EFFICIENT MOTOR, NEMA 3R WEATHER PROOF DISCONNECT SWITCH, AND MOTORIZED DAMPER. PROVIDE MOTOR-VARI-GREEN ECM W/ MOUNTED POTENTIOMETER DIAL. INTERFACE FAN OPERATION WITH RESPECTIVE HOOD FAN SWITCH. PROVIDE STAINLESS STEEL DAMPER.
⑤ FURNISH FANS FOR RADON UNDERSLAB VENT SYSTEM; TWO FANS IN SERIES PER RADON VENT RISER. FURNISH FANS TO PLUMBING CONTRACTOR. RADON VENT SYSTEM BY P.C. MECHANICAL CONTRATOR TO PROVIDE CONTROL OF FAN BY EMS.
⑥ PROVIDE INVERTER RATED MOTOR (ECM WHERE NOTED). DISCONNECT SWITCH, AND VIBRATION ISOLATION HANGER SYSTEM, PROVIDE CONTROLS AS SCHEDULED; STARTER WHERE SCHEDULED H-O-A OR VFD'S WHERE SCHEDULED.
⑦ PROVIDE DRYER RATED FAN W/ INTEGRAL PRESSURE SWITCH & TIMER CONTROL
⑧ PROVIDE INTAKE FILTER RACK W/ MERV 8 FILTERS. SEE SPEC FOR SPARE FILTERS
⑨ PROVIDE UL LISTED SMOKE DUTY FAN. FAN SHALL HAVE 1.5 TIMES THE BELTS REQUIRED (NO LESS THEN 2) AND SHALL HAVE MOTOR SAFETY FACTOR OF 1.15.

ILF-4 KILN INLINE EXH. FAN SKUTT ENVIROVENT 2	ILF-5 SEE PLANS INLINE EXH. FAN FANAM ICF150	ILF-6 SEE PLANS INLINE EXH. FAN FANTECH DBF110	ILF-7 SEE PLANS INLINE EXH. FAN GREENECK SQ-120-VG
140	80	120	
0.25"	0.5"	0.5"	1.0"
–	–	2761	–
–	–	–	–
–	–	–	–
ODP	ODP	ODP	ECM
–	–	–	1/2
–	–	78	–
1.4	2.5	–	–
115-1	115-1	115-1	115-1
INTEGRAL	ECM(M)	INTEGRAL	ECM(M)
–	–	–	–
KILN CONTROL	EMS	AUTOMATIC	EMS
–	–	–	–
⑧	⑧	⑧ ⑨	⑧

CONTROLS LEGEND

SPACE T H — WALL MOUNTED SPACE TEMPERATURE THERMOSTAT AND/OR OCCUPANCY OVER-RIDE BUTTON
T # — WATER TEMPERATURE SENSOR/THERMOSTAT
FS # — FLOW STATION
DP # — FILTER DIFFERENTIAL PRESSURE SENSOR
VS # — VELOCITY TRANSDUCER
AO — ANALOG OUTPUT FROM EMS
EV # — ELECTRONIC VALVE ACTUATOR
EM # — ELECTRONIC DAMPER MOTOR ACTUATOR
T # — DUCT MOUNTED TEMPERATURE SENSOR/THERMOSTAT
H # — DUCT MOUNTED RELATIVE HUMIDITY SENSOR
LT # — DUCT MOUNTED LOW TEMP. FREEZE THERMOSTAT
T # — DUCT MOUNTED AVERAGING THERMOSTAT
HS # — AUTO-OFF SWITCH
HOA # — HAND-AUTO-OFF STARTER
SD # — DUCT SMOKE DETECTOR (FURNISHED BY OTHERS)
OC # — OCCUPANCY SENSOR (COORDINATE W/ ELECTRICIAN)
AL # — ALARM (DIGITAL AND ANALOG)
SM — KITCHEN HOOD SMOKE SENSOR
VS # — VELOCITY SENSOR
CO_2 — CO_2 SENSOR
CO — CO SENSOR
R — REFRIGERANT SENSOR
SC # — SPEED CONTROL SIGNAL
SP # — STATIC PRESSURE SENSOR
S/S # — STATIC PRESSURE SENSOR
RI # — RUN INDICATOR
VFD # — VARIABLE FREQUENCY DRIVE
ECM # — EC MOTOR
FSD — FIRE SMOKE DAMPER
AI # — ANALOG INPUT

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AIR COOLED HEAT PUMP CONDENSING UNIT SCHEDULE

UNIT NO.	MANUFACTURER	MODULES	MODEL NO.	COOLING CAP. @ 95F (MBH)	MIN HEATING COP DUCTED (@17F)	HEATING CAP. @ 0F (MBH)	ELECTRICAL CHARACTERISTICS V	PH	MCA	MAX SOUND PRESSURE (dBA)	REMARKS	MINIMUM EER/IEER (DUCTED)	INTERLOCK	# of VRV Expansion Valves/Circuits
ACHP-1A	Daikin	RXYQ120XAYDA	RXYQ240XAYDA	239,659	2.34	160,456	460	3	20.6	64	DUAL MODULE	11.2/20.9	RTU-1	4
		RXYQ120XAYDA					460	3	20.6					
ACHP-1B	Daikin	RXYQ120XAYDA	RXYQ240XAYDA	239,659	2.34	160,456	460	3	20.6	64	DUAL MODULE	11.2/20.9		
		RXYQ120XAYDA					460	3	20.6					
ACHP-2A	Daikin	RXYQ120XAYDA	RXYQ240XAYDA	239,659	2.34	160,456	460	3	20.6	64	DUAL MODULE	11.2/20.9	RTU-2	4
		RXYQ120XAYDA					460	3	20.6					
ACHP-2B	Daikin	RXYQ120XAYDA	RXYQ240XAYDA	239,659	2.34	160,456	460	3	20.6	64	DUAL MODULE	11.2/20.9		
		RXYQ120XAYDA					460	3	20.6					
ACHP-3A	Daikin	RXYQ120XAYDA	RXYQ216XAYDA	215,153	2.46	150,812	460	3	20.6	64	DUAL MODULE	10.9/21.1	RTU-3	3
		RXYQ96XAYDA					460	3	20.6					
ACHP-3B	Daikin	RXYQ120XAYDA	RXYQ216XAYDA	215,153	2.46	150,812	460	3	20.6	64	DUAL MODULE	10.9/21.1		
		RXYQ96XAYDA					460	3	20.6					
ACHP-3C	Daikin	RXYQ120XAYDA	RXYQ216XAYDA	215,153	2.46	150,812	460	3	20.6	64	DUAL MODULE	10.9/21.1		
		RXYQ96XAYDA					460	3	20.6					
ACHP-4A	Daikin	RXYQ120XAYDA	RXYQ240XAYDA	239,659	2.34	160,456	460	3	20.6	64	DUAL MODULE	11.2/20.9	RTU-4	2
		RXYQ120XAYDA					460	3	20.6					
ACHP-9A	Daikin	RXYQ120XAYDA	RXYQ192XAYDA	191,802	2.23	134,038	460	3	20.6	63	DUAL MODULE	11.6/21.2	RTU-11	2
		RXYQ72XAYDA					460	3	12.3					
ACHP-9B	Daikin	RXYQ120XAYDA	RXYQ192XAYDA	191,802	2.23	134,038	460	3	20.6	63	DUAL MODULE	11.6/21.2		
		RXYQ72XAYDA					460	3	12.3					
ACHP-11A	Daikin	RXYQ120XAYDA	RXYQ216XAYDA	215,153	2.46	150,812	460	3	20.6	64	DUAL MODULE	10.9/21.1	RTU-18	2
		RXYQ96XAYDA					460	3	20.6					
ACHP-11B	Daikin	RXYQ120XAYDA	RXYQ216XAYDA	215,153	2.46	150,812	460	3	20.6	64	DUAL MODULE	10.9/21.1		
		RXYQ96XAYDA					460	3	20.6					
ACHP-12A	Daikin	RXYQ120XAYDA	RXYQ264XAYDA	263,165	2.3	170,586	460	3	20.6	66	DUAL MODULE	9.9/19.6	RTU-19	6
		RXYQ144XAYDA					460	3	25.9					
ACHP-12B	Daikin	RXYQ120XAYDA	RXYQ264XAYDA	263,165	2.3	170,586	460	3	20.6	66	DUAL MODULE	9.9/19.6		
		RXYQ144XAYDA					460	3	25.9					
ACHP-12C	Daikin	RXYQ120XAYDA	RXYQ264XAYDA	263,165	2.3	170,586	460	3	20.6	66	DUAL MODULE	9.9/19.6		
		RXYQ144XAYDA					460	3	25.9					

① PROVIDE LOW AMBIENT CONTROLS. PROVIDE DISCONNECT SWITCH.
② PROVIDE HARD START ASSIST KIT WITH CRANKCASE HEATER.
③ PROVIDE ANTI-SHORT CYCLE TIMER.
④ REFRIGERANT LINE SIZES SHALL BE BY EQUIP. MFR. RECOMMENDED SIZES PER RUN LGTH. VERIFY W/ MFR.
⑤ SPACING BETWEEN BLDG & ADJ CU UNITS SHALL BE PROVIDED AS SPEC. BY EQUIP. MFR.
⑥ PROVIDE 18" HIGH SEISMICALLY BRACED QUICK SLING SUPER STANDS AS MANUF. BY DIVERSITECH. STANDS SHALL HAVE 12" PADS ANCHORED TO EQUIPMENT SUPPORTS BY G.C. COORD REQUIRED WIDTH, LENGTHS & LOCATIONS OF EQUIPMENT SUPPORST W/ G.C.

SOUND ATTENUATOR SCHEDULE

Tag	Qty	Model	Width (in)	Height (in)	Length (in)	LegA (in)	LegB (in)	Air Direction	Flow (CFM)	Velocity (FPM)	PD (in. w.g.)	63	125	250	500	1k	2k	4k	8k
SA-1S	1	-	-	-	-	-	-	Forward	39600	1781	-	83	79	69	65	64	68	66	65
SA-1R	1	-	-	-	-	-	-	Reverse	39600	1303	-	88	92	103	95	92	87	81	77
SA-2S	1	-	-	-	-	-	-	Forward	40325	1806	-	83	80	69	66	64	68	66	66
SA-2R	1	-	-	-	-	-	-	Reverse	40325	1292	-	88	92	103	95	92	87	81	77
SA-3S	1	-	-	-	-	-	-	Forward	32700	1913	-	80	75	64	62	63	66	61	59
SA-3R	1	-	-	-	-	-	-	Reverse	32700	1187	-	88	92	98	91	88	83	77	74
SA-4S	1	-	-	-	-	-	-	Forward	5100	1275	0.19	9	13	18	24	33	41	32	20
SA-4R	1	-	-	-	-	-	-	Reverse	5100	756	0.03	9	13	14	17	21	25	20	13
SA-5S	1	ERMT60/8B	28.00	58.00	60.00	44.00	44.00	Forward	13300	1179	0.10	9	13	15	18	23	28	22	15
SA-5R	2	ERMT60/YA	33.00	43.00	60.00	41.50	41.50	Reverse	5880	597	0.03	9	12	12	14	18	22	17	11
SA-6S	2	ERMT66/5C	43.00	54.00	66.00	54.50	54.50	Forward	15975	991	0.11	10	14	18	23	30	36	29	18
SA-6R	1	ERMT72/1A	Note 4	Note 4	72.00	Note 4	Note 4	Reverse	15975	1136	0.11	10	14	20	27	36	44	33	19
SA-7S	1	ERMT60/YB	23.00	43.00	60.00	41.50	41.50	Forward	7000	1019	0.12	11	14	13	16	19	26	21	14
SA-7R	1	ERMT60/YA	23.00	43.00	60.00	41.50	41.50	Reverse	7000	1019	0.09	9	12	12	15	19	22	17	11
SA-8S	1	ERMT72/6B	23.00	43.00	72.00	47.50	47.50	Forward	7300	1063	0.08	10	14	17	23	28	33	26	17
SA-8R	1	ERMT72/YC	23.00	43.00	72.00	47.50	47.50	Reverse	7300	1063	0.18	14	17	17	20	25	31	26	16
SA-9S	1	ERMT72/YB	23.00	43.00	72.00	47.50	47.50	Forward	7400	1077	0.13	11	15	14	17	22	28	23	14
SA-9R	1	ERMT72/YB	23.00	43.00	72.00	47.50	47.50	Reverse	7400	1077	0.13	12	17	16	18	23	28	22	14
SA-10S	1	ERMT108/3B	35.00	35.00	108.00	71.50	71.50	Forward	10700	1258	0.16	14	17	24	35	42	53	42	24
SA-10R	1	ERMT90/3C	35.00	35.00	90.00	62.50	62.50	Reverse	10700	1258	0.19	14	19	26	34	42	48	38	22
SA-11S	1	ERMT72/VA	33.00	53.00	72.00	44.50	60.50	Forward	16900	1391	0.12	10	13	13	18	22	28	21	14
SA-11R	2	ERMT72/VA	33.00	53.00	72.00	52.50	52.50	Reverse	16900	1391	0.12	11	15	15	20	23	28	21	14
SA-12S	1	ERMT72/YA	23.00	43.00	72.00	36.00	59.00	Forward	7060	1028	0.09	9	12	12	16	20	26	20	13
SA-12R	1	RLT72/6C	23.00	43.00	72.00			Reverse	7060	1028	0.16	11	14	21	28	30	26	17	12
SA-13S	1	ERMT72/8B	27.00	49.00	72.00	49.50	49.50	Forward	10205	1111	0.09	10	14	16	22	27	32	25	16
SA-13R	1	ERMT84/1C	27.00	49.00	84.00	55.50	55.50	Reverse	10205	1111	0.17	12	18	27	34	44	54	42	24
SA-14S	1	ERMT72/8A	27.00	41.00	72.00	49.50	49.50	Forward	9305	1210	0.08	9	13	14	20	24	29	23	15
SA-14R	1	ERMT72/1C	27.00	41.00	72.00	49.50	49.50	Reverse	9305	1210	0.19	11	17	25	31	41	50	39	22
SA-15S	1	RLT36/VD	17.00	17.00	36.00			Forward	1100	548	0.06	8	10	12	16	14	15	11	9
SA-15R	1	RLT36/VC	17.00	17.00	36.00			Reverse	1100	548	0.04	8	10	11	14	13	13	10	8
SA-16S	1	ERMT96/VB	33.00	49.00	96.00	40.00	89.00	Forward	15750	1403	0.18	12	16	17	25	28	35	27	17
SA-16R	1	ERMT60/VA	33.00	49.00	60.00	40.00	53.00	Reverse	15750	1403	0.12	10	14	14	17	21	25	19	13
SA-17S	1	ERMT84/8C	27.00	27.00	84.00	55.50	55.50	Forward	5100	1007	0.12	11	16	19	26	32	37	29	18
SA-17R	1	ERMT60/8C	27.00	27.00	60.00	43.50	43.50	Reverse	5100	1007	0.12	11	15	17	21	27	30	23	15
SA-18S	1	ERMT120/6E	23.00	29.00	120.00	60.00	83.00	Forward	3500	756	0.13	18	25	32	41	49	55	43	25
SA-18R	1	ERMT60/YD	23.00	29.00	60.00	41.50	41.50	Reverse	3500	756	0.14	11	17	17	19	24	33	28	18
SA-19S	1	ERMT60/8A	27.00	31.00	60.00	43.50	43.50	Forward	7075	1217	0.08	9	12	13	16	20	25	20	14
SA-19R	1	ERMT132/1B	27.00	31.00	132.00	43.50	115.50	Reverse	7075	1217	0.21	18	22	33	47	55	55	54	28
SA-20S	1	ERMT108/1E	27.00	39.00	108.00	67.50	67.50	Forward	6100	834	0.20	17	23	34	41	47	55	55	32
SA-20R	1	ERMT84/1E	27.00	39.00	84.00	55.50	55.50	Reverse	6100	834	0.18	15	22	33	38	48	55	48	27
SA-21S	1	ERMT144/2A	33.00	43.00	144.00	88.50	88.50	Forward	14000	1421	0.19	15	18	25	46	53	55	51	28
SA-21R1	1	ERMT132/2A	31.00	15.00	132.00	81.50	81.50	Reverse	5000	1548	0.22	16	19	27	45	53	55	46	25
SA-21R2	1	ERMT120/2D	31.00	39.00	120.00	75.50	75.50	Reverse	9000	1072	0.23	19	26	37	44	52	55	51	27
SA-22S	1	ERMT132/8C	27.00	39.00	132.00	79.50	79.50	Forward	9100	1244	0.17	17	21	26	39	44	51	39	23
SA-22R	1	ERMT120/1B	27.00	39.00	120.00	42.00	105.00	Reverse	9100	1244	0.21	17	21	31	43	52	55	51	27
SA-23S	1	RLT36/4D	19.00	19.00	36.00			Forward	1570	626	0.09	7	10	14	20	23	25	18	12
SA-23R	1	RLT36/WE	19.00	19.00	36.00			Reverse	1570	626	0.11	9	13	15	18	17	16	12	9
SA-24S	1	RLT36/4B	19.00	17.00	36.00			Forward	1335	595	0.04	6	8	11	16	17	18	14	10
SA-24R	1	RLT36/4E	19.00	17.00	36.00			Reverse	1335	595	0.12	9	12	17	23	27	27	20	13
SA-MAU	1	RLT36/4E	19.00	17.00	36.00			Reverse	1335	595	0.12	9	12	17	23	27	27	20	13

① ATTENUATORS SHALL BE SAME SIZE OF DUCTWORK, CONSTRUCTED OF GALVANIZED STEEL, CL1 (22 GA) 22GA PERF LINER, FIBERGLASS, POLYMER FILM; VERIFY ALL DIMENSIONS
② SA-4R SHALL BE CUSTOM TEE TYPE ATTENUATOR W/ 36"x27" INLET, 27"x21" & 27"x15" OUTLET; VERIFY ALL DIMENSIONS
③ RTU-1,2,3 SHALL HAVE INTEGRAL SOUND ATTENUATORS; REFER TO DRAWINGS & SPECIFICATIONS FOR SIZING REQUIREMENTS
④ SA-6S SHALL BE CUSTOM TEE TYPE ATTENUATOR W/ 54"x43" INLET, 43"x27" OUTLETS; VERIFY ALL DIMENSIONS
⑤ ATTENUATORS SHALL BE SAME SIZE OF DUCTWORK, CONSTRUCTED OF GALVANIZED STEEL, CL2 (18 GA) 22GA PERF LINER, FIBERGLASS, POLYMER FILM; VERIFY ALL DIMENSIONS
⑥ ATTENUATORS SHALL BE SAME SIZE OF DUCTWORK, CONSTRUCTED OF GALVANIZED STEEL, HTL2 (10 GA) 22GA PERF LINER, FIBERGLASS, POLYMER FILM; VERIFY ALL DIMENSIONS
⑦ ATTENUATORS SHALL BE SAME SIZE OF DUCTWORK, CONSTRUCTED OF GALVANIZED STEEL, HTL1 (16 GA) 22GA PERF LINER, FIBERGLASS, POLYMER FILM; VERIFY ALL DIMENSIONS
⑧ SOUND ATTENUATOR MODELS LISTED ARE BY PRICE INDUSTRIES. ACCEPTABLE ALTERNATE MANUFACTURERS RUSKIN OR IAC ACOUSTICS.

FAN COIL SCHEDULE

	UNIT NUMBER	FC E-5,9 E-17,23,24,25,26 E-27,28,30,31 E-34,41,42,45	FC E-2,3,7,8,16,17 E-20,21,32,44,48	FC E-4,6,29,33,43 E-47	FC E-18,19,29,37,40	FC C-1,2 D-1 E-36,49,50	FC A-1,2,3 C-3 E-35,38,39	FC A-4 B-1,2,3,4,5,6 C-4 D-2,3,4,5,6,7,8 E-43,49,50	FC B-7,8,9,10,11 C-5,6,7 D-1 E-	FC E-46	FC E-1	FC E-10,11,12,13,22
	SERVICE	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS
FAN COIL	TONS	0.6	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.5	2.0	1.5
	MANUFACTURER MAKE	DAIKEN	DAIKEN	DAIKEN	DAIKEN	DAIKEN	DAIKEN	DAIKEN	DAIKEN	DAIKEN	DAIKEN	DAIKEN
	MANUFACTURER MODEL #	DUCTED FXMQ007PBVJU	DUCTED FXMQ009PBVJU	DUCTED FXMQ012PBVJU	DUCTED FXMQ015PBVJU	DUCTED FXMQ018PBVJU	DUCTED FXMQ024PBVJU	DUCTED FXMQ030PBVJU	DUCTED FXMQ036PBVJU	DUCTED FXMQ054PBVJU	WALL FXAQ24PVJU	2X2 CEILING FXZQ18TAVJUPVJU
	C.F.M.	265/247/212	396/388/353	918/812/706	1130/953/883	918/812/706	918/812/706	918/812/706	1130/953/883	1130/953/883	1130/953/883	1130/953/883
	E.S.P. (IN WG)	–	–	–	–	–	–	–	–	–	–	–
	FAN RPM (SPEED)	–	–	–	–	–	–	–	–	–	–	–
	HP	–	–	–	–	–	–	–	–	–	–	–
	MIN. OUTDOOR AIR (CFM)	–	–	–	–	–	–	–	–	–	–	–
ELEC	V-PH-HZ	208V-1ø	208V-1ø	208V-1ø	208V-1ø	208V-1ø	208V-1ø	208V-1ø	208V-1ø	208V-1ø	208V-1ø	208V-1ø
	MCA / MOCP	0.2 / 15	0.2 / 15	1.3 / 15	1.3 / 15	1.3 / 15	1.3 / 15	1.3 / 15	1.3 / 15	1.3 / 15	1.3 / 15	1.3 / 15
	–	–	–	–	–	–	–	–	–	–	–	–
DX COOLING	AMBIENT TEMP (°F)	91	91	91	91	91	91	91	91	91	91	91
	TOTAL / SENSIBLE CAPACITY (MBH)	5.1 / 3.6	17.7 / 12.8	33.6 / 24.2	44.7 / 32.2	33.6 / 24.2	33.6 / 24.2	33.6 / 24.2	44.7 / 32.2	44.7 / 32.2	44.7 / 32.2	44.7 / 32.2
	COOLING EDB / EWB (°F)	81 / 67	81 / 67	81 / 67	81 / 67	81 / 67	81 / 67	81 / 67	81 / 67	81 / 67	81 / 67	81 / 67
	COOLING LDB / LWB (°F)	55 / 53	55 / 53	55 / 53	55 / 53	55 / 53	55 / 53	55 / 53	55 / 53	55 / 53	55 / 53	55 / 53
	ENTERING REFRIGERANT TEMP. (°F)	–	–	–	–	–	–	–	–	–	–	–
	SATURATED SUCTION TEMP. (°F)	–	–	–	–	–	–	–	–	–	–	–
DX HEAT	AMBIENT TEMP (°F)	0	0	0	0	0	0	0	0	0	0	0
	CAPACITY (MBH)	4.6	16.2	30.7	38.7	30.7	30.7	30.7	38.7	38.7	38.7	38.7
	HEATING EDB (°F)	68	68	68	68	68	68	68	68	68	68	68
	HEATING LDB (°F)	90	90	90	90	90	90	90	90	90	90	90
	ENTERING REFRIGERANT TEMP (°F)	–	–	–	–	–	–	–	–	–	–	–
	SATURATED SUCTION TEMP. (°F)	–	–	–	–	–	–	–	–	–	–	–
	REMARKS	①②	①②	①②	①②	①②	①②	①②	①②	①②	①②	①②

① COUNTER-SWIRL FILTER SHALL BE 2" PLEATED, THROWAWAY DX COOLING COIL SHALL BY 4-ROW W/ REFRIGERANT R-410A. PROVIDE 3 SPARE SETS OF FILTERS FOR THE FAN COIL UNIT
② WIRE CONDENSATE PUMP TO FAN COIL CONTROL CIRCUIT FOR SHUT-DOWN COOLING MODE FLOAT ALARM.
③ ALL FC W/ OA DUCT CONNECTIONS CONNECTED TO ERU SHALL BE BALANCED AS INDICATED UNLESS NOTED OTHERWISE:
FC-12B2(75 CFM);FC-14B2 & 25B2(30 CFM EACH);FC-13B2, 18B2, 19B2, 21B2, 22B2, 24B2(40 CFM EACH);FC-23B2(45 CFM);
FC-15B2, 17B2, 28B2, 29B2(50 CFM EACH);FC-11B2(70 CFM); FC-20B2(75 CFM);FC-16B2(125 CFM);FC-26B2(35 CFM);FC-34B2(25 CFM);
FC-4AB(120 CFM);FC-5AB(490 CFM);FC-7AB(190 CFM);FC-8AB(360 CFM)

AIR COOLED HEAT PUMP SCHEDULE

UNIT NUMBER		ACHP-5	ACHP-6	ACHP-7	ACHP-8	ACHP-10	ACHP-13
SERVICE		SEE PLANS & VRF RISER SCHEMATIC	SEE PLANS & VRF RISER SCHEMATIC	SEE PLANS & VRF RISER SCHEMATIC	SEE PLANS & VRF RISER SCHEMATIC	SEE PLANS & VRF RISER SCHEMATIC	SEE PLANS & VRF RISER SCHEMATIC
MANUFACTURER		DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN
MODEL		REYQ192	REYQ192	REYQ240	REYQ384	REYQ192	RXYQ120AYDA
TOTAL CAPACITY COOLING (MBH)		192	192	240.0	384	192	119
TOTAL CAPACITY HEATING (MBH)		–	–	–	–	–	80
DESIGN AMBIENT TEMP SUM/WINT(F)		91 / 0	91 / 0	91 / 0	91 / 0	91 / 0	91 / 0
REFRIGERANT		R-410	R-410	R-410	R-410	R-410	R-410
LINE SIZE O.D. GAS		1-1/8 (7/8HP)	1-1/8 (7/8HP)	1-1/8 (7/8HP)	1-1/8 (7/8HP)	1-1/8 (7/8HP)	1-1/8 (7/8HP)
LINE SIZE O.D. LIQUID		5/8	5/8	5/8	5/8	5/8	5/8
IEER (SEER)		–	–	–	–	–	22
COP (HSPF)		–	–	–	–	–	–
CONDENSER FAN MOTOR - HP		–	–	–	–	–	–
CONDENSER FAN MOTOR - RPM		–	–	–	–	–	–
ELECTRICAL DATA	VOLTAGE	460V-3ø-60	460V-3ø-60	460V-3ø-60	460V-3ø-60	460V-3ø-60	460V-3ø-60
	MCA	–	–	–	–	–	20.6
	MOCP	–	–	–	–	–	30
	RLA / LRA	–	–	–	–	–	–
NOTES		SEE NOTES	SEE NOTES	SEE NOTES	SEE NOTES	SEE NOTES	SEE NOTES

① PROVIDE LOW AMBIENT CONTROLS
② PROVIDE HARD START ASSIST KIT WITH CRANKCASE HEATER.
③ PROVIDE ANTI-SHORT CYCLE TIMER.
④ REFRIGERANT LINE SIZES SHALL BE BY EQUIP. MFR. RECOMMENDED SIZES PER RUN LGTH. VERIFY W/ MFR.
⑤ SPACING BETWEEN BLDG & ADJ CU UNITS SHALL BE PROVIDED AS SPEC. BY EQUIP. MFR.
⑥ PROVIDE EQUIP SUPPORTS FLASHED IN TO ROOFING SYSTEM BY OTHERS
⑦ EACH FC SHALL HAVE LOCAL T'STAT SUPPLIED BY MANUF. PROVIDE ALL CONTROL WIRING REQUIRED FOR SYSTEM OPERATION

IT SERVER ROOM EQUIPMENT SCHEDULE

	UNIT NUMBER	CRAC-1&2
	SERVICE	SEE PLANS
FANS	MANUFACTURER	STULZ
	MODEL NUMBER	COS-120-AR-AWS-U-EC
	C.F.M.	4800
	E.S.P. (in. w.g.)	0.5"
	VOLTS - PH - Hz	460V-3ø-60Hz
	MOTOR HP	4.1
	MIN. O.A. CFM	–
DX DATA	SERVICE	COOL
	TEMP. ENTERING (DB/WB)	72/60
	TEMP ENTERING RELATIVE HUMIDITY	50%
	TEMP. LEAVING (DB/WB)	54.3/50.9
	TOTAL COOLING CAPACITY (KW)	32.6
	SENSIBLE COOLING CAPACITY (KW)	26.9
CHILL WATER COIL DATA	SERVICE	COOL
	TEMP. ENTERING (DB/WB)	72/60
	TEMP ENTERING RELATIVE HUMIDITY	50%
	TEMP. LEAVING (DB/WB)	56.4/54
	TOTAL COOLING CAPACITY (KW)	24.3
	SENSIBLE COOLING CAPACITY (KW)	23.6
	FLOW RATE (GPM)	18.5
	UNIT PD (FT)	14.8
	VALVE (Cv)	16
	COIL ROWS / FV	4 / 492
COMP DATA	TYPE / QUANTITY	SCROLL/ 1
	KW	10.3
	REFRIG	R407C
ELEC HEAT	CAPACITY (KW)	9
	STAGES	1
HUMID DATA	CAPACITY (LBS/HR)	4-15 LB/HR
	INPUT (KW)	5.1 KW
	CONTROL	MODULATING
ELEC DATA	VOLT - PH - HZ	460 - 3 - 60
	MCA	44.1
	MOCP	60
SEE NOTES		

IT SERVER AIR COOLED CONDENSER UNIT SCHEDULE

UNIT NUMBER		ACCU-2&3
SERVICE		CRAC-1&2
MANUFACTURER		STULZ
MODEL		SCS-MC-071-SEC
NOMINAL CAPACITY (TONS)		15
NOMINAL COOLING TOTAL CAPACITY (MBH)		184
DESIGN COOLING AMBIENT TEMP (F)		87
–		–
–		–
REFRIGERANT		R-407C
LINE SIZE O.D. GAS		1-1/8"
LINE SIZE O.D. LIQUID		7/8"
LINE SIZE O.D. HOT GAS REHEAT		–
EER / SEER		–
CONDENSER FAN MOTOR QTY		4
–		–
ELECTRICAL DATA	VOLTAGE	460V-3ø-60
	MCA	5.3
	MOCP	15
	RLA / LRA	– / –
NOTES		①②③

① REFRIGERANT LINE SIZES SHALL BE BY EQUIP. MFR. RECOMMENDED SIZES PER RUN LGTH. VERIFY W/ MFR.
② SPACING BETWEEN BLDG & ADJ CU UNITS SHALL BE PROVIDED AS SPEC. BY EQUIP. MFR.
③ PROVIDE EQUIP SUPPORTS AND ANCHOR ON ROOF STRUCTURE; ROOFING/FLASHING BY DIV.7 CONTRACTOR.

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PROJECT

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DRAWING TITLE

HVAC Schedules

Locus Map

True North

Key Plan

FILE:
JOB NO: #1904
SCALE: NO SCALE
DWN. BY: FJG
CKD. BY: KRS
DATE: JANUARY 20, 2022

H7.3

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HOT WATER COIL SCHEDULE A

UNIT NUMBER			HWC-A-1	HWC-A-2	HWC-A-3	HWC-A-4	HWC-A-5	HWC-A-6	HWC-A-7
SERVICE			SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS
MANUFACTURER			PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE
MODEL #			–	–	–	–	–	–	–
FINNED LENGTH			36"	36"	36"	36"	36"	36"	36"
FINNED HEIGHT			24"	24"	24"	24"	24"	24"	24"
TUBE/FIN MATERIAL			CU/AL	CU/AL	CU/AL	CU/AL	CU/AL	CU/AL	CU/AL
AIRFLOW (CFM)			1440	1440	720	1440	720	1440	720
HEATING COIL	MAX FACE VEL. (FPM)		500	500	500	500	500	500	500
	AIR DATA	TEMP. ENTERING (°F)	65	65	65	65	65	65	65
		TEMP. LEAVING (°F)	95	95	95	95	95	95	95
		PRESS. DROP (IN WG)	0.44"	0.44"	0.44"	0.44"	0.44"	0.44"	0.44"
	WATER DATA	GPM	2.0	2.0	2.0	2.0	2.0	2.0	2.0
		CAPACITY (MBH)	20.4	20.4	20.4	20.4	20.4	20.4	20.4
		PRESS. DROP (FT. HD)	1.09	1.09	1.09	1.09	1.09	1.09	1.09
		ROWS / FINS PER FT	1/109	1/109	1/109	1/109	1/109	1/109	1/109
			–	–	–	–	–	–	–
NOTES									

HOT WATER COILS SIZED FOR 125F ENTERING AND 105°F LEAVING WATER TEMPERATURES.

HOT WATER COIL SCHEDULE B

UNIT NUMBER			HWC-B-1	HWC-B-2	HWC-B-3	HWC-B-4
SERVICE			SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS
MANUFACTURER			PRICE	PRICE	PRICE	PRICE
MODEL #			–	–	–	–
FINNED LENGTH			36"	36"	36"	36"
FINNED HEIGHT			24"	24"	24"	24"
TUBE/FIN MATERIAL			CU/AL	CU/AL	CU/AL	CU/AL
AIRFLOW (CFM)			1800	1800	1440	1440
HEATING COIL	MAX FACE VEL. (FPM)		500	500	500	500
	AIR DATA	TEMP. ENTERING (°F)	65	65	65	65
		TEMP. LEAVING (°F)	95	95	95	95
		PRESS. DROP (IN WG)	0.44"	0.44"	0.44"	0.44"
	WATER DATA	GPM	2.0	2.0	2.0	2.0
		CAPACITY (MBH)	20.4	20.4	20.4	20.4
		PRESS. DROP (FT. HD)	1.09	1.09	1.09	1.09
		ROWS / FINS PER FT	1/109	1/109	1/109	1/109
			–	–	–	–
NOTES						

HOT WATER COILS SIZED FOR 125F ENTERING AND 105°F LEAVING WATER TEMPERATURES.

HOT WATER COIL SCHEDULE C

UNIT NUMBER			HWC-C-1	HWC-C-2	HWC-C-3	HWC-C-4	HWC-C-5	HWC-C-6	HWC-C-7
SERVICE			SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS
MANUFACTURER			PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE
MODEL #			–	–	–	–	–	–	–
FINNED LENGTH			36"	36"	36"	36"	36"	36"	36"
FINNED HEIGHT			24"	24"	24"	24"	24"	24"	24"
TUBE/FIN MATERIAL			CU/AL	CU/AL	CU/AL	CU/AL	CU/AL	CU/AL	CU/AL
AIRFLOW (CFM)			1440	1440	720	1440	720	1440	720
HEATING COIL	MAX FACE VEL. (FPM)		500	500	500	500	500	500	500
	AIR DATA	TEMP. ENTERING (°F)	65	65	65	65	65	65	65
		TEMP. LEAVING (°F)	95	95	95	95	95	95	95
		PRESS. DROP (IN WG)	0.44"	0.44"	0.44"	0.44"	0.44"	0.44"	0.44"
	WATER DATA	GPM	2.0	2.0	2.0	2.0	2.0	2.0	2.0
		CAPACITY (MBH)	20.4	20.4	20.4	20.4	20.4	20.4	20.4
		PRESS. DROP (FT. HD)	1.09	1.09	1.09	1.09	1.09	1.09	1.09
		ROWS / FINS PER FT	1/109	1/109	1/109	1/109	1/109	1/109	1/109
			–	–	–	–	–	–	–
NOTES									

HOT WATER COILS SIZED FOR 125F ENTERING AND 105°F LEAVING WATER TEMPERATURES.

HOT WATER COIL SCHEDULE D

UNIT NUMBER			HWC-D-1	HWC-D-2	HWC-D-3	HWC-D-4	HWC-D-5	HWC-D-6	HWC-D-7
SERVICE			SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS
MANUFACTURER			PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE
MODEL #			–	–	–	–	–	–	–
FINNED LENGTH			36"	36"	36"	36"	36"	36"	36"
FINNED HEIGHT			24"	24"	24"	24"	24"	24"	24"
TUBE/FIN MATERIAL			CU/AL	CU/AL	CU/AL	CU/AL	CU/AL	CU/AL	CU/AL
AIRFLOW (CFM)			1440	1440	720	1440	720	1440	720
HEATING COIL	MAX FACE VEL. (FPM)		500	500	500	500	500	500	500
	AIR DATA	TEMP. ENTERING (°F)	65	65	65	65	65	65	65
		TEMP. LEAVING (°F)	95	95	95	95	95	95	95
		PRESS. DROP (IN WG)	0.44"	0.44"	0.44"	0.44"	0.44"	0.44"	0.44"
	WATER DATA	GPM	2.0	2.0	2.0	2.0	2.0	2.0	2.0
		CAPACITY (MBH)	20.4	20.4	20.4	20.4	20.4	20.4	20.4
		PRESS. DROP (FT. HD)	1.09	1.09	1.09	1.09	1.09	1.09	1.09
		ROWS / FINS PER FT	1/109	1/109	1/109	1/109	1/109	1/109	1/109
			–	–	–	–	–	–	–
NOTES									

HOT WATER COILS SIZED FOR 125F ENTERING AND 105°F LEAVING WATER TEMPERATURES.

HOT WATER COIL SCHEDULE E

UNIT NUMBER			HWC-E-1
SERVICE			SEE PLANS
MANUFACTURER			PRICE
MODEL #			–
FINNED LENGTH			30"
FINNED HEIGHT			18"
TUBE/FIN MATERIAL			CU/AL
AIRFLOW (CFM)			1750
HEATING COIL	MAX FACE VEL. (FPM)		500
	AIR DATA	TEMP. ENTERING (°F)	65
		TEMP. LEAVING (°F)	85
		PRESS. DROP (IN WG)	0.44"
	WATER DATA	GPM	4.0
		CAPACITY (MBH)	37.8
		PRESS. DROP (FT. HD)	1.09
		ROWS / FINS PER FT	1/109
			–
NOTES			

HOT WATER COILS SIZED FOR 125F ENTERING AND 105°F LEAVING WATER TEMPERATURES.

VARIABLE AIR VOLUME TERMINAL (VAV) SCHEDULE–SECTION A

Tag	Manuf.	Model	Unit Size	Max Primary (CFM)	Min Primary (CFM)	Inlet SP (in. w.g.)	Min Oper PD (in. w.g.)	Reheat (CFM)	Max Dis NC	WC Capacity (MBH)	Fluid Flow (GPM)	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	FPD (ft. w.g.)	Fluid Type	Glycol %	Rows
VAV-A-1	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-2	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-3	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-4	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-5	Price	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-A-6	Price	SDV5	#	1440	435	1.50	0.01	650	25 (2)	17550	2.0	65	90	140	120	0.5	water	0	1
VAV-A-7	Price	SDV5	#	300	90	1.50	0.01	135	25 (2)	3645	0.5	65	90	140	120	0.5	water	0	1
VAV-A-8	Price	SDV5	#	300	90	1.50	0.01	135	25 (2)	3645	0.5	65	90	140	120	0.5	water	0	1
VAV-A-9	Price	SDV5	#	1440	435	1.50	0.01	650	25 (2)	17550	2.0	65	90	140	120	0.5	water	0	1
VAV-A-10	Price	SDV5	#	310	95	1.50	0.01	140	25 (2)	3780	0.5	65	90	140	120	0.5	water	0	1
VAV-A-11	Price																		
VAV-A-12	Price	SDV5	#	780	235	1.50	0.01	355	25 (2)	9585	1.0	65	90	140	120	0.5	water	0	1
VAV-A-13	Price	SDV5	#	370	115	1.50	0.01	170	25 (2)	4590	0.5	65	90	140	120	0.5	water	0	1
VAV-A-14	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-15	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-16	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-17	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-18	Price	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-A-19	Price	SDV5	#	1440	435	1.50	0.01	650	25 (2)	17550	2.0	65	90	140	120	0.5	water	0	1
VAV-A-20	Price	SDV5	#	300	90	1.50	0.01	135	25 (2)	3645	0.5	65	90	140	120	0.5	water	0	1
VAV-A-21	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-22	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-23	Price	SDV5	#	300	90	1.50	0.01	135	25 (2)	3645	0.5	65	90	140	120	0.5	water	0	1
VAV-A-24	Price	SDV5	#	720	220	1.50	0.01	325	25 (2)	8775	1.0	65	90	140	120	0.5	water	0	1
VAV-A-25	Price	SDV5	#	320	100	1.50	0.01	145	25 (2)	3915	0.5	65	90	140	120	0.5	water	0	1
VAV-A-26	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-27	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-28	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-29	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-30	Price	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-A-31	Price	SDV5	#	1440	435	1.50	0.01	650	25 (2)	17550	2.0	65	90	140	120	0.5	water	0	1
VAV-A-32	Price	SDV5	#	300	90	1.50	0.01	135	25 (2)	3645	0.5	65	90	140	120	0.5	water	0	1
VAV-A-33	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-34	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-35	Price	SDV5	#	430	130	1.50	0.01	195	25 (2)	5265	0.8	65	90	140	120	0.5	water	0	1
VAV-A-36	Price	SDV5	#	720	220	1.50	0.01	325	25 (2)	8775	1.0	65	90	140	120	0.5	water	0	1
VAV-A-37	Price	SDV5	#	320	100	1.50	0.01	145	25 (2)	3915	0.5	65	90	140	120	0.5	water	0	1
VAV-A-38	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-39	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-40	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-41	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-42	Price	SDV5	#	280	85	1.50	0.01	130	25 (2)										
VAV-A-43	Price	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-A-44	Price	SDV5	#	280	85	1.50	0.01	130	25 (2)										
VAV-A-45	Price	SDV5	#	1440	435	1.50	0.01	650	25 (2)	17550	2.0	65	90	140	120	0.5	water	0	1
VAV-A-46	Price	SDV5	#	300	90	1.50	0.01	135	25 (2)	3645	0.5	65	90	140	120	0.5	water	0	1
VAV-A-47	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-48	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-A-49	Price	SDV5	#	550	165	1.50	0.01	250	25 (2)	6750	0.8	65	90	140	120	0.5	water	0	1
VAV-A-50	Price	SDV5	#	750	225	1.50	0.01	340	25 (2)	9180	1.0	65	90	140	120	0.5	water	0	1
VAV-A-51	Price	SDV5	#	660	200	1.50	0.01	300	25 (2)	8100	1.0	65	90	140	120	0.5	water	0	1

① COORDINATE W/ CONTROLS CONTRACTOR & PROVIDE SAME MANUFACTURER CONTROLLER & ACTUATORS.
② HOT WATER COILS SIZED FOR 140F ENTERING AND 120°F LEAVING WATER TEMPERATURES
③ PROVIDE DISCONNECT SWITCH
④ SCHEDULE IS BASED ON PRICE. ACCEPTABLE MANUFACTURERS INCLUDE PRICE, TITUS, NAILOR OR APPROVED EQUAL.

UNIT/CABINET HEATER SCHEDULE

SYMBOL	GPM	EWT	LWT	CFM	DERATED BTUH	ELECTRICAL H.P.	PHASE	VOLTS	MFG. MODEL NO.	REMARKS
CUH-1	2.0	125	105	220	14,900	1/4	1	120	RITTLING MODEL #RFRW-340-04 (2 ROW) (RECESSED WALL)	1 2 3
CUH-2	2.0	125	105	220	14,900	1/4	1	120	RITTLING MODEL #RFRC-420-04 (2 ROW) (RECESSED CEILING)	1 2 3
CUH-3	1.0	125	105	125	6,100	1/15	1	120	RITTLING MODEL #RFRC-420-04 (1 ROW) (RECESSED CEILING)	1 2 3
UH-1	1.0	125	105	950	15,500	1/10	1	120	RITTLING MODEL #RV-42	1 2 3

– APPROVED MANUFACTURERS ARE RITTLING, STERLING, VULCAIN.
① PROVIDE UNIT MOUNTED DISCONNECT SWITCH.
② ENAMEL FINISH– COLOR BY ARCH.
③ CAPACITY BASED ON 125°F EWT AND 60°F EAT.
④ RECESS UNITS AS FAR INTO WALL FRAMING AS POSSIBLE. V.I.F.

VARIABLE AIR VOLUME TERMINAL (EVAV) SCHEDULE–SECTION A

Tag	Model	Unit Size	Max Primary (CFM)	Min Primary (CFM)	Inlet SP (in. w.g.)	Min Oper PD (in. w.g.)	Reheat (CFM)	Max Dis NC
EVAV-A-1	SDV5	#	1600	480	1.50	0.01		25 (2)
EVAV-A-2	SDV5	#	320	100	1.50	0.01		25 (2)
EVAV-A-3	SDV5	#	320	100	1.50	0.01		25 (2)
EVAV-A-4	SDV5	#	1600	480	1.50	0.01		25 (2)
EVAV-A-5	SDV5	#	1600	480	1.50	0.01		25 (2)
EVAV-A-6	SDV5	#	320	100	1.50	0.01		25 (2)
EVAV-A-7	SDV5	#	1600	480	1.50	0.01		25 (2)
EVAV-A-8	SDV5	#	320	100	1.50	0.01		25 (2)
EVAV-A-9	SDV5	#	1600	480	1.50	0.01		25 (2)
EVAV-A-10	SDV5	#	320	100	1.50	0.01		25 (2)

① COORDINATE W/ CONTROLS CONTRACTOR & PROVIDE SAME MANUFACTURER CONTROLLER & ACTUATORS.
② PROVIDE DISCONNECT SWITCH
③ SCHEDULE IS BASED ON PRICE. ACCEPTABLE MANUFACTURERS INCLUDE PRICE, TITUS, NAILOR OR APPROVED EQUAL.

VARIABLE AIR VOLUME TERMINAL (EVAV) SCHEDULE–SECTION B

Tag	Model	Unit Size	Max Primary (CFM)	Min Primary (CFM)	Inlet SP (in. w.g.)	Min Oper PD (in. w.g.)	Reheat (CFM)	Max Dis NC
EVAV-B-1	SDV5	#	1090	330	1.50	0.01		25 (2)
EVAV-B-2	SDV5	#	490	150	1.50	0.01		25 (2)
EVAV-B-3	SDV5	#	1090	330	1.50	0.01		25 (2)
EVAV-B-4	SDV5	#	1250	375	1.50	0.01		25 (2)
EVAV-B-5	SDV5	#	1070	325	1.50	0.01		25 (2)
EVAV-B-6	SDV5	#	430	130	1.50	0.01		25 (2)
EVAV-B-7	SDV5	#	1070	325	1.50	0.01		25 (2)

① COORDINATE W/ CONTROLS CONTRACTOR & PROVIDE SAME MANUFACTURER CONTROLLER & ACTUATORS.
② PROVIDE DISCONNECT SWITCH
③ SCHEDULE IS BASED ON PRICE. ACCEPTABLE MANUFACTURERS INCLUDE PRICE, TITUS, NAILOR OR APPROVED EQUAL.

VARIABLE AIR VOLUME TERMINAL (EVAV) SCHEDULE–SECTION D

Tag	Model	Unit Size	Max Primary (CFM)	Min Primary (CFM)	Inlet SP (in. w.g.)	Min Oper PD (in. w.g.)	Reheat (CFM)	Max Dis NC
EVAV-D-1	SDV5	#	1600	480	1.50	0.01		25 (2)
EVAV-D-2	SDV5	#	320	100	1.50	0.01		25 (2)
EVAV-D-3	SDV5	#	320	100	1.50	0.01		25 (2)
EVAV-D-4	SDV5	#	1600	480	1.50	0.01		25 (2)
EVAV-D-5	SDV5	#	1600	480	1.50	0.01		25 (2)
EVAV-D-6	SDV5	#	320	100	1.50	0.01		25 (2)
EVAV-D-7	SDV5	#	1600	480	1.50	0.01		25 (2)
EVAV-D-8	SDV5	#	320	100	1.50	0.01		25 (2)
EVAV-D-9	SDV5	#	1600	480	1.50	0.01		25 (2)
EVAV-D-10	SDV5	#	320	100	1.50	0.01		25 (2)
EVAV-D-11	SDV5	#	1600	480	1.50	0.01		25 (2)
EVAV-D-12	SDV5	#	320	100	1.50	0.01		25 (2)
EVAV-D-13	SDV5	#	320	100	1.50	0.01		25 (2)
EVAV-D-14	SDV5	#	1600	480	1.50	0.01		25 (2)
EVAV-D-15	SDV5	#	1600	480	1.50	0.01		25 (2)
EVAV-D-16	SDV5	#	320	100	1.50	0.01		25 (2)
EVAV-D-17	SDV5	#	1600	480	1.50	0.01		25 (2)
EVAV-D-18	SDV5	#	320	100	1.50	0.01		25 (2)
EVAV-D-19	SDV5	#	1600	480	1.50	0.01		25 (2)
EVAV-D-20	SDV5	#	320	100	1.50	0.01		25 (2)
EVAV-D-21	SDV5	#	1600	480	1.50	0.01		25 (2)
EVAV-D-22	SDV5	#	320	100	1.50	0.01		25 (2)
EVAV-D-23	SDV5	#	320	100	1.50	0.01		25 (2)
EVAV-D-24	SDV5	#	1600	480	1.50	0.01		25 (2)
EVAV-D-25	SDV5	#	1600	480	1.50	0.01		25 (2)
EVAV-D-26	SDV5	#	320	100	1.50	0.01		25 (2)
EVAV-D-27	SDV5	#	1600	480	1.50	0.01		25 (2)

① COORDINATE W/ CONTROLS CONTRACTOR & PROVIDE SAME MANUFACTURER CONTROLLER & ACTUATORS.
② PROVIDE DISCONNECT SWITCH
③ SCHEDULE IS BASED ON PRICE. ACCEPTABLE MANUFACTURERS INCLUDE PRICE, TITUS, NAILOR OR APPROVED EQUAL.

VARIABLE AIR VOLUME TERMINAL (EVAV) SCHEDULE–SECTION E

Tag	Model	Unit Size	Max Primary (CFM)	Min Primary (CFM)	Inlet SP (in. w.g.)	Min Oper PD (in. w.g.)	Reheat (CFM)	Max Dis NC
EVAV-E-1	SDV5	#	1090	330	1.50	0.01		25 (2)
EVAV-E-2	SDV5	#	490	150	1.50	0.01		25 (2)
EVAV-E-3	SDV5	#	1090	330	1.50	0.01		25 (2)
EVAV-E-4	SDV5	#	1250	375	1.50	0.01		25 (2)
EVAV-E-5	SDV5	#	1070	325	1.50	0.01		25 (2)
EVAV-E-6	SDV5	#	430	130	1.50	0.01		25 (2)
EVAV-E-7	SDV5	#	1070	325	1.50	0.01		25 (2)
EVAV-E-8	SDV5	#	1070	325	1.50	0.01		25 (2)

① COORDINATE W/ CONTROLS CONTRACTOR & PROVIDE SAME MANUFACTURER CONTROLLER & ACTUATORS.
② PROVIDE DISCONNECT SWITCH
③ SCHEDULE IS BASED ON PRICE. ACCEPTABLE MANUFACTURERS INCLUDE PRICE, TITUS, NAILOR OR APPROVED EQUAL.

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Locus Map

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Key Plan

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SCALE: NO SCALE
DWN. BY: FJG
CKD. BY: KRS
DATE: JANUARY 20, 2022

H7.4

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VARIABLE AIR VOLUME TERMINAL (VAV) SCHEDULE–SECTION B

Tag	Model	Unit Size	Max Primary (CFM)	Min Primary (CFM)	Inlet SP (in. w.g.)	Min Oper PD (in. w.g.)	Reheat (CFM)	Max Dis NC	WC Capacity (MBH)	Fluid Flow (GPM)	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	FPD (ft. w.g.)	Fluid Type	Glycol %	Rows
VAV-B-1	SDV5	#	760	230	1.50	0.01	345	25 (2)	9315	1.0	65	90	140	120	0.5	water	0	1
VAV-B-2	SDV5	#	4240	1275	1.50	0.01	1910	25 (2)	51570	5.5	65	90	140	120	0.5	water	0	1
VAV-B-3	SDV5	#	480	145	1.50	0.01	220	25 (2)	5940	0.8	65	90	140	120	0.5	water	0	1
VAV-B-4	SDV5	#	360	110	1.50	0.01	165	25 (2)	4455	0.5	65	90	140	120	0.5	water	0	1
VAV-B-5	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-B-6	SDV5	#	240	75	1.50	0.01	110	25 (2)	2970	0.5	65	90	140	120	0.5	water	0	1
VAV-B-7																		
VAV-B-8	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-9	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-10	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-11			360	110			165											
VAV-B-12	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-13	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-B-14	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-15	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-16	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-17	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-18	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-19	SDV5	#	250	75	1.50	0.01	115	25 (2)										
VAV-B-20	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-21	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-22	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-23	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-24	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-B-25	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-26	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-27	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-28	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-29	SDV5	#	350	105	1.50	0.01	160	25 (2)	4320	0.5	65	90	140	120	0.5	water	0	1
VAV-B-30	SDV5	#	640	195	1.50	0.01	290	25 (2)	7830	1.0	65	90	140	120	0.5	water	0	1
VAV-B-31	SDV5	#	300	90	1.50	0.01	135	25 (2)	3645	0.5	65	90	140	120	0.5	water	0	1
VAV-B-32	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-33	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-34	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-35	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-B-36	SDV5	#	820	250	1.50	0.01	370	25 (2)	9990	1.3	65	90	140	120	0.5	water	0	1
VAV-B-37	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-38	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-39	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-40	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-B-41	SDV5	#	500	150	1.50	0.01	225	25 (2)	6075	0.8	65	90	140	120	0.5	water	0	1
VAV-B-42	SDV5	#	1020	310	1.50	0.01	460	25 (2)	12420	1.5	65	90	140	120	0.5	water	0	1
VAV-B-43	SDV5	#	500	150	1.50	0.01	225	25 (2)	6075	0.8	65	90	140	120	0.5	water	0	1
VAV-B-44	SDV5	#	360	110	1.50	0.01	165	25 (2)										

① COORDINATE W/ CONTROLS CONTRACTOR & PROVIDE SAME MANUFACTURER CONTROLLER & ACTUATORS.
② HOT WATER COILS SIZED FOR 140F ENTERING AND 120°F LEAVING WATER TEMPERATURES
③ PROVIDE DISCONNECT SWITCH
④ SCHEDULE IS BASED ON PRICE. ACCEPTABLE MANUFACTURERS INCLUDE PRICE, TITUS, NAILOR OR APPROVED EQUAL.

VARIABLE AIR VOLUME TERMINAL (VAV) SCHEDULE–SECTION C

Tag	Model	Unit Size	Max Primary (CFM)	Min Primary (CFM)	Inlet SP (in. w.g.)	Min Oper PD (in. w.g.)	Reheat (CFM)	Max Dis NC	WC Capacity (MBH)	Fluid Flow (GPM)	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	FPD (ft. w.g.)	Fluid Type	Glycol %	Rows
VAV-C-1	SDV5	#	760	230	1.50	0.01	345	25 (2)	9315	1.0	65	90	140	120	0.5	water	0	1
VAV-C2	SDV5	#	4240	1275	1.50	0.01	1910	25 (2)	51570	5.5	65	90	140	120	0.5	water	0	1
VAV-C-3	SDV5	#	480	145	1.50	0.01	220	25 (2)	5940	0.8	65	90	140	120	0.5	water	0	1
VAV-C-4	SDV5	#	360	110	1.50	0.01	165	25 (2)	4455	0.5	65	90	140	120	0.5	water	0	1
VAV-C-5	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-C-6	SDV5	#	240	75	1.50	0.01	110	25 (2)	2970	0.5	65	90	140	120	0.5	water	0	1
VAV-C-7																		
VAV-C-8	SDV5	#	760	230	1.50	0.01	345	25 (2)	9315	1.0	65	90	140	120	0.5	water	0	1
VAV-C-9	SDV5	#	4240	1275	1.50	0.01	1910	25 (2)	51570	5.5	65	90	140	120	0.5	water	0	1
VAV-C-10	SDV5	#	480	145	1.50	0.01	220	25 (2)	5940	0.8	65	90	140	120	0.5	water	0	1
VAV-C-11			360	110	1.50	0.01	165	25 (2)	4455	0.5	65	90	140	120	0.5	water	0	1
VAV-C-12	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-C-12	SDV5	#	240	75	1.50	0.01	110	25 (2)	2970	0.5	65	90	140	120	0.5	water	0	1
VAV-C-13	SDV5	#																
VAV-C-14	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-C-15	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-C-16	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-C-17	SDV5	#	760	230	1.50	0.01	345	25 (2)	9315	1.0	65	90	140	120	0.5	water	0	1
VAV-C-18	SDV5	#	4240	1275	1.50	0.01	1910	25 (2)	51570	5.5	65	90	140	120	0.5	water	0	1
VAV-C-19	SDV5	#	480	145	1.50	0.01	220	25 (2)	5940	0.8	65	90	140	120	0.5	water	0	1
VAV-C-20	SDV5	#	360	110	1.50	0.01	165	25 (2)	4455	0.5	65	90	140	120	0.5	water	0	1
VAV-C-21	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-C-22	SDV5	#	240	75	1.50	0.01	110	25 (2)	2970	0.5	65	90	140	120	0.5	water	0	1
VAV-C-23	SDV5	#																
VAV-C-24	SDV5	#	760	230	1.50	0.01	345	25 (2)	9315	1.0	65	90	140	120	0.5	water	0	1
VAV-C-25	SDV5	#	4240	1275	1.50	0.01	1910	25 (2)	51570	5.5	65	90	140	120	0.5	water	0	1
VAV-C-26	SDV5	#	480	145	1.50	0.01	220	25 (2)	5940	0.8	65	90	140	120	0.5	water	0	1
VAV-C-27	SDV5	#	360	110	1.50	0.01	165	25 (2)	4455	0.5	65	90	140	120	0.5	water	0	1
VAV-C-28	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-C-29	SDV5	#	240	75	1.50	0.01	110	25 (2)	2970	0.5	65	90	140	120	0.5	water	0	1
VAV-C-30	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-C-31	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-C-32	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-C-33	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-C-34	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-C-35	SDV5	#	350	105	1.50	0.01	160	25 (2)	4320	0.5	65	90	140	120	0.5	water	0	1
VAV-C-36	SDV5	#	640	195	1.50	0.01	290	25 (2)	7830	1.0	65	90	140	120	0.5	water	0	1
VAV-C-37	SDV5	#	300	90	1.50	0.01	135	25 (2)	3645	0.5	65	90	140	120	0.5	water	0	1
VAV-C-38	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-C-39	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-C-40	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-C-41	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-C-57	SDV5	#	820	250	1.50	0.01	370	25 (2)	9990	1.3	65	90	140	120	0.5	water	0	1
VAV-C-58	SDV5	#	360	110	1.50	0.01	165	25 (2)										

① COORDINATE W/ CONTROLS CONTRACTOR & PROVIDE SAME MANUFACTURER CONTROLLER & ACTUATORS.
② HOT WATER COILS SIZED FOR 140F ENTERING AND 120°F LEAVING WATER TEMPERATURES
③ PROVIDE DISCONNECT SWITCH
④ SCHEDULE IS BASED ON PRICE. ACCEPTABLE MANUFACTURERS INCLUDE PRICE, TITUS, NAILOR OR APPROVED EQUAL.

DC–1 SCHEDULE

1.0 OPEN TYPE DUST COLLECTOR

1.1 GENERALITIES
The project in it's whole and the dust collection equipment shall conform to NFPA 664.
The dust collector shall be of the open type such as MAXIPLY and will be equipped with envelope filters as manufactured by A.Q.C.

1.2 COMPONENTS

The dust collector shall be built with the following components:

- Body of the collector
- Blower
- Filter section
- Hopper and deflector
- Drum with quick release ramp

1.3 Body of the collector
The dust collector will be formed with a supporting structure without a casing,with a hopper and a 25 gal drum with a quick release slide for easy removal without tools. No flexible hose connection between hopper and filter section will be accepted. The hopper should include a deflector to insure the conversion of air velocity to an even upflow of air into the envelope filters.

The body of the collector will be composed of vertical supports forming the filter suspension system. The dust collector shall be stipped knocked down to insure easy passage through standard building access doors.

The envelope filters shall be accessible from all four sides.

The finish of the dust collector shall be :

Thorough cleaning of the metal
Application of a polyurethane base coat
Two coats of polyurethane paint of standard light gray finish.

1.4 BLOWER
The blower shall be centrifugal, radial type aluminium blades, arr # 4 direct drive .

The blower shall be installed upstream of the collector and will blow air into the collector.

Motor will be TEFC type.

1.1 FILTRATION SECTION
The filter section shall be composed of several enveloppes shapped into a inverted "V" and held to the suspension bar with elastic type bands.

The envelope filters shall have a total fitering area of 270 sq feet and made from a 14 oz. polyester felt fabric.

1.2 SPECIFICATION

FILTER SECTION

Make:	AQC Inc
Model:	DMP-350S
Filter surface :	glazed for minimal dust cake
Filtration area:	350 sq. ft
Filtration efficiency :	95-99% on 5-10 micron particles
Air volume :	3200 CFM
Air/cloth ratio :	8 to 1
Filter cleaning :	manual with handle and rocker cam

BLOWER SECTION

Model:	RBE-13
Type of wheel:	Radial-Aluminium AMCA type B
Drive:	Direct, arr # 4
DB level :	not to exceed 75 at 5'
Air volume	3200 CFM
Total static pressure	8 in.
Motor:	TEFC, 7.5 H P at 1750 RPM
Electrical characteristics:	460/3/60

1.3 SPARK DETECTION/ EXTINGUISHMENT SYSTEM
Dust Collection System shall be equipped with Spark Detection / Extinguishment System to comply with National Fire Protection Association standards (NFPA) 664, and 72 guidelines.
The system shall be the AN104 as manufactured by Hansentek. All components shall be new and Factory Mutual (FM) approved.
The system shall comprise of the following components:
Hansentek **AN104** (NEMA12) Programmable Control Panel with built-in automatic and manual sensitivity checking of detectors.
The system shall provide supervision on all input and output circuits and shall include Shutdown and Abort Damper relays as well as Alarm and Trouble relays for notification to Fire Alarm or PLC panels.
It shall be fitted with an LCD display to annunciate alarm and trouble conditions and shall maintain at least 2000 events in a time-stamped, displayable memory.
The control panel shall also have the capability of monitoring a baghouse heat detector and controlling a baghouse deluge.

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HVAC Schedules

Locus Map

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Key Plan

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JOB NO: #1904
SCALE: NO SCALE
DWN. BY: FJG
CKD. BY: KRS
DATE: JANUARY 20, 2022

H7.5

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VARIABLE AIR VOLUME TERMINAL (VAV) SCHEDULE–SECTION D

Tag	Model	Unit Size	Max Primary (CFM)	Min Primary (CFM)	Inlet SP (in. w.g.)	Min Oper PD (in. w.g.)	Reheat (CFM)	Max Dis NC	WC Capacity (MBH)	Fluid Flow (GPM)	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	FPD (ft. w.g.)	Fluid Type	Glycol %	Rows
VAV-D-1	SDV5	#	760	230	1.50	0.01	345	25 (2)	9315	1.0	65	90	140	120	0.5	water	0	1
VAV-D-2	SDV5	#	4240	1275	1.50	0.01	1910	25 (2)	51570	5.5	65	90	140	120	0.5	water	0	1
VAV-D-3	SDV5	#	480	145	1.50	0.01	220	25 (2)	5940	0.8	65	90	140	120	0.5	water	0	1
VAV-D-4	SDV5	#	360	110	1.50	0.01	165	25 (2)	4455	0.5	65	90	140	120	0.5	water	0	1
VAV-D-5	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-D-6	SDV5	#	240	75	1.50	0.01	110	25 (2)	2970	0.5	65	90	140	120	0.5	water	0	1
VAV-D-7																		
VAV-D-8	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-D-9	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-D-10	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-D-11			760	230	1.50	0.01	345	25 (2)	9315	1.0	65	90	140	120	0.5	water	0	1
VAV-D-12	SDV5	#	4240	1275	1.50	0.01	1910	25 (2)	51570	5.5	65	90	140	120	0.5	water	0	1
VAV-D-13	SDV5	#	480	145	1.50	0.01	220	25 (2)	5940	0.8	65	90	140	120	0.5	water	0	1
VAV-D-14	SDV5	#	360	110	1.50	0.01	165	25 (2)	4455	0.5	65	90	140	120	0.5	water	0	1
VAV-D-15	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-D-16	SDV5	#	240	75	1.50	0.01	110	25 (2)	2970	0.5	65	90	140	120	0.5	water	0	1
VAV-D-17	SDV5	#																
VAV-D-18	SDV5	#	760	230	1.50	0.01	345	25 (2)	9315	1.0	65	90	140	120	0.5	water	0	1
VAV-D-19	SDV5	#	4240	1275	1.50	0.01	1910	25 (2)	51570	5.5	65	90	140	120	0.5	water	0	1
VAV-D-20	SDV5	#	480	145	1.50	0.01	220	25 (2)	5940	0.8	65	90	140	120	0.5	water	0	1
VAV-D-21	SDV5	#	360	110	1.50	0.01	165	25 (2)	4455	0.5	65	90	140	120	0.5	water	0	1
VAV-D-22	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-D-23	SDV5	#	240	75	1.50	0.01	110	25 (2)	2970	0.5	65	90	140	120	0.5	water	0	1
VAV-D-24	SDV5	#																
VAV-D-25	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-D-26	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-D-27	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-D-28	SDV5	#	760	230	1.50	0.01	345	25 (2)	9315	1.0	65	90	140	120	0.5	water	0	1
VAV-D-29	SDV5	#	4240	1275	1.50	0.01	1910	25 (2)	51570	5.5	65	90	140	120	0.5	water	0	1
VAV-D-30	SDV5	#	480	145	1.50	0.01	220	25 (2)	5940	0.8	65	90	140	120	0.5	water	0	1
VAV-D-31	SDV5	#	360	110	1.50	0.01	165	25 (2)	4455	0.5	65	90	140	120	0.5	water	0	1
VAV-D-32	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-D-33	SDV5	#	240	75	1.50	0.01	110	25 (2)	2970	0.5	65	90	140	120	0.5	water	0	1
VAV-D-34	SDV5	#																
VAV-D-35	SDV5	#	760	230	1.50	0.01	345	25 (2)	9315	1.0	65	90	140	120	0.5	water	0	1
VAV-D-36	SDV5	#	4240	1275	1.50	0.01	1910	25 (2)	51570	5.5	65	90	140	120	0.5	water	0	1
VAV-D-37	SDV5	#	480	145	1.50	0.01	220	25 (2)	5940	0.8	65	90	140	120	0.5	water	0	1
VAV-D-38	SDV5	#	360	110	1.50	0.01	165	25 (2)	4455	0.5	65	90	140	120	0.5	water	0	1
VAV-D-39	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-D-40	SDV5	#	240	75	1.50	0.01	110	25 (2)	2970	0.5	65	90	140	120	0.5	water	0	1
VAV-D-41	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-D-42	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-D-43	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-D-44	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-D-45	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-D-46	SDV5	#	350	105	1.50	0.01	160	25 (2)	4320	0.5	65	90	140	120	0.5	water	0	1
VAV-D-47	SDV5	#	640	195	1.50	0.01	290	25 (2)	7830	1.0	65	90	140	120	0.5	water	0	1
VAV-D-48	SDV5	#	300	90	1.50	0.01	135	25 (2)	3645	0.5	65	90	140	120	0.5	water	0	1
VAV-D-49	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-D-50	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-D-51	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-D-52	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-D-53	SDV5	#	820	250	1.50	0.01	370	25 (2)	9990	1.3	65	90	140	120	0.5	water	0	1
VAV-D-54	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-D-55	SDV5	#	500	150	1.50	0.01	225	25 (2)	6075	0.8	65	90	140	120	0.5	water	0	1
VAV-D-56	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-D-57	SDV5	#	1020	310	1.50	0.01	460	25 (2)	12420	1.5	65	90	140	120	0.5	water	0	1
VAV-D-58	SDV5	#	500	150	1.50	0.01	225	25 (2)	6075	0.8	65	90	140	120	0.5	water	0	1
VAV-D-59	SDV5	#	360	110	1.50	0.01	165	25 (2)										

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③ PROVIDE DISCONNECT SWITCH
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VARIABLE AIR VOLUME TERMINAL (VAV) SCHEDULE–SECTION E

Tag	Manuf.	Model	Unit Size	Max Primary (CFM)	Min Primary (CFM)	Inlet SP (in. w.g.)	Min Oper PD (in. w.g.)	Reheat (CFM)	Max Dis NC	WC Capacity (MBH)	Fluid Flow (GPM)	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	FPD (ft. w.g.)	Fluid Type	Glycol %	Rows
VAV-E-1	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-E-2	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-E-3	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-E-4	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-E-5	Price	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-E-6	Price	SDV5	#	1440	435	1.50	0.01	650	25 (2)	17550	2.0	65	90	140	120	0.5	water	0	1
VAV-E-7	Price	SDV5	#	300	90	1.50	0.01	135	25 (2)	3645	0.5	65	90	140	120	0.5	water	0	1
VAV-E-8	Price	SDV5	#	300	90	1.50	0.01	135	25 (2)	3645	0.5	65	90	140	120	0.5	water	0	1
VAV-E-9	Price	SDV5	#	1440	435	1.50	0.01	650	25 (2)	17550	2.0	65	90	140	120	0.5	water	0	1
VAV-E-10	Price	SDV5	#	310	95	1.50	0.01	140	25 (2)	3780	0.5	65	90	140	120	0.5	water	0	1
VAV-E-11	Price																		
VAV-E-12	Price	SDV5	#	780	235	1.50	0.01	355	25 (2)	9585	1.0	65	90	140	120	0.5	water	0	1
VAV-E-13	Price	SDV5	#	370	115	1.50	0.01	170	25 (2)	4590	0.5	65	90	140	120	0.5	water	0	1
VAV-E-14	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-E-15	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-E-16	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-E-17	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-E-18	Price	SDV5	#	340	105	1.50	0.01	155	25 (2)										
VAV-E-19	Price	SDV5	#	1440	435	1.50	0.01	650	25 (2)	17550	2.0	65	90	140	120	0.5	water	0	1
VAV-E-20	Price	SDV5	#	300	90	1.50	0.01	135	25 (2)	3645	0.5	65	90	140	120	0.5	water	0	1
VAV-E-21	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-E-22	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-E-23	Price	SDV5	#	300	90	1.50	0.01	135	25 (2)	3645	0.5	65	90	140	120	0.5	water	0	1
VAV-E-24	Price	SDV5	#	720	220	1.50	0.01	325	25 (2)	8775	1.0	65	90	140	120	0.5	water	0	1
VAV-E-25	Price	SDV5	#	320	100	1.50	0.01	145	25 (2)	3915	0.5	65	90	140	120	0.5	water	0	1
VAV-E-26	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-E-27	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-E-28	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-E-29	Price	SDV5	#	360	110	1.50	0.01	165	25 (2)										
VAV-E-30	Price	SDV5	#	340	105	1.50	0.01	155	25 (2)										

① COORDINATE W/ CONTROLS CONTRACTOR & PROVIDE SAME MANUFACTURER CONTROLLER & ACTUATORS.
② HOT WATER COILS SIZED FOR 140F ENTERING AND 120'F LEAVING WATER TEMPERATURES
③ PROVIDE DISCONNECT SWITCH
④ SCHEDULE IS BASED ON PRICE. ACCEPTABLE MANUFACTURERS INCLUDE PRICE, TITUS, NAILOR OR APPROVED EQUAL.

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PROJECT

100% Construction Documents
Final Bid Package #4

Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

DRAWING TITLE

HVAC Schedules

Locus Map

True North

Key Plan

FILE:
JOB NO: #1904
SCALE: NO SCALE
DWN. BY: FJG
CKD. BY: KRS
DATE: JANUARY 20, 2022

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VARIABLE AIR VOLUME TERMINAL (FVAV) SCHEDULE–SECTION A

Tag	Service	Manuf.	Model	Unit Size	AIR Volume (CFM)	ESP (in. w.g.)	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	WPD (ft. w.g.)	Fluid Type	Glycol %	Rows	Total Cooling Capacity (BTU)	Sensible Cooling Capacity (BTU)	Fluid Flow (GPM)
FCU-A-1		DAIKEN	FCHH	003	205	0.30	75	55	57	67	0.5	water	0	2	5313.6	4428.0	0.5
FCU-A-2		DAIKEN	FCHH	003	195	0.30	75	55	57	67	0.5	water	0	2	5054.4	4212.0	0.5
FCU-A-3		EMI	WCP-30D	003	600	0.30	75	55	57	67	0.5	water	0	2	15552.0	12960.0	1.5
FCU-A-4		DAIKEN	FCHH	003	195	0.30	75	55	57	67	0.5	water	0	2	5054.4	4212.0	0.5
FCU-A-5		DAIKEN	FCHH	003	195	0.30	75	55	57	67	0.5	water	0	2	5054.4	4212.0	0.5
FCU-A-6		EMI	WCP-30D	003	600	0.30	75	55	57	67	0.5	water	0	2	15552.0	12960.0	1.5

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② PROVIDE REHEAT HOT WATER COIL & SENSIBLE ONLY COOLING COIL; PROVIDE COOLING COIL STAINLESS STEEL DRAIN PAN
② HOT WATER COILS SIZED FOR 140F ENTERING AND 120°F LEAVING WATER TEMPERATURES
② COOLING COILS SIZED FOR 47 ENTERING AND 57°F LEAVING WATER TEMPERATURES
③ PROVIDE DISCONNECT SWITCH
④ SCHEDULE IS BASED ON PRICE. ACCEPTABLE MANUFACTURERS INCLUDE PRICE, TITUS, NAILOR OR APPROVED EQUAL.

VARIABLE AIR VOLUME TERMINAL (FVAV) SCHEDULE–SECTION B

Tag	Service	Manuf.	Model	Unit Size	AIR Volume (CFM)	ESP (in. w.g.)	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	WPD (ft. w.g.)	Fluid Type	Glycol %	Rows	Total Cooling Capacity (BTU)	Sensible Cooling Capacity (BTU)	Fluid Flow (GPM)
FCU-B-1		DAIKEN	FCHH	003	205	0.30	75	55	57	67	0.5	water	0	2	5313.6	4428.0	0.5
FCU-B-2		EMI	WCP-30D	003	600	0.30	75	55	57	67	0.5	water	0	2	15552.0	12960.0	1.5
FCU-B-3		DAIKEN	FCHH	003	195	0.30	75	55	57	67	0.5	water	0	2	5054.4	4212.0	0.5
FCI-B-4		EMI	WCP-30D	003	600	0.30	75	55	57	67	0.5	water	0	2	15552.0	12960.0	1.5
FCU-B-5		DAIKEN	FCHH	003	195	0.30	75	55	57	67	0.5	water	0	2	5054.4	4212.0	0.5

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② PROVIDE REHEAT HOT WATER COIL & SENSIBLE ONLY COOLING COIL; PROVIDE COOLING COIL STAINLESS STEEL DRAIN PAN
② HOT WATER COILS SIZED FOR 140F ENTERING AND 120°F LEAVING WATER TEMPERATURES
② COOLING COILS SIZED FOR 47 ENTERING AND 57°F LEAVING WATER TEMPERATURES
③ PROVIDE DISCONNECT SWITCH
④ SCHEDULE IS BASED ON PRICE. ACCEPTABLE MANUFACTURERS INCLUDE PRICE, TITUS, NAILOR OR APPROVED EQUAL.

VARIABLE AIR VOLUME TERMINAL (FVAV) SCHEDULE–SECTION C

Tag	Service	Manuf.	Model	Unit Size	AIR Volume (CFM)	ESP (in. w.g.)	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	WPD (ft. w.g.)	Fluid Type	Glycol %	Rows	Total Cooling Capacity (BTU)	Sensible Cooling Capacity (BTU)	Fluid Flow (GPM)
FCU-C-1		DAIKEN	FCHH	003	205	0.30	75	55	57	67	0.5	water	0	2	5313.6	4428.0	0.5
FCU-C-2		EMI	WCP-30D	003	600	0.30	75	55	57	67	0.5	water	0	2	15552.0	12960.0	1.5
FCU-C-3		DAIKEN	FCHH	003	195	0.30	75	55	57	67	0.5	water	0	2	5054.4	4212.0	0.5
FCU-C-4		EMI	WCP-30D	003	600	0.30	75	55	57	67	0.5	water	0	2	15552.0	12960.0	1.5
FCU-C-5		DAIKEN	FCHH	003	195	0.30	75	55	57	67	0.5	water	0	2	5054.4	4212.0	0.5

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② PROVIDE REHEAT HOT WATER COIL & SENSIBLE ONLY COOLING COIL; PROVIDE COOLING COIL STAINLESS STEEL DRAIN PAN
② HOT WATER COILS SIZED FOR 140F ENTERING AND 120°F LEAVING WATER TEMPERATURES
② COOLING COILS SIZED FOR 47 ENTERING AND 57°F LEAVING WATER TEMPERATURES
③ PROVIDE DISCONNECT SWITCH
④ SCHEDULE IS BASED ON PRICE. ACCEPTABLE MANUFACTURERS INCLUDE PRICE, TITUS, NAILOR OR APPROVED EQUAL.

VARIABLE AIR VOLUME TERMINAL (FVAV) SCHEDULE–SECTION D

Tag	Service	Manuf.	Model	Unit Size	AIR Volume (CFM)	ESP (in. w.g.)	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	WPD (ft. w.g.)	Fluid Type	Glycol %	Rows	Total Cooling Capacity (BTU)	Sensible Cooling Capacity (BTU)	Fluid Flow (GPM)
FCU-D-1		DAIKEN	FCHH	003	205	0.30	75	55	57	67	0.5	water	0	2	5313.6	4428.0	0.5
FCU-D-2		EMI	WCP-30D	003	600	0.30	75	55	57	67	0.5	water	0	2	15552.0	12960.0	1.5
FCU-D-3		DAIKEN	FCHH	003	195	0.30	75	55	57	67	0.5	water	0	2	5054.4	4212.0	0.5
FCU-D-4		EMI	WCP-30D	003	600	0.30	75	55	57	67	0.5	water	0	2	15552.0	12960.0	1.5

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② PROVIDE REHEAT HOT WATER COIL & SENSIBLE ONLY COOLING COIL; PROVIDE COOLING COIL STAINLESS STEEL DRAIN PAN
② HOT WATER COILS SIZED FOR 140F ENTERING AND 120°F LEAVING WATER TEMPERATURES
② COOLING COILS SIZED FOR 47 ENTERING AND 57°F LEAVING WATER TEMPERATURES
③ PROVIDE DISCONNECT SWITCH
④ SCHEDULE IS BASED ON PRICE. ACCEPTABLE MANUFACTURERS INCLUDE PRICE, TITUS, NAILOR OR APPROVED EQUAL.

VARIABLE AIR VOLUME TERMINAL (FVAV) SCHEDULE–SECTION E

Tag	Service	Manuf.	Model	Unit Size	AIR Volume (CFM)	ESP (in. w.g.)	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	WPD (ft. w.g.)	Fluid Type	Glycol %	Rows	Total Cooling Capacity (BTU)	Sensible Cooling Capacity (BTU)	Fluid Flow (GPM)
FCU-E-1		DAIKEN	FCHH	006	800	0.30	75	55	57	67	0.5	water	0	2	20736.0	17280.0	2.0
FCU-E-2		EMI	WCP-30D	003	1000	0.30	75	55	57	67	0.5	water	0	2	25920.0	21600.0	2.3
FCU-E-3		DAIKEN	FCHH	003	195	0.30	75	55	57	67	0.5	water	0	2	5054.4	4212.0	0.5
FCU-E-4		EMI	WCP-30D	003	600	0.30	75	55	57	67	0.5	water	0	2	15552.0	12960.0	1.5
FCU-E-5		DAIKEN	FCHH	003	195	0.30	75	55	57	67	0.5	water	0	2	5054.4	4212.0	0.5

① COORDINATE W/ CONTROLS CONTRACTOR & PROVIDE SAME MANUFACTURER CONTROLLER & ACTUATORS.
② PROVIDE REHEAT HOT WATER COIL & SENSIBLE ONLY COOLING COIL; PROVIDE COOLING COIL STAINLESS STEEL DRAIN PAN
② HOT WATER COILS SIZED FOR 140F ENTERING AND 120°F LEAVING WATER TEMPERATURES
② COOLING COILS SIZED FOR 47 ENTERING AND 57°F LEAVING WATER TEMPERATURES
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PROJECT

100% Construction Documents
Final Bid Package #4

Doherty Memorial High School

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DRAWING TITLE

HVAC Schedules

Locus Map

True North

Key Plan

FILE:
JOB NO: #1904
SCALE: NO SCALE
DWN. BY: FJG
CKD. BY: KRS
DATE: JANUARY 20, 2022

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AUDIOVISUAL DEVICE KEY

DEVICE	DESCRIPTION	BACK BOX DESCRIPTION	MOUNTING HEIGHT ADVICE	COMMENTS
AL	ASSISTIVE LISTENING ANTENNA CONNECTION	ONE GANG ELECTRICAL BOX	PER ARCHITECT	
AV	AV INPUT PANEL	TWO GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	
BCP	BLEACHER CONNECTION PANEL	TWO GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	COORDINATE WITH BLEACHER CONTRACTOR
BP	BUTTON PANEL	THREE GANG ELECTRICAL BOX	PROJECT SWITCH HEIGHT	
CA	CAMERA CONNECTION PANEL	TWO GANG ELECTRICAL BOX	PER ARCHITECT	
CC	LOUDSPEAKER WIRING JUNCTION BOX	4" SQUARE BY 4" DEEP ELECTRICAL BOX	ABOVE LOUDSPEAKER LOCATION	PASS THROUGH
CF	CABINET FAN			
CT1	CABLE TRAY	N/A	ABOVE MAIN AUDITORIUM EQUIPMENT RACKS	
D	DELAY LOUDSPEAKER WIRING JUNCTION BOX	4" SQUARE BY 4" DEEP ELECTRICAL BOX	ABOVE LOUDSPEAKER LOCATION	PASS THROUGH
DC	LIGHTING SYSTEM CONTROL CONNECTION	ONE GANG ELECTRICAL BOX	IN BACKPAN OF LIGHTING EQUIPMENT RACK	
DPA	CLASSROOM DISPLAY AUDIO CONNECTION	ONE GANG ELECTRICAL BOX	ALIGNED WITH PROJECTOR DEVICES	
FF	FRONT FILL LOUDSPEAKER	FRAMED CAVITY IN WALL, NO BACK BOX	PER ARCHITECT	
I	INTERCOM CONNECTION PANEL	ONE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	
I4	INTERCOM CONNECTION PANEL, 4-CH	TWO GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	
JB1	JUNCTION BOX FOR RACK WIRING	AS REQUIRED	ABOVE EQUIPMENT RACK	STAGE EQUIPMENT RACK
JB2	AV EQUIPMENT RACK WIRING	AS REQUIRED	FLUSH IN WALL BEHIND EQUIPMENT RACK	LARGE GROUP SEMINAR EQUIPMENT RACK
JB3	PA SYSTEMS WIRING	AS REQUIRED	ABOVE EQUIPMENT RACK	GYMNASIUM EQUIPMENT RACK
JB4	LOUDSPEAKER WIRING	AS REQUIRED	ABOVE EQUIPMENT RACK	CAFETERIA EQUIPMENT RACK
JB5	AV EQUIPMENT RACK WIRING	AS REQUIRED	ABOVE EQUIPMENT RACK	ATHLETIC FIELD EQUIPMENT RACK
KS	PROJECTION SCREEN KEY SWITCH	ONE GANG ELECTRICAL BOX	PROJECT SWITCH HEIGHT	
L2	LINE OUTPUT PANEL	ONE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	
LC1	LOUDSPEAKER WIRING JUNCTION BOX	4" SQUARE BY 4" DEEP ELECTRICAL BOX	AT LOUDSPEAKER LOCATION	ALL-WEATHER PASS-THROUGH
LG	GYM LOUDSPEAKER WIRING JUNCTION BOX	4" SQUARE BY 4" DEEP ELECTRICAL BOX	ABOVE LOUDSPEAKER LOCATION	PASS-THROUGH
LL	LOBBY LOUDSPEAKER WIRING JUNCTION BOX	4" SQUARE BY 4" DEEP ELECTRICAL BOX	ABOVE LOUDSPEAKER LOCATION	PASS-THROUGH
LP	PRESENTATION CONNECTION PANEL	ONE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	
LP3	PRESENTATION CONNECTION PANEL	THREE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	
M4	MICROPHONE INPUT PANEL, 4-INPUT	TWO GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	
MM	MONITOR MICROPHONE CONNECTION PANEL	ONE GANG ELECTRICAL BOX	PROJECT RECEPTABLE HEIGHT	
MX	MIX POSITION CONNECTION PANEL - AUDITORIUM	12" X 12" X 4" WALL BOX	PROJECT RECEPTACLE HEIGHT	
MXB	MIX POSITION CONNECTION PANEL - BLACK BOX	10" X 10" X 4" WALL BOX	PROJECT RECEPTACLE HEIGHT	
OR	ORCHESTRA CONNECTION PANEL	12" X 12" X 4" WALL BOX	PROJECT RECEPTACLE HEIGHT	
PL	PROGRAM LOUDSPEAKER WIRING	ONE GANG ELECTRICAL BOX	PER ELEVATION	PASS-THROUGH
PS	PROJECTION SCREEN CONTROL CONNECTION	ONE GANG ELECTRICAL BOX	MOUNT TO SCREEN CASE	
R1	RECORDING MICROPHONE CONNECTION - BALCONY	ONE GANG ELECTRICAL BOX	BEHIND MICROPHONE LOCATION ON BALCONY	
R2	RECORDING MICROPHONE CONNECTION - CEILING	ONE GANG ELECTRICAL BOX	ABOVE MICROPHONE LOCATION	
RC	CLASSROOM RACK CONNECTION PANEL	FOUR GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	
RCA	RACK CONNECTION PANEL - AUDITORIUM	FIVE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	PASS-THROUGH
S	CEILING LOUDSPEAKER, FLUSH	CEILING LOUDSPEAKER		
S2	FLUSH CEILING MOUNT LOUDSPEAKER, TYPE 2	LOUDSPEAKER-SPECIFIC BACK BOX		
SH	HIGH CEILING PENDANT LOUDSPEAKER	LOUDSPEAKER-SPECIFIC BACK BOX		
SM	STAGE MANAGER CONNECTION PANEL	10" X 10" X 4" WALL BOX	PROJECT RECEPTACLE HEIGHT	
SP	STAGE CONNECTION PANEL	12" X 12" X 4" WALL BOX	PROJECT RECEPTACLE HEIGHT	
USP	UPSTAGE CONNECTION PANEL	8" X 8" X 4" WALL BOX	PROJECT RECEPTACLE HEIGHT	
V	VOLUME CONTROL - DSP	ONE GANG ELECTRICAL BOX	PROJECT SWITCH HEIGHT	
VC	VOLUME CONTROL - 70V	ONE GANG ELECTRICAL BOX	PROJECT SWITCH HEIGHT	
VCS	VOLUME CONTROL - 70V, SOURCE SELECT	TWO GANG ELECTRICAL BOX	PROJECT SWITCH HEIGHT	
VM	VIDEO MONITOR CONNECTION PLATE	TWO GANG ELECTRICAL BOX	MOUNT BEHIND DISPLAY	
VP	VIDEO PROJECTOR CONNECTION PANEL	TWO GANG ELECTRICAL BOX	AT OR ABOVE PROJECTOR LOCATION	
VP2	VIDEO PROJECTOR CONNECTION PANEL	ONE GANG ELECTRICAL BOX	AT OR ABOVE PROJECTOR LOCATION	
VPB	VIDEO PROJECTOR CONNECTION PANEL WITH AUDIO ENCODER	THREE GANG ELECTRICAL BOX	AT OR ABOVE PROJECTOR LOCATION	
WA	WIRELESS MICROPHONE ANTENNA CONNECTION	ONE GANG ELECTRICAL BOX	PER ARCHITECT	
WB1	WALL CONNECTION PANEL, TYPE 1	FOUR GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	
WB2	WALL CONNECTION PANEL, TYPE 2	FOUR GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	
WBA	WALL CONNECTION PANEL, TYPE A	8" X 8" X 4" WALL BOX	PROJECT RECEPTACLE HEIGHT	
WBB	WALL CONNECTION PANEL, TYPE B	8" X 8" X 4" WALL BOX	PROJECT RECEPTACLE HEIGHT	
WBC	GRID CONNECTION BOX, TYPE C	4" x 6" x 4" WALL BOX	ABOVE PIPE GRID, PER DETAIL	
WBF	FILMING PLATFORM WALL CONNECTION PANEL	NEMA TYPE 3R WALL BOX, SIZE PER PANEL DRAWINGS	MOUNT TO FILM PLATFORM RAILING	
WBG	WALL CONNECTION PANEL, GYM	6" X 6" X 4" WALL BOX	PROJECT RECEPTACLE HEIGHT	
WBM	WALL CONNECTION BOX, CAFETERIA	WALL BOX WITH LOCKING COVER	PROJECT RECEPTABLE HEIGHT	
WBP	PRESS BOX WALL CONNECTION PANEL	10" X 10" X 4" WALL BOX	PROJECT RECEPTACLE HEIGHT	

PROJECTION SCREEN SCHEDULE

LOCATION	IMAGE HEIGHT	IMAGE WIDTH	TOP BLACK DROP LENGTH	SCREEN MATERIAL AND NOTES
LARGE MOTORIZED FRONT PROJECTION SCREEN, TENSIONED				
AUDITORIUM	146"	259 1/2"	58"	PER SPEC
LARGE MOTORIZED FRONT PROJECTION SCREEN, TENSIONED ALR				
CAFETERIA	120"	192"	66"	PER SPEC, PROVIDE WITH KEY SWITCH
MOTORIZED FRONT PROJECTION SCREEN, NON-TENSIONED				
GYMNASIUM	120"	213 1/4"	6"	PER SPEC
MOTORIZED FRONT PROJECTION SCREEN, TENSION ALR				
LARGE GROUP SEMINAR	72"	115 1/4"	14"	PER SPEC
LARGE GROUP SEMINAR	72"	115 1/4"	14"	PER SPEC
MOTORIZED FRONT PROJECTION SCREEN, TENSIONED				
BLACK BOX THEATER	102"	180 1/2"	6"	PER SPEC

AUDIOVISUAL EQUIPMENT RACK SCHEDULE

LOCATION	HEAT LOAD, ACTIVE (BTU)	HEAT LOAD, STANDBY (BTU)	DESCRIPTION	COMMENTS
BAND ROOM	1,500	1,000	21 SPACE ROLLING RACK	
CHORUS ROOM	1,500	1,000	21 SPACE ROLLING RACK	
LARGE GROUP SEMINAR	1,500	1,000	14 SPACE PULL-OUT EQUIPMENT RACK	WITHIN MILLWORK
GYM STORAGE	3,000	5,000	19" PIVOTING EQUIPMENT RACK	GYMNASIUM EQUIPMENT RACK
AUDITORIUM MIX POSITION	1,500	1,500	ROLLING EQUIPMENT RACK	
SOUND E177	10,000	5,000	19" GANGABLE EQUIPMENT RACK	AUDITORIUM AND BLACK BOX EQUIPMENT
SOUND E177	10,000	5,000	19" GANGABLE EQUIPMENT RACK	AUDITORIUM AND BLACK BOX EQUIPMENT
AUDITORIUM STAGE	2,000	2,000	19" PIVOTING EQUIPMENT RACK	
TABLE STORAGE E185	5,000	4,000	19" PIVOTING EQUIPMENT RACK	CAFETERIA EQUIPMENT RACK
ATHLETIC FIELD STORAGE	5,000	3,000	19" PIVOTING EQUIPMENT RACK	ATHLETIC FIELD EQUIPMENT RACK

AUDIOVISUAL POWER REQUIREMENTS

LOCATION	SERVING	IG RECEPTACLES	NON-IG RECEPTACLE	20A CIRCUITS	NOTES
SOUND	AV EQUIPMENT RACKS	5		5	L5-20 OUTLETS MOUNTED TO CABLE TRAY ABOVE RACKS
AUDITORIUM STAGE	AV EQUIPMENT	5		1	ADJACENT TO SP AND USP DEVICES
AUDITORIUM STAGE APRON	AV EQUIPMENT	5		1	EVENLY SPACED ON STAGE APRON
AUDITORIUM STAGE	AV EQUIPMENT RACK	1		1	MOUNT IN BACKPAN OF RACK
AUDITORIUM MIX POSITION	AV EQUIPMENT	2		1	
AUDITORIUM CONTROL	AV EQUIPMENT	3		1	UNDER COUNTER
AUDITORIUM SEATING	AV EQUIPMENT	2		1	HOUSE REAR AND CENTER
AUDITORIUM BALCONY FACE	VIDEO PROJECTOR	1		1	ADJACENT TO VP DEVICE
AUDITORIUM PROJECTION SCREEN	PROJECTION SCREEN		1	1	FLEXIBLE WHIP TO PROJECTION SCREEN CASE
AUDITORIUM CATWALKS	AV EQUIPMENT	6		2	ADJACENT TO WB2 DEVICES
LARGE GROUP SEMINAR	AV EQUIPMENT RACK	1		1	MOUNT IN BACKPAN OF RACK
LARGE GROUP SEMINAR	VIDEO PROJECTOR	2		1	ADJACEN TO VP DEVICES
LARGE GROUP SEMINAR	PROJECTION SCREEN		2	1	FLEXIBLE WHIP TO PROJECTION SCREEN CASE
GYMNASIUM	AV EQUIPMENT	4		1	ADJACENT TO BCP, AV, AND WBG DEVICES
GYM STORAGE	AV EQUIPMENT RACK	4		4	MOUNT IN BACKPAN OF RACK
MUSIC CLASSROOM	AV EQUIPMENT	1		1	ADJACENT TO RC DEVICE
BAND CLASSROOM	AV EQUIPMENT	1		1	ADJACENT TO RC DEVICE
TABLE STORAGE	AV EQUIPMENT RACK	2		2	MOUNT IN BACKPAN OF RACK
CAFETERIA	PROJECTION SCREEN		1	1	FLEXIBLE WHIP TO PROJECTION SCREEN CASE
CAFETERIA	VIDEO PROJECTOR	1		1	ADJACENT TO VP DEVICE
CAFETERIA	AV EQUIPMENT	1		1	WITHIN WBC DEVICE
ATHLETIC FIELD STORAGE	AV EQUIPMENT RACK	4		4	MOUNT IN BACKPAN OF RACK
PRESS BOX	AV EQUIPMENT	4		1	UNDER COUNTER
PRESS BOX EXTERIOR WALL	AV EQUIPMENT	1		1	IN ALL-WEATHER WALL BOX

ELECTRICAL NOTES

1. ALL CONDUIT TO BE STEEL EMT (ELECTRICAL METALLIC TUBING) EXCEPT AS NOTED.
2. ALL CONDUIT 3/4" UNLESS OTHERWISE NOTED.
3. 70-VOLT LOUDSPEAKER WIRING IN ACCESSIBLE CEILINGS CAN BE RUN OUTSIDE OF CONDUIT WITH CABLE SUPPORTS.
4. CONDUIT RUN IN AND BELOW CONCRETE SLABS ON GRADE TO BE PVC COATED STEEL.
5. ALL CABLES TO BE PROTECTED IN CONDUIT OR RACEWAY UNTIL TERMINATED IN JUNCTION BOX, RACK OR DIRECTLY ABOVE CABLE TRAY.
6. ALL CONDUIT TO BE HOME RUNS TO JUNCTION BOXES UNLESS OTHERWISE NOTED.
7. INTERMEDIATE MARSHALLING BOXES FOR THE GROUPING OF HOME RUN CONDUITS BY CONDUIT GROUP ARE ACCEPTABLE. CONTRACTOR RESPONSIBLE FOR MAINTAINING CONDUIT CAPACITY AND PULL BOX SIZE. USE 30% FILL FOR CONDUIT SIZE CALCULATIONS.
8. PROVIDE CONDUITS TO CONNECT JUNCTION BOXES TO EQUIPMENT RACK AS REQUIRED BY CABLE FILL.
9. FOR FLUSH-MOUNTED GANG BOXES USE RACO 3-1/2" DEEP STEEL BACK BOXES OR EQUAL.
10. FOR SURFACE- AND PIPE-MOUNTED GANG BOXES USE FSR SMWB, LEVITON BKBOX SERIES SURFACE MOUNT POWDER-COATED STEEL BOX OR EQUAL BY ELECTRONIC THEATRE CONTROLS.
11. FOR NEMA-SIZED BOXES USE PAINTED NEMA TYPE 1 SCREW COVER BOXES, EXCEPT AS NOTED.
12. USE SEPARATE STEEL CONDUITS FOR MICROPHONE-LEVEL CIRCUITS (BELOW -20 DBM), LINE-LEVEL CIRCUITS (UP TO +30 DBM), LOUDSPEAKER CIRCUITS (ABOVE +30 DBM), CONTROL CIRCUITS, DATA CIRCUITS, VIDEO CIRCUITS AND POWER CIRCUITS. USE AUDIO CONDUIT THAT IS SPACED AT LEAST 12 INCHES AWAY FROM POWER CONDUIT. INSULATE ALL CONDUIT FROM THE EQUIPMENT RACK(S); GROUND CONDUIT ONLY TO POWER SYSTEM GROUND. DO NOT SPLICE LINES IN CONDUIT. CONNECT EACH INPUT RECEPTACLE BY AN INDIVIDUAL, INSULATED LINE TO THE SYSTEM EQUIPMENT RACK.
13. GROUP D CONDUITS WITH CATEGORY CABLE MAXIMUM RUN: 300 FEET.
14. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL DIMENSIONS AND CONDUIT SIZE.
15. PROVIDE ALL EMPTY CONDUITS WITH PULL-STRINGS.
16. PROVIDE PULL BOX AFTER 180 DEGREES OF CONDUIT BEND.
17. ELECTRICAL CONTRACTOR TO PROVIDE ALL STANDARD ELECTRICAL BACK BOXES AND FLOOR BOXES.
18. AUDIOVISUAL CONTRACTOR TO PROVIDE CUSTOM AUDIOVISUAL FACEPLATES.
19. REFERENCE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS AND DETAILS.
20. EXACT LOCATION OF DEVICES TO BE COORDINATE WITH ARCHITECT IN FIELD.

ELECTRICAL DEVICE KEY

GENERAL NOTE: SUBSCRIPT AT RECEPTACLE INDICATES CIRCUIT ASSIGNMENT; DO NOT SHARE CIRCUITS BETWEEN ROOMS, AND DO NOT SHARE WITH OTHER LOADS UNLESS INDICATED. WHERE CIRCUIT ASSIGNMENT IS INDICATED, FEED CIRCUITS WITHIN A ROOM FROM A COMMON PANEL AND FROM A COMMON PHASE IN THAT PANEL. WHERE SUBSCRIPT NOT SHOWN, ASSIGN CIRCUITS PER CODE REQUIREMENTS.

- DUPLEX 120VAC 20A 5-20 RECEPTACLE FLUSH MOUNTED IN WALL AT STANDARD RECEPTACLE HEIGHT UNLESS OTHERWISE INDICATED.
- QUAD 120VAC 20A 5-20 RECEPTACLE FLUSH MOUNTED IN WALL AT STANDARD RECEPTACLE HEIGHT UNLESS OTHERWISE INDICATED.
- SINGLE NEMA TYPE L5-20 120VAC 20A TWIST-LOCK RECEPTACLE MOUNTED AT PROJECT RECEPTACLE HEIGHT, UNLESS OTHERWISE NOTED.
- A DUPLEX 120VAC 20A 5-20 RECEPTACLE FLUSH MOUNTED IN CEILING.
- QUAD 120VAC 20A 5-20 RECEPTACLE FLUSH MOUNTED IN CEILING.
- SINGLE NEMA TYPE L5-20 120VAC 20A TWIST-LOCK RECEPTACLE MOUNTED IN CEILING.
- FLEXIBLE CONNECTION TO 120VAC SERVICE. CIRCUIT PER CODE REQUIREMENTS.
- G RAISED FLOOR GROMMET FOR AUDIOVISUAL CABLE PATHWAY, SIZE AS REQUIRED
- PROJECTION SCREEN UP/DOWN SWITCH, 120V

AUDIOVISUAL DEVICE LEGEND

- 1D XXX — AUDIOVISUAL DEVICE WITH POWER AND DATA DEVICES MOUNTED ADJACENT TO AUDIOVISUAL DEVICE
- XXX D — AUDIOVISUAL DEVICE WITH DATA DROP WITHIN AUDIOVISUAL DEVICE BOX
- XXX — FLOOR MOUNTED DEVICE
- XXX — WALL MOUNTED DEVICE, FLUSH
- XXX — WALL MOUNTED DEVICE, SURFACE
- XX A — CEILING OR PIPE GRID MOUNTED DEVICE SUBSCRIPT INDICATES ZONE
- VIDEO PROJECTOR
- PSE H"X W" — ELECTRIC, ROLL-DOWN FRONT PROJECTION SCREEN, IMAGE SIZE INDICATED
- PSM H"X W" — MANUAL ROLL-DOWN FRONT PROJECTION SCREEN, IMAGE SIZE INDICATED
- PSS H"X W" — STATIC FRONT PROJECTION SCREEN IMAGE SIZE INDICATED
- FP - XX" — FLAT PANEL DISPLAY NOMINAL DIAGONAL IMAGE SIZE INDICATED
- VIDEO CAMERA, WALL MOUNTED
- "XU" RACK — AUDIOVISUAL EQUIPMENT RACK

AUDIOVISUAL DEVICE KEY NOTES

1. ABBREVIATIONS
   P.S.H. = PROJECT SWITCH HEIGHT
   P.R.H. = PROJECT RECEPTABLE HEIGHT

AUDIOVISUAL SHEET LIST

SHEET NUMBER	SHEET NAME
AV1.0	Audiovisual Notes, Keys, and Schedules
AV1.1	Audiovisual Conduit Risers
AV1.2	Audiovisual Details
AV3.3	Audiovisual Ground Floor Plan Athletic Field
AV3.4	Audiovisual Main Floor Plan Section E
AV3.6	Audiovisual Main Floor Plan Section DE
AV3.8	Audiovisual Level 2 Plan Section E
AV3.10	Audiovisual Level 2 Plan Section DE
AV3.14	Audiovisual Level 3 Plan Section DE
AV3.20	Audiovisual Level 3 Plan Section E
AV4.1	Audiovisual Enlarged Plans
AV6.1	Audiovisual Rack Elevations
AV6.2	Audiovisual Plate And Panel Details
AV6.3	Audiovisual Plate And Panel Details
AV7.1	Audiovisual Sections
AV7.2	Audiovisual Sections
AV7.3	Loudspeaker Details
AV8.0	Audiovisual Functional Diagram Notes and Keys
AV8.1	Audiovisual Functional Diagram
AV8.2	Audiovisual Functional Diagram
AV8.3	Audiovisual Functional Diagram
AV8.4	Audiovisual Functional Diagram
AV8.5	Audiovisual Functional Diagram
AV8.6	Audiovisual Functional Diagram

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Worcester MA 01602

PROJECT

100% CONSTRUCTION DOCUMENTS, FINAL BID PACKAGE #4

Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

DRAWING TITLE

Audiovisual Notes, Keys, and Schedules

Locus Map

Key Plan

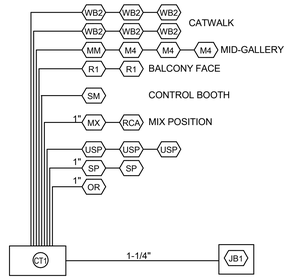
REVISIONS

No.	Description	Date

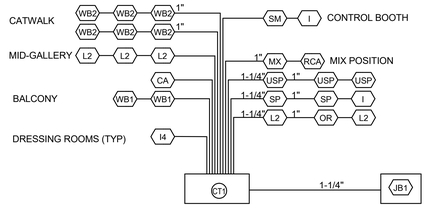
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DWN. BY: Author
CKD. BY: Checker
DATE: January 20, 2022

AV1.0

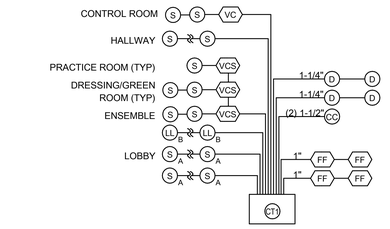
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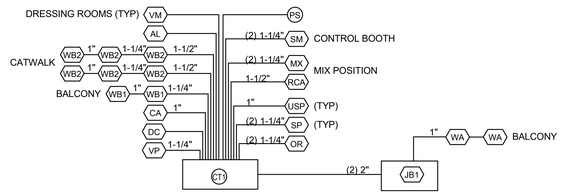
GROUP A CONDUIT



GROUP B CONDUIT



GROUP C CONDUIT

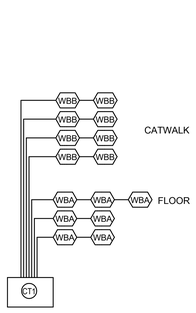


GROUP D CONDUIT

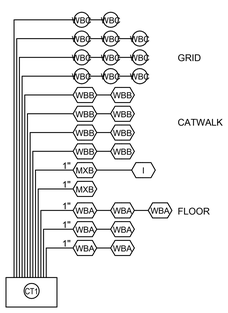
RACK LOCATIONS

CT: MAIN EQUIPMENT RACKS
JB1: AUDITORIUM STAGE RIGHT RACK
RCA: AUDITORIUM MIX POSITION RACK

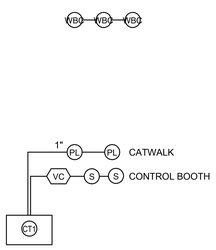
1 CONDUIT RISER - AUDITORIUM
NTS



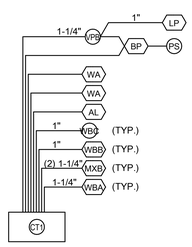
GROUP A CONDUIT



GROUP B CONDUIT

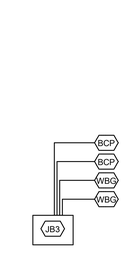


GROUP C CONDUIT

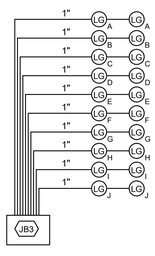


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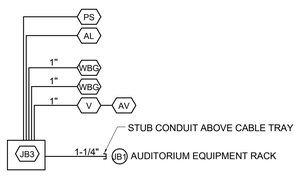
2 CONDUIT RISER - BLACK BOX THEATER
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GROUP B CONDUIT

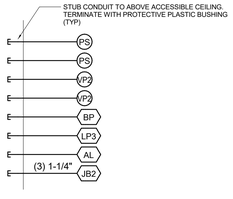


GROUP C CONDUIT

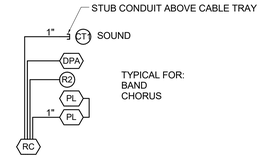


GROUP D CONDUIT

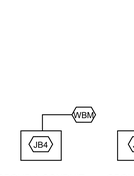
3 CONDUIT RISER - GYMNASIUM
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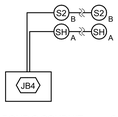
4 CONDUIT RISER - LARGE GROUP
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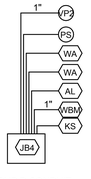
5 CONDUIT RISER - MUSIC CLASSROOM
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GROUP A CONDUIT

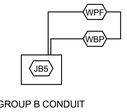


GROUP C CONDUIT

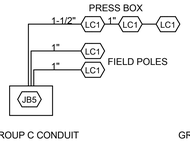


GROUP D CONDUIT

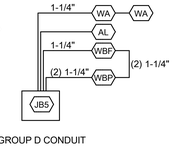
6 CONDUIT RISER - CAFETERIA
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GROUP B CONDUIT



GROUP C CONDUIT



GROUP D CONDUIT

8 CONDUIT RISER - ATHLETIC FIELD
NTS

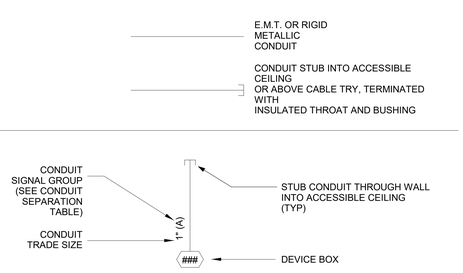
ELECTRICAL NOTES

1. ALL CONDUIT TO BE STEEL EMT (ELECTRICAL METALLIC TUBING) EXCEPT AS NOTED.
2. ALL CONDUIT 3/4" UNLESS OTHERWISE NOTED.
3. 70-VOLT LOUDSPEAKER WIRING IN ACCESSIBLE CEILINGS CAN BE RUN OUTSIDE OF CONDUIT WITH CABLE SUPPORTS.
4. CONDUIT RUN IN AND BELOW CONCRETE SLABS ON GRADE TO BE PVC COATED STEEL.
5. ALL CABLES TO BE PROTECTED IN CONDUIT OR RACEWAY UNTIL TERMINATED IN JUNCTION BOX, RACK OR DIRECTLY ABOVE CABLE TRAY.
6. ALL CONDUIT TO BE HOME RUNS TO JUNCTION BOXES UNLESS OTHERWISE NOTED.
7. INTERMEDIATE MARSHALLING BOXES FOR THE GROUPING OF HOME RUN CONDUITS BY CONDUIT GROUP ARE ACCEPTABLE. CONTRACTOR RESPONSIBLE FOR MAINTAINING CONDUIT CAPACITY AND PULL BOX SIZE. USE 30% FILL FOR CONDUIT SIZE CALCULATIONS.
8. PROVIDE CONDUITS TO CONNECT JUNCTION BOXES TO EQUIPMENT RACK AS REQUIRED BY CABLE FILL.
9. FOR FLUSH-MOUNTED GANG BOXES USE RACO 3-1/2" DEEP STEEL BACK BOXES OR EQUAL.
10. FOR SURFACE- AND PIPE-MOUNTED GANG BOXES USE FSR SMWB, LEVITON BKBOX SERIES SURFACE MOUNT POWDER-COATED STEEL BOX OR EQUAL BY ELECTRONIC THEATRE CONTROLS.
11. FOR NEMA-SIZED BOXES USE PAINTED NEMA TYPE 1 SCREW COVER BOXES, EXCEPT AS NOTED.
12. USE SEPARATE STEEL CONDUITS FOR MICROPHONE-LEVEL CIRCUITS (BELOW -20 DBM), LINE-LEVEL CIRCUITS (UP TO +30 DBM), LOUDSPEAKER CIRCUITS (ABOVE +30 DBM), CONTROL CIRCUITS, DATA CIRCUITS, VIDEO CIRCUITS AND POWER CIRCUITS. USE AUDIO CONDUIT THAT IS SPACED AT LEAST 12 INCHES AWAY FROM POWER CONDUIT. INSULATE ALL CONDUIT FROM THE EQUIPMENT RACK(S); GROUND CONDUIT ONLY TO POWER SYSTEM GROUND. DO NOT SPLICE LINES IN CONDUIT. CONNECT EACH INPUT RECEPTACLE BY AN INDIVIDUAL, INSULATED LINE TO THE SYSTEM EQUIPMENT RACK.
13. GROUP D CONDUITS WITH CATEGORY CABLE MAXIMUM RUN: 300 FEET.
14. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL DIMENSIONS AND CONDUIT SIZE.
15. PROVIDE ALL EMPTY CONDUITS WITH PULL-STRINGS.
16. PROVIDE PULL BOX AFTER 180 DEGREES OF CONDUIT BEND.
17. ELECTRICAL CONTRACTOR TO PROVIDE ALL STANDARD ELECTRICAL BACK BOXES AND FLOOR BOXES.
18. AUDIOVISUAL CONTRACTOR TO PROVIDE CUSTOM AUDIOVISUAL FACEPLATES.
19. REFERENCE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS AND DETAILS.
20. EXACT LOCATION OF DEVICES TO BE COORDINATE WITH ARCHITECT IN FIELD.

AUDIOVISUAL CONDUIT SEPARATION DISTANCES TABLE

GROUP	SIGNALS TYPES	GROUP A	GROUP B	GROUP C	GROUP D
A	MICROPHONE	ADJACENT	6"	18"	12"
B	LINE LEVEL ANALOG AUDIO AND VIDEO	6"	ADJACENT	12"	12"
C	LOUDSPEAKER LEVEL	18"	12"	ADJACENT	3"
D	DATA, CONTROL, DIGITAL VIDEO	12"	12"	3"	ADJACENT
120VAC POWER		24"	18"	9"	9"
277VAC POWER		38"	24"	12"	12"
DIMMED POWER		36"	24"	12"	12"
NON-AV LOW-VOLTAGE		12"	6"	ADJACENT	ADJACENT

CONDUIT RISER KEY



NOTES:
1. ALL CONDUIT SIZES SHOWN ARE FOR CONDUITS AND CONDUIT STUBS THROUGH WALLS, FLOORS, AND ACCESSIBLE CEILINGS.
2. ADHERE TO SIGNAL SEPARATION DISTANCES SHOWN ON CONDUIT SEPARATION DISTANCES TABLE FOR ALL CABLING BUNDLES INSTALLED IN J-HOOKS AND CABLE TRAYS.
3. ALL CONDUIT TO BE FERROUS METAL (E.G., STEEL).
4. CONDUIT RUN IN AND BELOW CONCRETE SLABS TO BE PVC COATED STEEL.
5. ALL CABLES TO BE IN CONDUIT UNTIL MINIMUM 8 FEET ABOVE FINISHED FLOOR.

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CONSULTANT'S STAMP

OWNER

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299 Highland St
Worcester MA 01602

PROJECT

100% CONSTRUCTION DOCUMENTS, FINAL BID PACKAGE #4

Doherty Memorial High School
299 Highland Street, Worcester, MA 01602

DRAWING TITLE

Audiovisual Conduit Risers

Locus Map

Key Plan

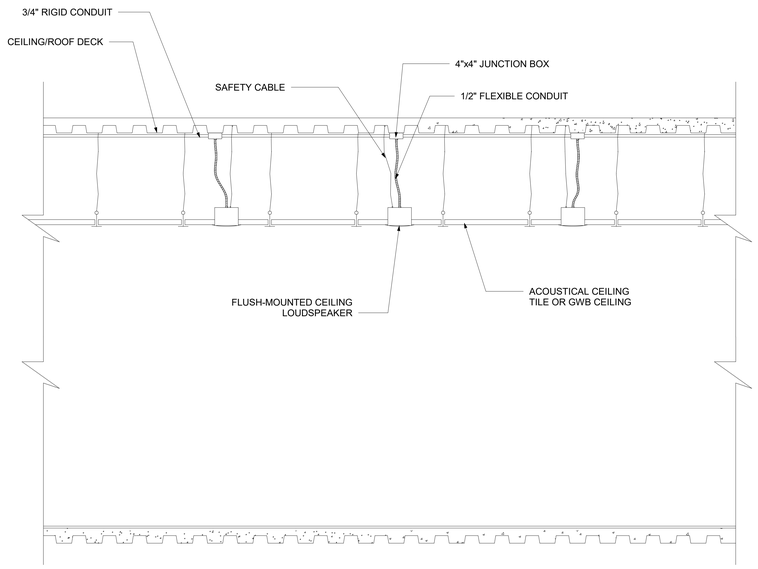
REVISIONS

No.	Description	Date

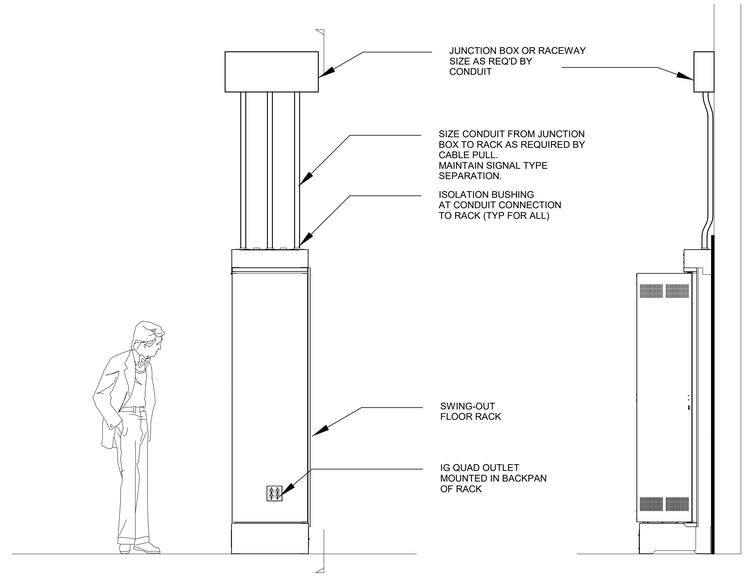
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AV1.1

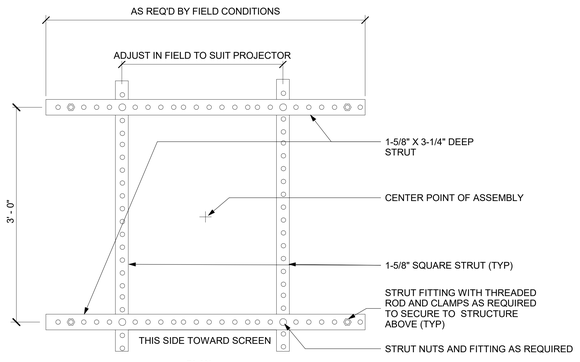
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1 CEILING MOUNT LOUDSPEAKERS
3/4" = 1'-0"



2 FLOOR-MOUNTED SWING-OUT EQUIPMENT RACK
3/4" = 1'-0"

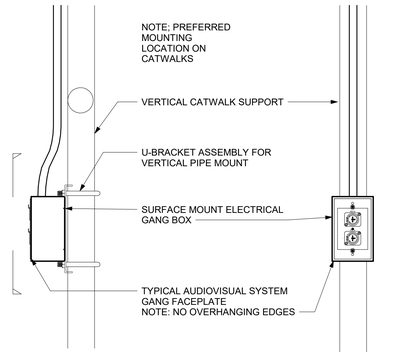




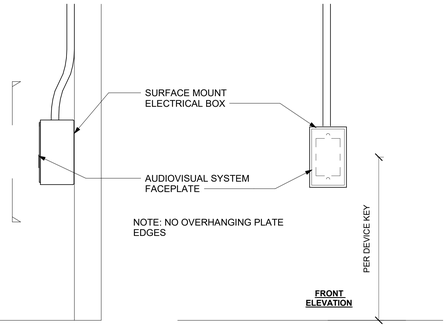
NOTES

1. STRUT FRAME TO SUPPORT SAFE WORKING POINT LOAD OF 300 POUNDS
2. USING 5:1 SAFETY FACTOR.
3. INSTALL FRAME BELOW DUCTWORK ABOVE CEILING FREE FROM CONTACT WITH OTHER OBJECTS.
4. INSTALL NO GREATER THAN 12 INCHES ABOVE FINISHED CEILING.
5. FOR PROJECTOR LIFTS, REFERENCE LIFT FOR CLEARANCE REQUIRED.
6. IF FRAME IS ASSEMBLED BELOW DUCTWORK, PIPES OR AT GREATER THAN 24 INCHES BELOW DECK, PROVIDE LATERAL BRACING AS REQUIRED TO PREVENTS WAY.
7. ADVISE AUDIOVISUAL CONTRACTOR OF ANY STRUCTURAL RESTRICTIONS OF ASSEMBLY.

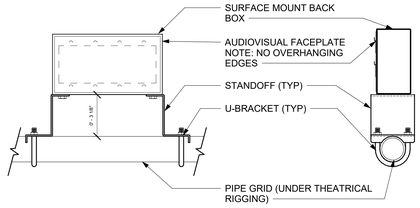
6 PROJECTOR SUPPORT FRAME AT PROJECTOR, TYPICAL UNLESS OTHERWISE NOTED
NTS



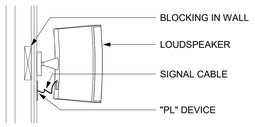
3 MOUNTING DETAIL - VERTICAL PIPE MOUNT BOX
3" = 1'-0"



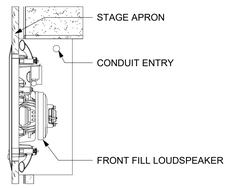
4 MOUNTING DETAIL - SURFACE MOUNT BOX
3" = 1'-0"



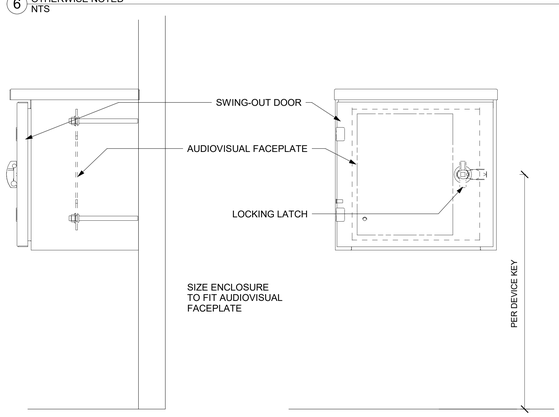
5 MOUNTING DETAIL - PIPE MOUNT BOX
3" = 1'-0"



7 CLASSROOM WALL LOUDSPEAKER MOUNTING DETAIL
1" = 1'-0"



8 DETAIL - FRONT FILL LOUDSPEAKER
3" = 1'-0"



9 MOUNTING DETAIL NEMA TYPE 3R DEVICE
3" = 1'-0"

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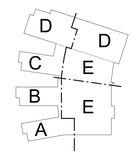
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Audiovisual Details

Locus Map

True North

Key Plan



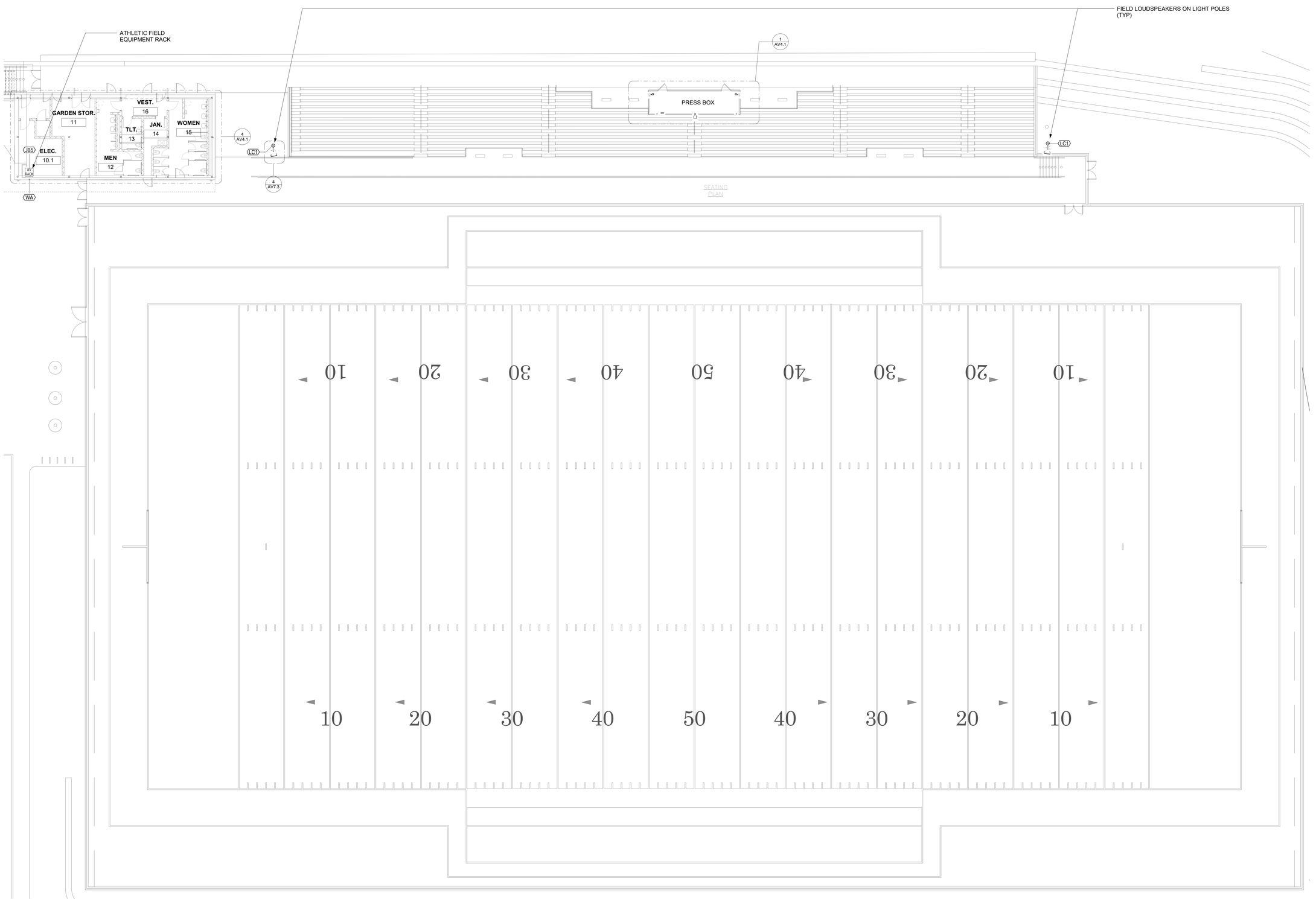
REVISIONS

No.	Description	Date

FILE:	
JOB NO:	#1904
SCALE:	As indicated
DWN. BY:	Author
CKD. BY:	Checker
DATE:	January 20, 2022

AV1.2

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1 AUDIOVISUAL SECOND LEVEL FLOOR PLAN - ATHLETIC FIELD
3/32" = 1'-0"

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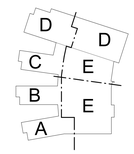
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Audiovisual Ground Floor Plan Athletic Field

Locus Map

True North

Key Plan



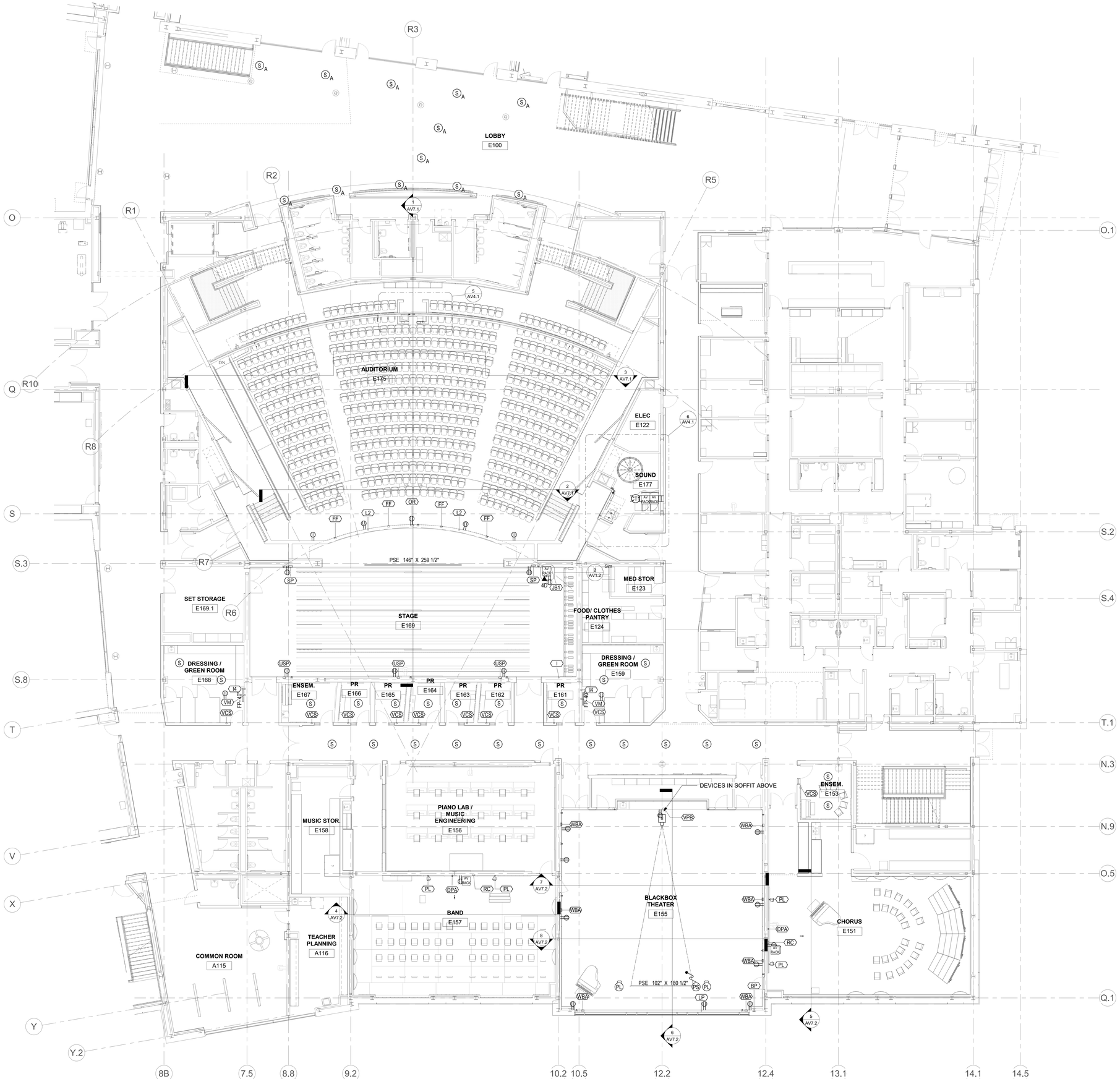
REVISIONS

No.	Description	Date

FILE:
JOB NO: #1904
SCALE: 3/32" = 1'-0"
DWN. BY: Author
CKD. BY: Checker
DATE: January 20, 2022

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1 AUDIOVISUAL MAIN FLOOR PLAN SECTION E
1/8" = 1'-0"

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DRAWING TITLE

Audiovisual Main Floor Plan Section E

Locus Map

True North

Key Plan

REVISIONS

No.	Description	Date

FILE:
JOB NO: #1904
SCALE: 1/8" = 1'-0"
DWN. BY: Author
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DATE: January 20, 2022

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1 AUDIOVISUAL MAIN FLOOR PLAN SECTION DE
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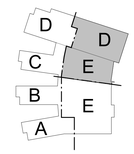
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Audiovisual Main Floor Plan Section DE

Locus Map

True North

Key Plan



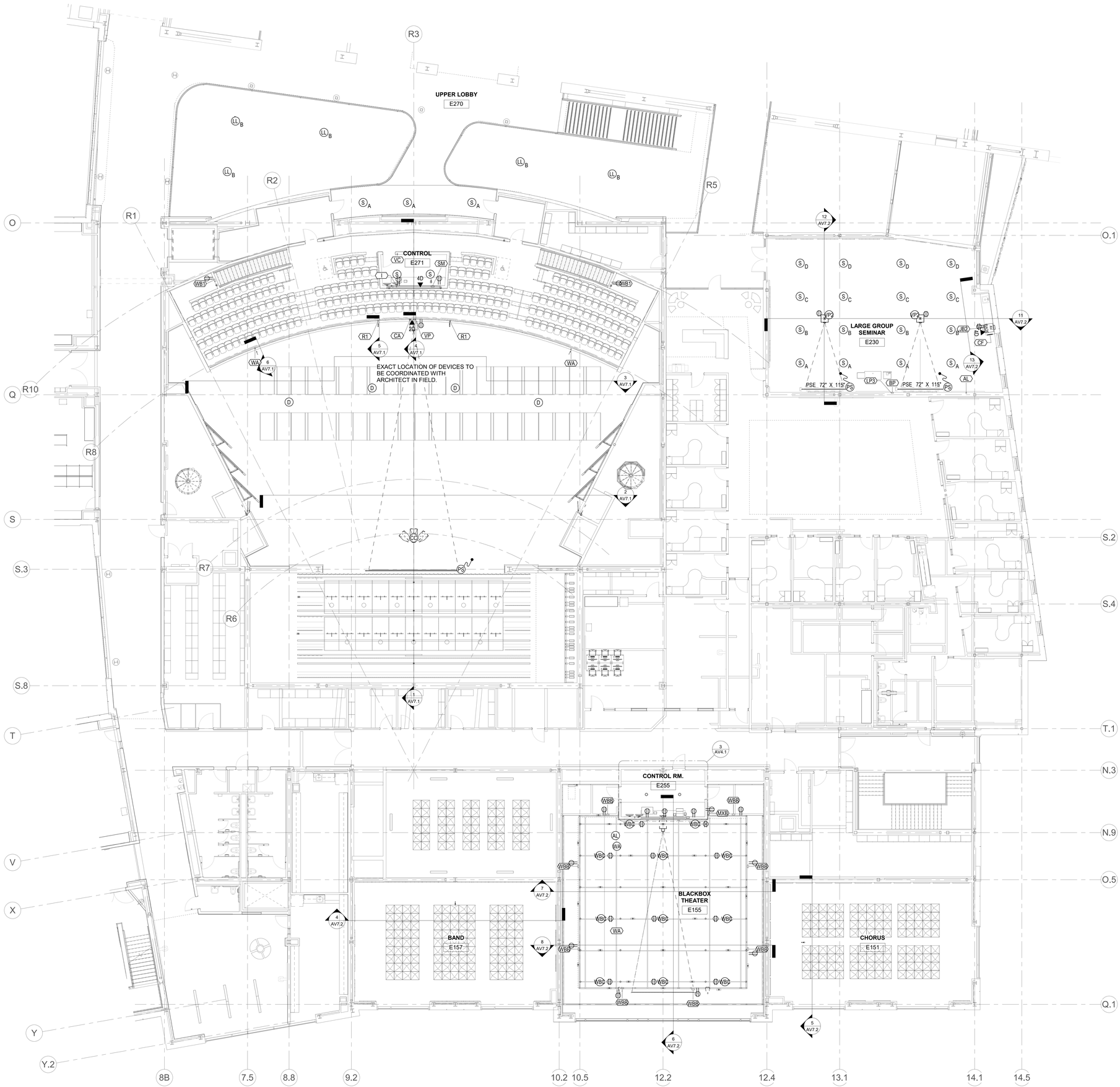
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No.	Description	Date

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JOB NO:	#1904
SCALE:	1/8" = 1'-0"
DWN. BY:	Author
CKD. BY:	Checker
DATE:	January 20, 2022

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1 AUDIOVISUAL SECTION FLOOR PLAN SECTION E
1/8" = 1'-0"

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Audiovisual Level 2 Plan Section E

Locus Map

True North

Key Plan

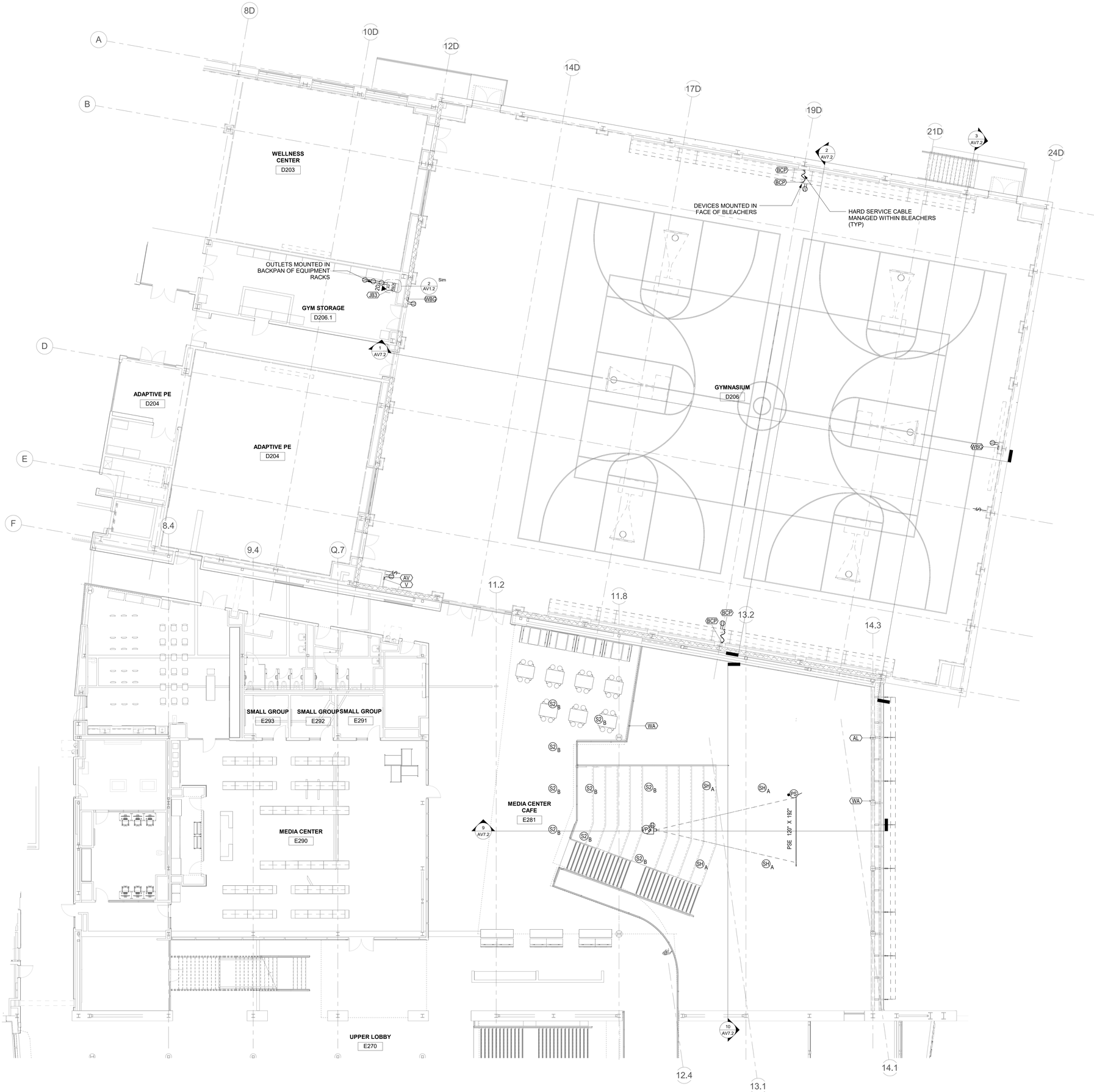
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SCALE: 1/8" = 1'-0"
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DATE: January 20, 2022

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1 AUDIOVISUAL SECTION FLOOR PLAN SECTION DE
1/8" = 1'-0"

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Audiovisual Level 2 Plan Section DE

Locus Map

True North

Key Plan

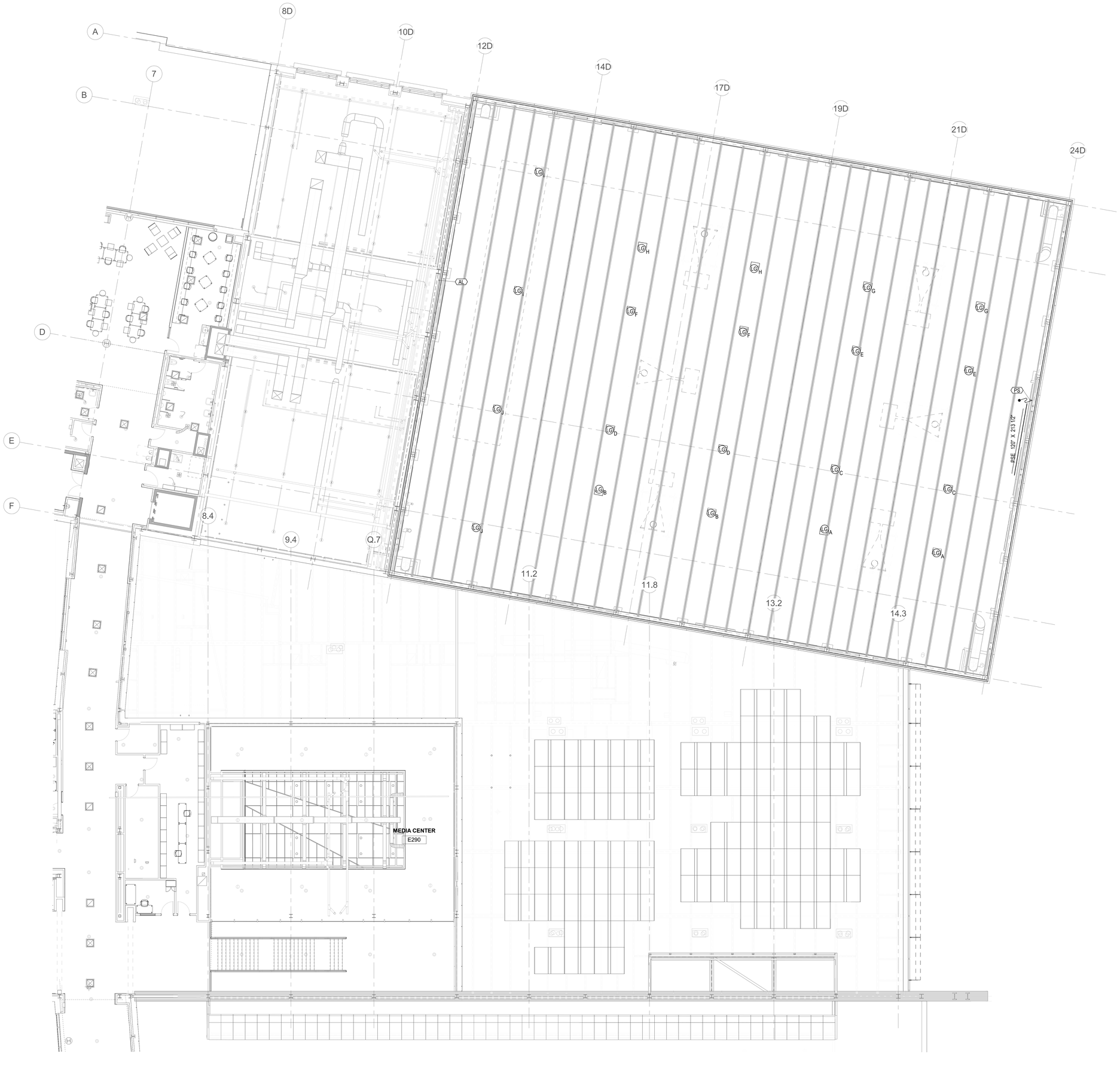
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1 AUDIOVISUAL THIRD FLOOR PLAN SECTION DE
1/8" = 1'-0"

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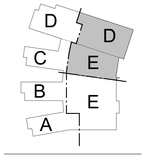
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Audiovisual Level 3 Plan Section DE

Locus Map

True North

Key Plan



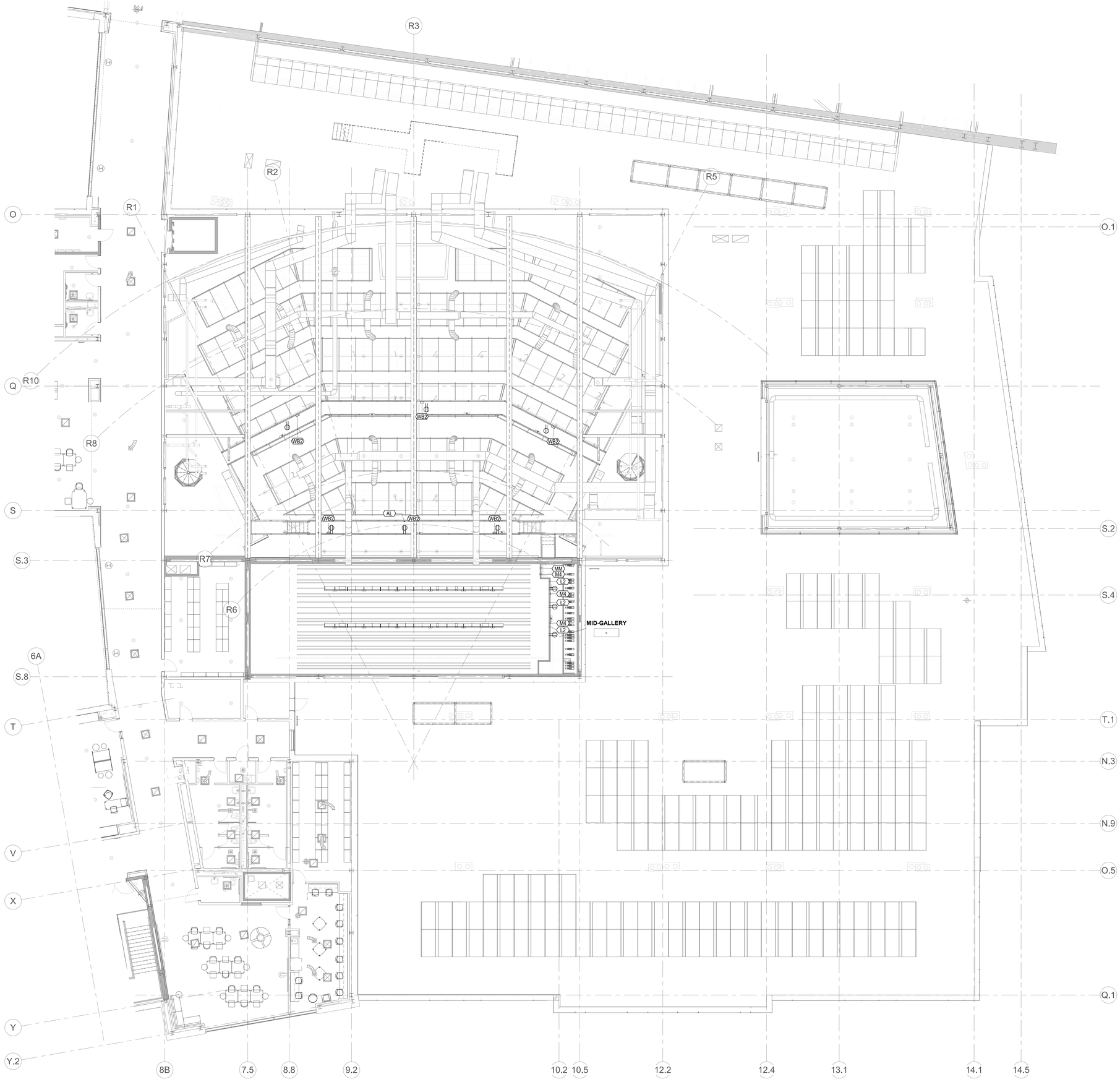
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1 AUDIOVISUAL THIRD FLOOR PLAN SECTION E
1/8" = 1'-0"

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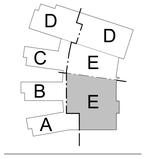
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Audiovisual Level 3 Plan Section E

Locus Map

True North

Key Plan



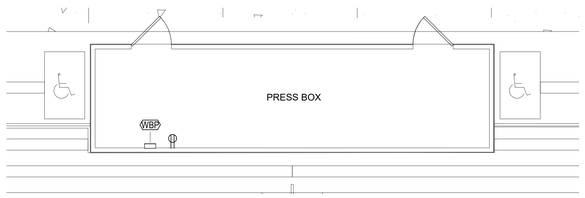
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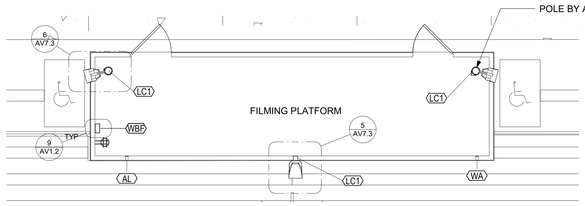
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CKD. BY:	Checker
DATE:	January 20, 2022

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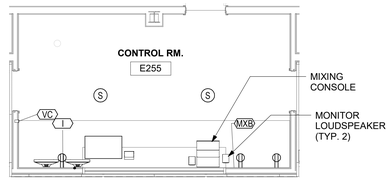
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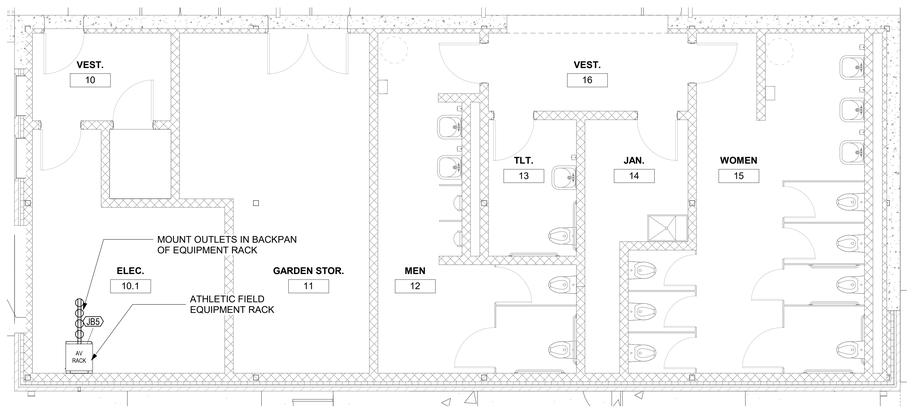
1 ATHLETIC FIELD ENLARGED PLAN - PRESS BOX
1/4" = 1'-0"



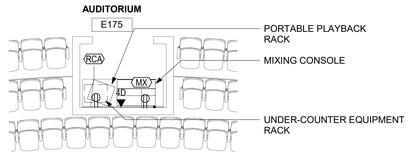
2 ATHLETIC FIELD ENLARGED PLAN - FILMING PLATFORM
1/4" = 1'-0"



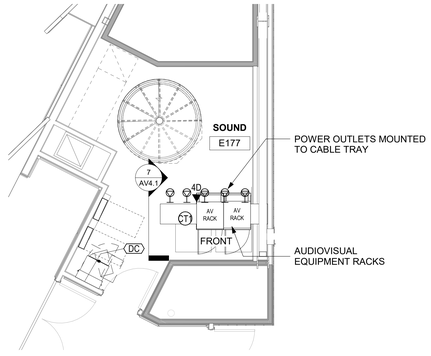
3 AUDIOVISUAL DEVICE ENLARGED PLAN - BLACK BOX CONTROL ROOM
1/4" = 1'-0"



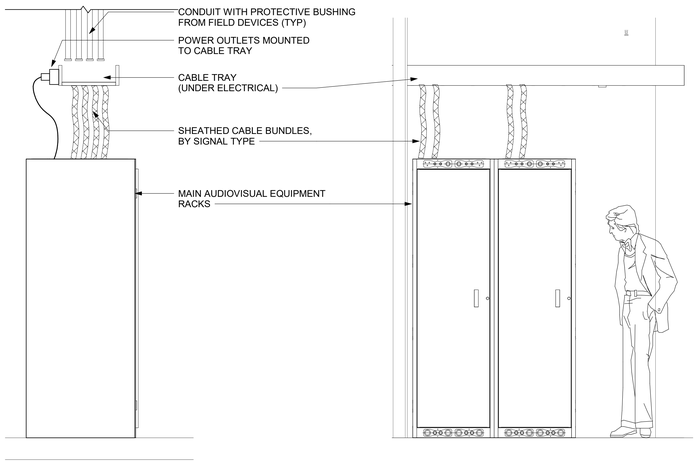
4 ATHLETIC FIELD ENLARGED PLAN - AV RACK ROOM
1/4" = 1'-0"



5 AUDIOVISUAL DEVICE ENLARGED PLAN - AUDITORIUM MIX POSITION
1/4" = 1'-0"



6 AUDIOVISUAL DEVICE ENLARGED PLAN - AUDITORIUM SOUND
1/4" = 1'-0"



7 DETAIL SECTION - AUDITORIUM SOUND
3/4" = 1'-0"

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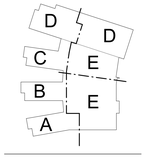
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Audiovisual Enlarged Plans

Locus Map

True North

Key Plan



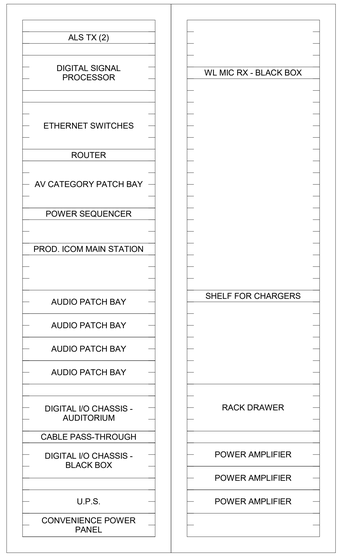
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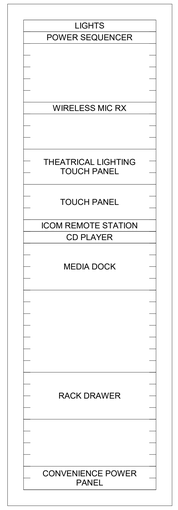
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JOB NO: #1904
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DATE: January 20, 2022

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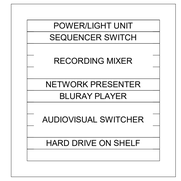
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1 ELEVATION - AUDITORIUM MAIN EQUIPMENT RACKS
NTS



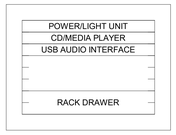
2 ELEVATION - AUDITORIUM STAGE EQUIPMENT RACK
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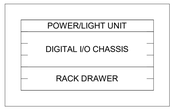
11 ELEVATION - AUDITORIUM MIX POSITION EQUIPMENT RACK
NTS



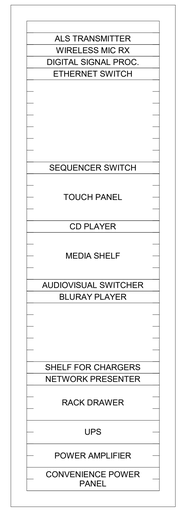
3 ELEVATION - AUDITORIUM PORTABLE PLAYBACK RACK
NTS



12 ELEVATION - BLACK BOX PORTABLE RACK
NTS

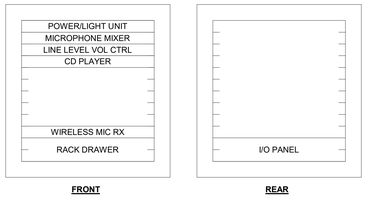


4 ELEVATION - AUDITOTRIUM PORTABLE I/O EQUIPMENT RACK
NTS

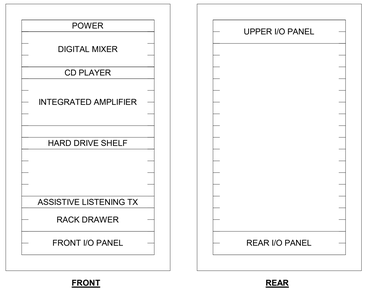


5 ELEVATION - CAFE EQUIPMENT RACK
NTS

6 ELEVATION - GYM EQUIPMENT RACK
NTS

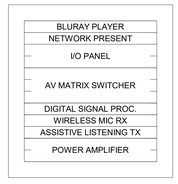


7 ELEVATION - GYM ROLLING EQUIPMENT RACK
NTS



8 ELEVATION - CLASSROOM EQUIPMENT RACK
NTS

9 ELEVATION - ATHLETIC FIELD EQUIPMENT RACK
NTS



10 ELEVATION - LARGE GROUP RACK
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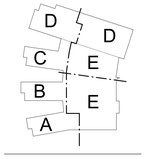
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Audiovisual Rack Elevations

Locus Map

True North

Key Plan



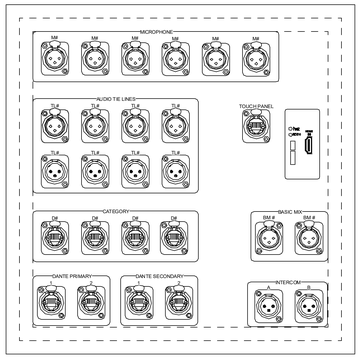
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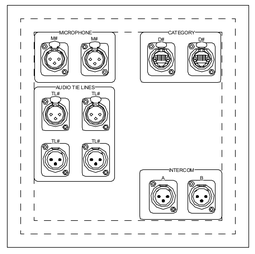
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SCALE: 1 1/2" = 1'-0"
DWN. BY: Author
CKD. BY: Checker
DATE: January 20, 2022

AV6.1

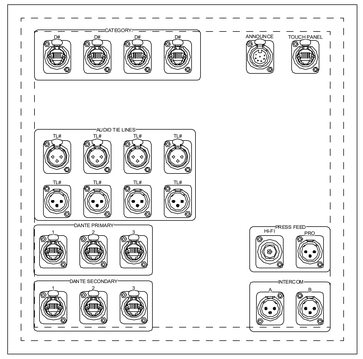
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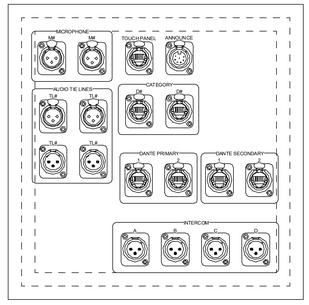
1 DEVICE DETAIL - SP
6" = 1'-0"



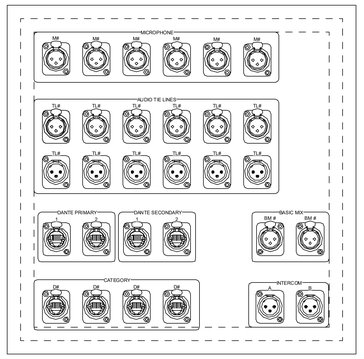
2 DEVICE DETAIL - USP
6" = 1'-0"



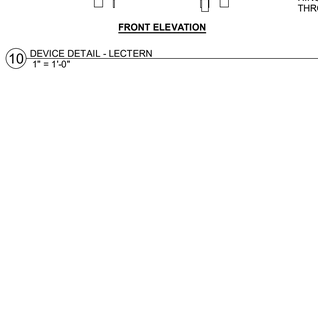
3 DEVICE DETAIL - MX
6" = 1'-0"



4 DEVICE DETAIL - SM
6" = 1'-0"

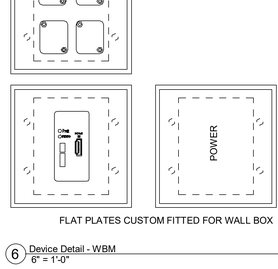


5 Device Detail - OR
6" = 1'-0"



13 DEVICE DETAIL - MXB
6" = 1'-0"

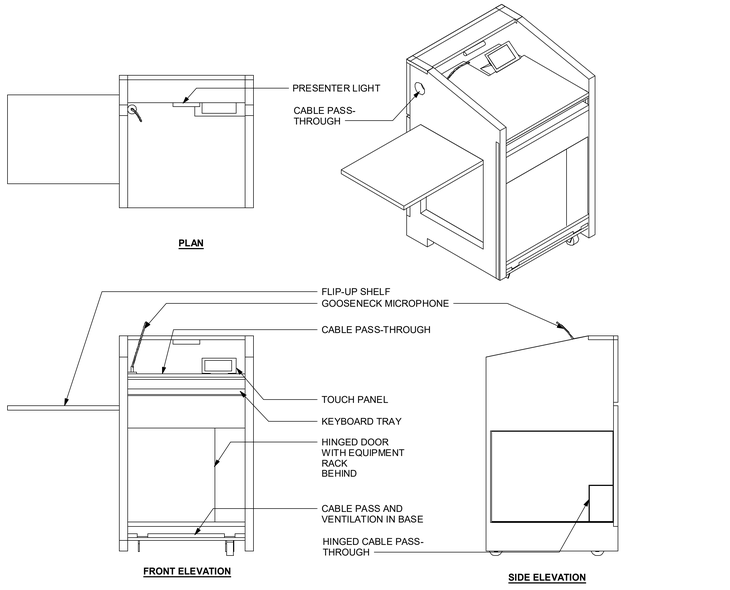
9 DEVICE DETAIL - WBA
6" = 1'-0"



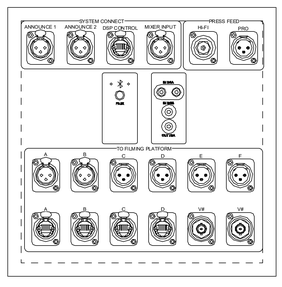
11 DEVICE DETAIL - WBB
6" = 1'-0"

12 DEVICE DETAIL - WBC
6" = 1'-0"

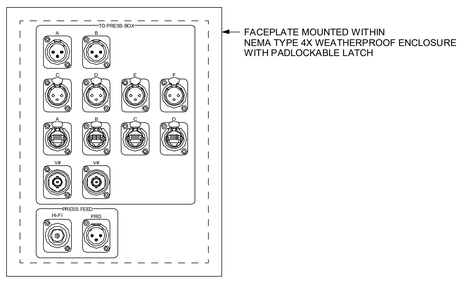
8 DEVICE DETAIL - WBG
6" = 1'-0"



10 DEVICE DETAIL - LECTERN
1" = 1'-0"



15 DEVICE DETAIL - WBP
6" = 1'-0"



FACEPLATE MOUNTED WITHIN NEMA TYPE 4X WEATHERPROOF ENCLOSURE WITH PADLOCKABLE LATCH

16 DEVICE DETAIL - WPF
6" = 1'-0"

FLAT PLATES CUSTOM FITTED FOR WALL BOX

6 Device Detail - WBM
6" = 1'-0"

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OWNER

Worcester Public Schools
299 Highland St
Worcester MA 01602

PROJECT

100% CONSTRUCTION DOCUMENTS, FINAL BID PACKAGE #4

Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

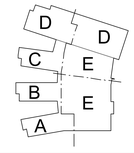
DRAWING TITLE

Audiovisual Plate And Panel Details

Locus Map

True North

Key Plan



REVISIONS

No.	Description	Date

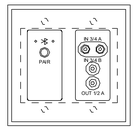
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SCALE: As indicated
DWN. BY: Author
CKD. BY: Checker
DATE: January 20, 2022

AV6.2

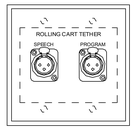
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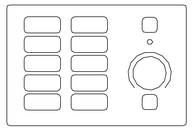
1 DEVICE DETAIL - AL
6" = 1'-0"



2 Device Detail - AV
6" = 1'-0"



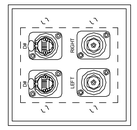
3 DEVICE DETAIL - BCP
6" = 1'-0"



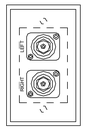
PROVIDE WITH CUSTOM BUTTON LABELS

BLACK BOX:	LARGE GROUP:
PROJECTOR ON/OFF	PROJECTORS ON/OFF
SCREEN UP	SCREENS UP
SCREEN DOWN	SCREENS DOWN
VIDEO MUTE	BLU RAY
WALL PLATE	NETWORK PRESENT
	RACK PANEL
	FRONT WALL
	VIDEO MUTE

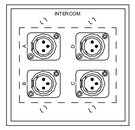
4 DEVICE DETAIL - BP
6" = 1'-0"



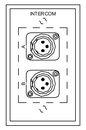
5 DEVICE DETAIL - CA
6" = 1'-0"



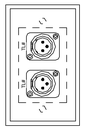
6 Device Detail - DPA
6" = 1'-0"



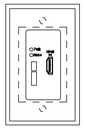
7 DEVICE DETAIL - I4
6" = 1'-0"



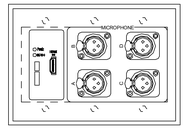
8 DEVICE DETAIL - I
6" = 1'-0"



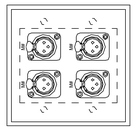
9 DEVICE DETAIL - L2
6" = 1'-0"



10 DEVICE DETAIL - LP
6" = 1'-0"



11 DEVICE DETAIL - LP3
6" = 1'-0"



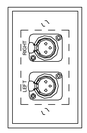
12 DEVICE DETAIL - M4
6" = 1'-0"



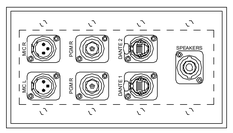
13 DEVICE DETAIL - MM
6" = 1'-0"



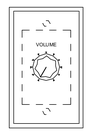
14 DEVICE DETAIL - R1
6" = 1'-0"



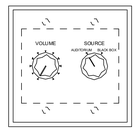
15 DEVICE DETAIL - R2
6" = 1'-0"



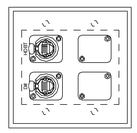
16 DEVICE DETAIL - RC
6" = 1'-0"



17 DEVICE DETAIL - VC
6" = 1'-0"



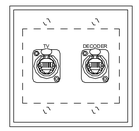
18 DEVICE DETAIL - VCS
6" = 1'-0"



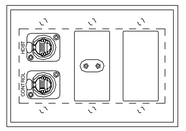
19 DEVICE DETAIL - VP
6" = 1'-0"



20 DEVICE DETAIL - VP2
6" = 1'-0"



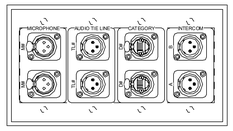
21 DEVICE DETAIL - VM
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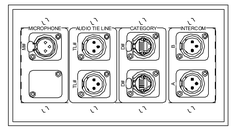
22 DEVICE DETAIL - VPB
6" = 1'-0"



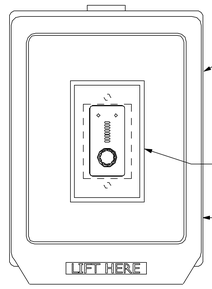
23 DEVICE DETAIL - WA
6" = 1'-0"



24 DEVICE DETAIL - WB1
6" = 1'-0"



25 DEVICE DETAIL - WB2
6" = 1'-0"

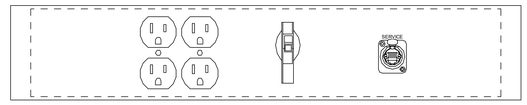


CLEAR, HINGED FACEPLATE PROTECTION
CUSTOM LABEL: VOLUME
NOTE: HOLD BACK PADDING ABOVE VOLUME CONTROL TO ALLOW COVER TO OPEN FULLY.

VOLUME CONTROL

PROTECTIVE COVER ONLY IN ATHLETIC SPACES AS SPECIFIED

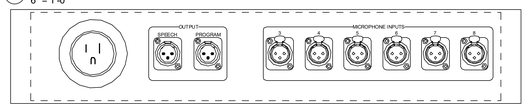
26 DEVICE DETAIL - V
6" = 1'-0"



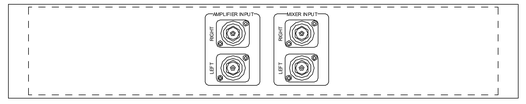
27 DEVICE DETAIL - CONVENIENCE OUTLET
6" = 1'-0"



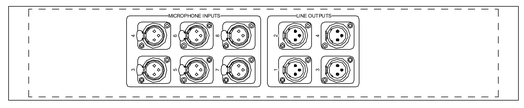
28 DEVICE DETAIL - GYM MAIN RACK I/O PANEL
6" = 1'-0"



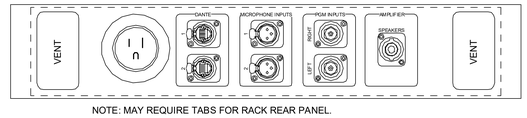
29 DEVICE DETAIL - GYM ROLLING RACK I/O PANEL
6" = 1'-0"



30 DEVICE DETAIL - CLASSROOM ROLLING RACK UPPER FRONT PANEL
6" = 1'-0"

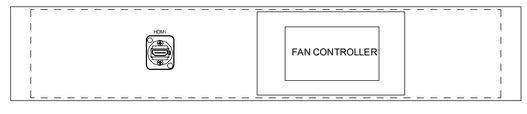


31 DEVICE DETAIL - CLASSROOM ROLLING RACK FRONT LOWER I/O PANEL
6" = 1'-0"



NOTE: MAY REQUIRE TABS FOR RACK REAR PANEL.

32 DEVICE DETAIL - CLASSROOM ROLLING RACK REAR I/O PANEL
6" = 1'-0"



33 DEVICE DETAIL - LARGE GROUP SEMINAR I/O PANEL
6" = 1'-0"

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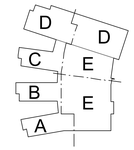
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Audiovisual Plate And Panel Details

Locus Map

True North

Key Plan



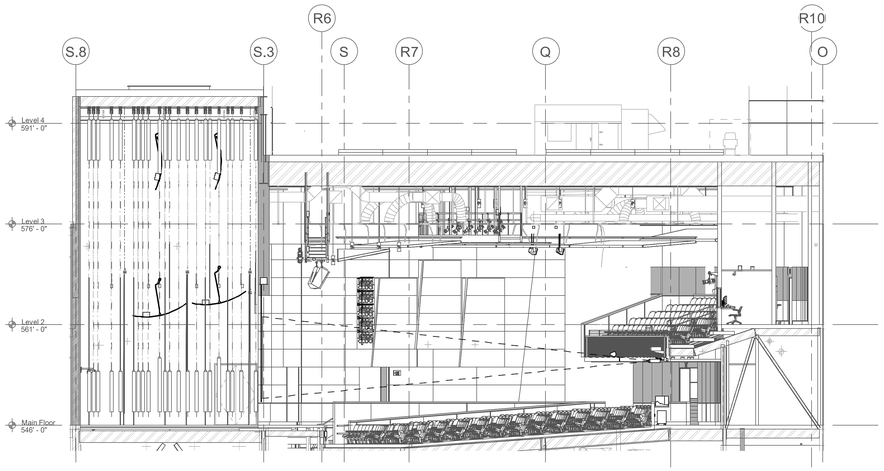
REVISIONS

No.	Description	Date

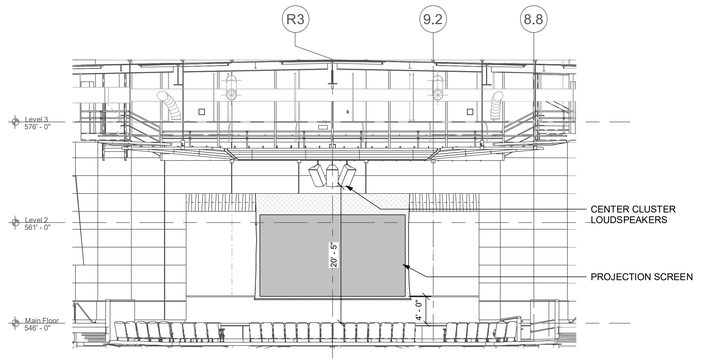
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SCALE:	6" = 1'-0"
DWN. BY:	Author
CKD. BY:	Checker
DATE:	January 20, 2022

AV6.3

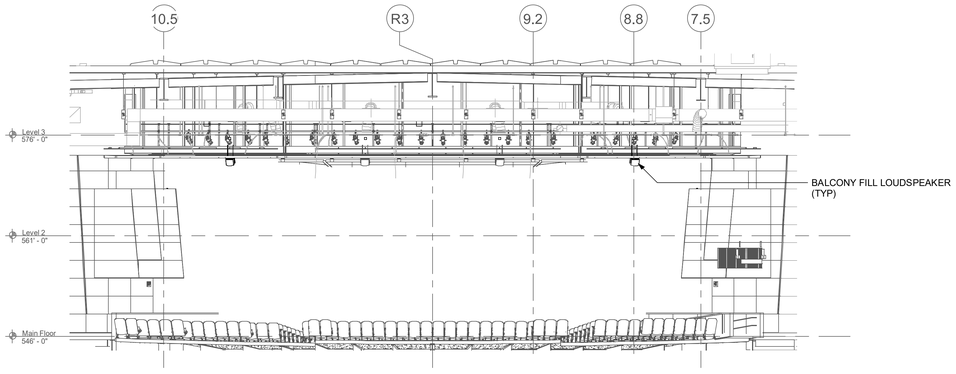
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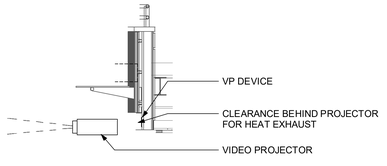
1 AUDITORIUM CENTERLINE SECTION
1/8" = 1'-0"



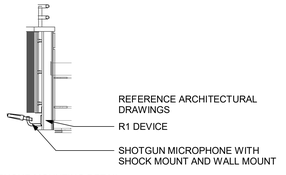
2 AUDITORIUM - TRANSVERSE SECTION LOOKIN AT PROSCENIUM
1/8" = 1'-0"



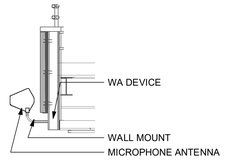
3 AUDITORIUM SECTION AT BALCONY FILL LOUDSPEAKERS
1/8" = 1'-0"



4 AUDITORIUM PROJECTOR MOUNTING DETAIL
1/2" = 1'-0"



5 AUDITORIUM BALCONY MICROPHONE MOUNTING DETAIL
1/2" = 1'-0"



6 AUDITORIUM BALCONY ANTENNA MOUNTING DETAIL
1/2" = 1'-0"

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Worcester MA 01602

PROJECT

100% CONSTRUCTION DOCUMENTS, FINAL BID PACKAGE #4

Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

DRAWING TITLE

Audiovisual Sections

Locus Map

Key Plan

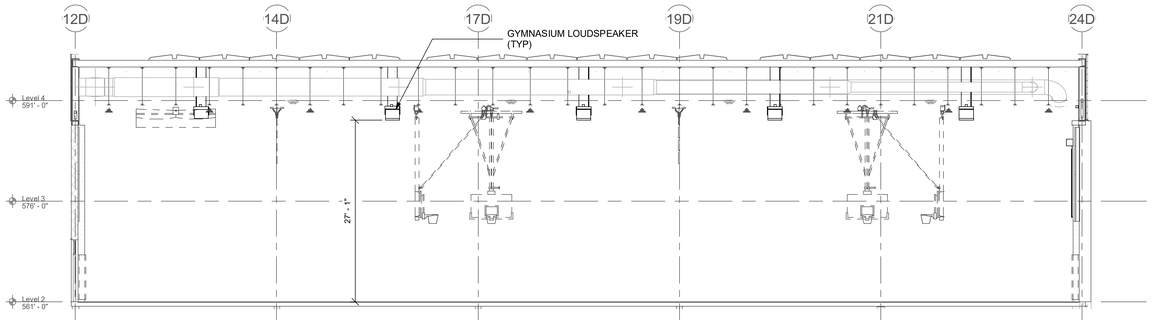
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No.	Description	Date

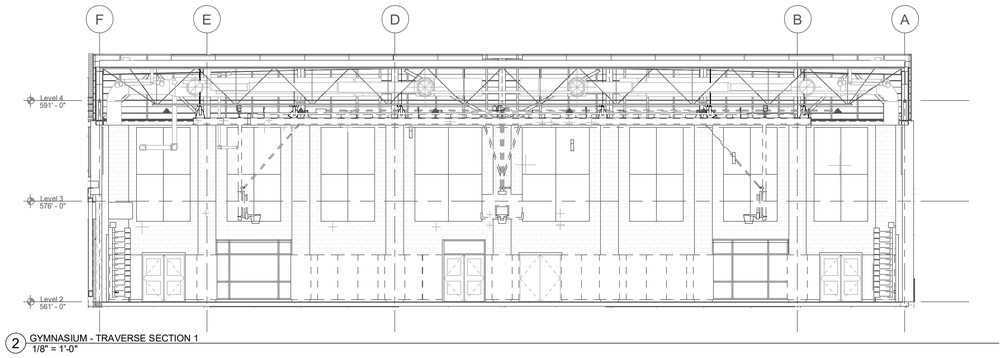
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DATE: January 20, 2022

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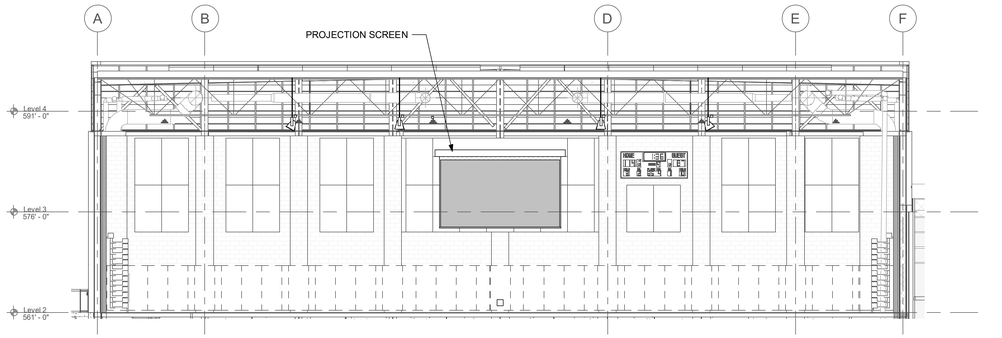
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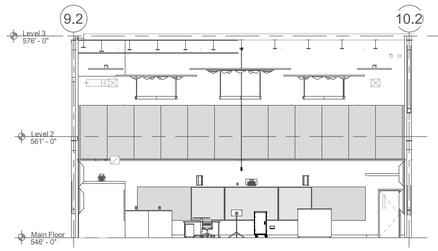
1 GYMNASIUM - LONG SECTION
1/8" = 1'-0"



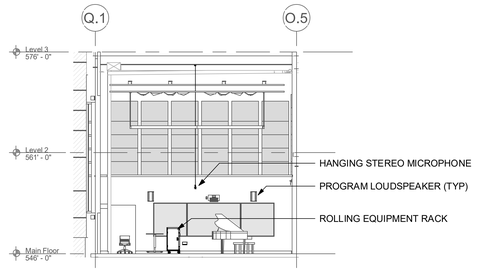
2 GYMNASIUM - TRAVERSE SECTION 1
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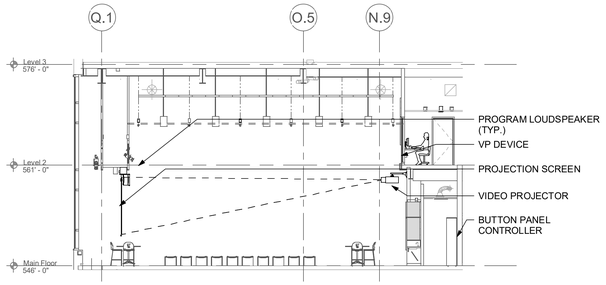
3 GYMNASIUM - TRAVERSE SECTION 2
1/8" = 1'-0"



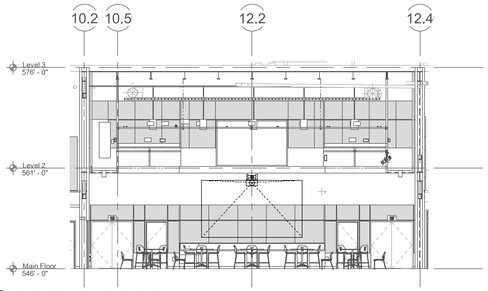
4 BAND ROOM SECTION
1/8" = 1'-0"



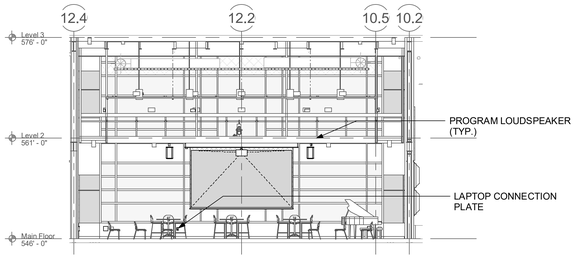
5 CHORUS SECTION
1/8" = 1'-0"



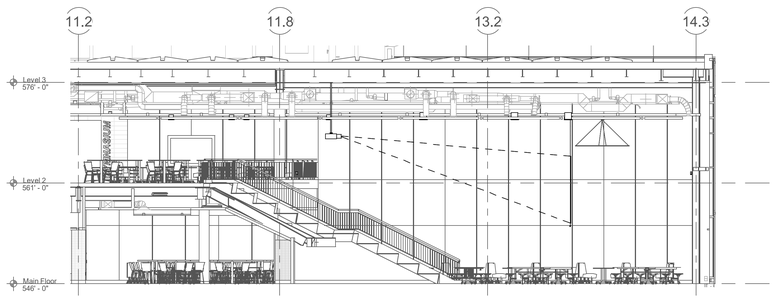
6 BLACK BOX LONG SECTION
1/8" = 1'-0"



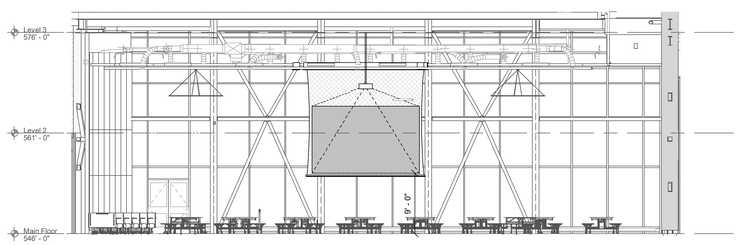
7 BLACK BOX TRAVERSE SECTION 1
1/8" = 1'-0"



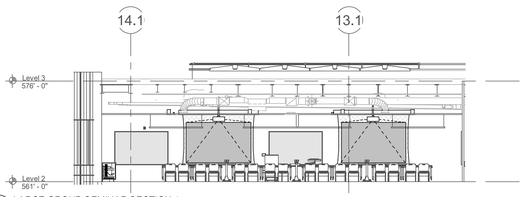
8 BLACK BOX TRAVERSE SECTION 2
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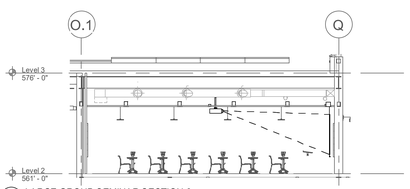
9 CAFETERIA CENTERLINE SECTION
1/8" = 1'-0"



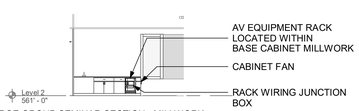
10 CAFETERIA TRAVERSE SECTION
1/8" = 1'-0"



11 LARGE GROUP SEMINAR SECTION 1
1/8" = 1'-0"



12 LARGE GROUP SEMINAR SECTION 2
1/8" = 1'-0"



13 LARGE GROUP SEMINAR SECTION - MILLWORK
1/8" = 1'-0"

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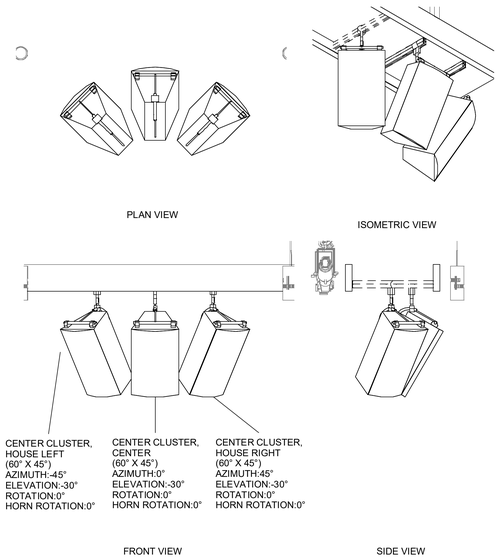
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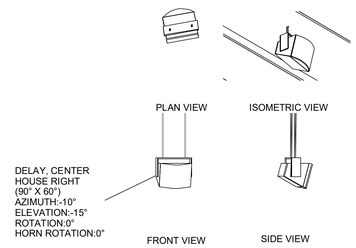
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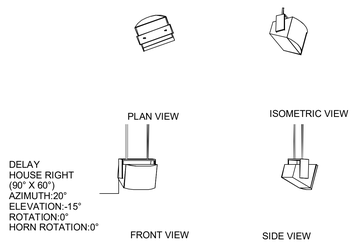
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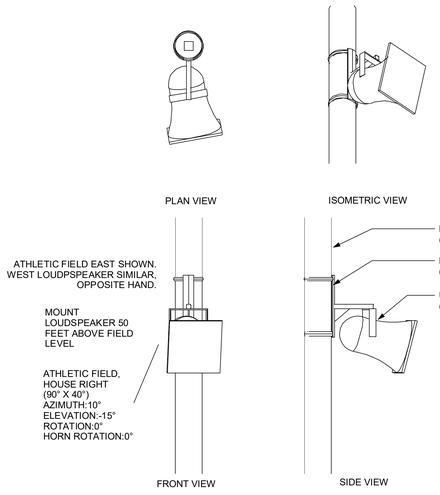
1 LOUDSPEAKER DETAIL - AUDITORIUM CENTER CLUSTER
1/2" = 1'-0"



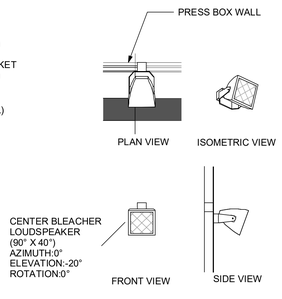
2 LOUDSPEAKER DETAIL - HOUSE CENTER RIGHT DELAY
1/2" = 1'-0"



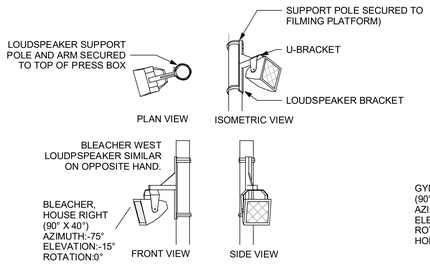
3 LOUDSPEAKER DETAIL - HOUSE RIGHT DELAY
1/2" = 1'-0"



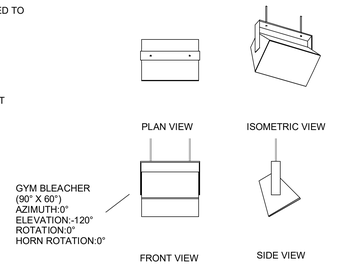
4 LOUDSPEAKER DETAIL - ATHLETIC FIELD EAST
1/2" = 1'-0"



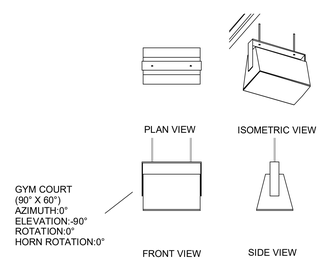
5 LOUDSPEAKER DETAIL - ATHLETIC FIELD BLEACHER CENTER
1/2" = 1'-0"



6 LOUDSPEAKER DETAIL - ATHLETIC FIELD EAST BLEACHER
1/2" = 1'-0"



7 LOUSPEAKER DETAIL - GYM BLEACHER
1/2" = 1'-0"



8 LOUDSPEAKER DETAIL - GYM COURT, PLAN VIEW
1/2" = 1'-0"

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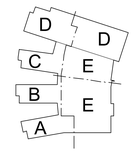
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Loudspeaker Details

Locus Map

True North

Key Plan



REVISIONS

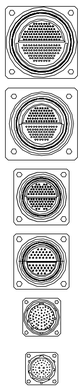
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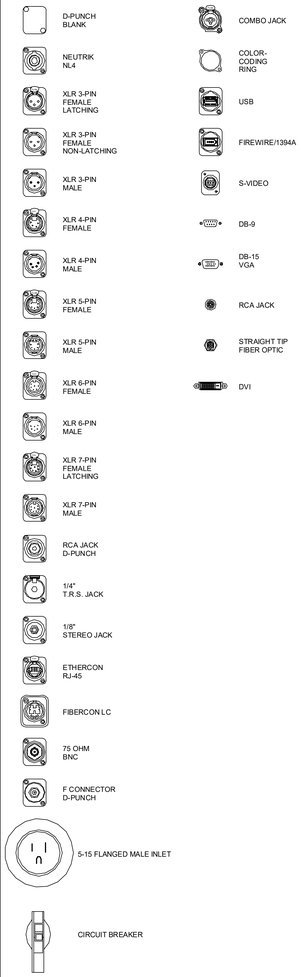
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PANEL CONNECTOR KEY



MULTI-PIN, 58 PAIR
MULTI-PIN, 40 PAIR
MULTI-PIN, 28 PAIR
MULTI-PIN, 16 PAIR
MULTI-PIN, 20 PAIR
MULTI-PIN, 12 PAIR



D-PUNCH BLANK
NEUTRIK NL4
XLR 3-PIN FEMALE LATCHING
XLR 3-PIN FEMALE NON-LATCHING
XLR 3-PIN MALE
XLR 4-PIN FEMALE
XLR 4-PIN MALE
XLR 5-PIN FEMALE
XLR 5-PIN MALE
XLR 6-PIN FEMALE
XLR 6-PIN MALE
XLR 7-PIN FEMALE
XLR 7-PIN MALE
RCA JACK D-PUNCH
1/4" T.R.S. JACK
1/8" STEREO JACK
ETHERCON RJ-45
FIBERCON LC
75 OHM BNC
F CONNECTOR D-PUNCH
5-15 FLANGED MALE INLET
CIRCUIT BREAKER

COMBO JACK
COLOR-CODING RING
USB
FIREWIRE/1394A
S-VIDEO
DB-9
DB-15 VGA
RCA JACK
STRAIGHT TIP FIBER OPTIC
DVI

CONNECTOR KEY

- RCA JACK, FEMALE
- 1/4" T.R.S. JACK, FEMALE
- 1/8" STEREO JACK, FEMALE
- XLR 3-PIN, FEMALE
- XLR 3-PIN, MALE
- XLR 4-PIN, FEMALE
- XLR 4-PIN, MALE
- XLR 5-PIN, FEMALE
- XLR 5-PIN, MALE
- XLR 6-PIN, FEMALE
- XLR 6-PIN, MALE
- XLR 7-PIN, FEMALE
- XLR 7-PIN, MALE
- COMBO JACK, FEMALE
- NEUTRIK NL4
- 1/4" T.R.S. JACK, CABLE MOUNT
- 1/8" STEREO JACK, CABLE MOUNT
- XXP MULTI-PIN (PAIRS INDICATED)
- F CONNECTOR
- 75 OHM BNC
- STRAIGHT TIP FIBER OPTIC
- DVI-I
- HDMI
- DB-15 VGA
- S-VIDEO
- FIBERCON LC CONNECTOR
- USB
- FIREWIRE
- ETHERCON RJ-45
- DB-9

DEVICE KEY

- NON-NORMALLED OUTPUT JACK
- NON-NORMALLED INPUT JACK
- FULL-NORMALLED PATCH JACK PAIR
- HALF/MONITOR-NORMALLED PATCH JACK PAIR
- HALF/MONITOR PATCH JACK
- TERMINAL STRIP
- TWO POSITION TOGGLE SWITCH
- MOMENTARY SWITCH, NORMALLY OPEN
- DUAL BINDING POST TEST JACK
- RESISTOR
- 10k POTENTIOMETER
- LOUDSPEAKER ATTENUATOR
- FLEXIBLE CABLE
- ANTENNA
- TRANSFORMER
- 2-WAY MICROPHONE SPLITTER
- 3-WAY MICROPHONE SPLITTER
- ROCKER SWITCH
- INDICATES REVERSE DIRECTION OF SIGNAL FLOW
- MICROPHONE
- AMPLIFIER / DISTRIBUTION AMPLIFIER

REFERENCE KEY

- SIGNAL REF / DWG REF — SIGNAL LINK FROM OFF SHEET
- SIGNAL REF / DWG REF — SIGNAL LINK TO OFF SHEET
- A — SIGNAL LINK WITHIN SHEET
- 1 — SIGNAL CONTENT - REFERENCE TABLE

SIGNAL TYPE KEY

- MIC/LINE LEVEL AUDIO
- DIGITAL AUDIO
- LOUDSPEAKER LEVEL
- CONTROL / DATA
- LOW VOLTAGE POWER
- FIBER OPTIC
- MATV/RF
- LINE LEVEL VIDEO
- DIGITAL VIDEO
- EXISTING MIC/LINE LEVEL AUDIO

LOUDSPEAKER KEY



3-WAY FULL RANGE LOUDSPEAKER



SUBWOOFER



2-WAY FULL RANGE LOUDSPEAKER WITH HORN-LOADED HF DRIVER



FRONT-FILL LOUDSPEAKE R



FRONT-FILL LOUDSPEAKE R



FLUSH-MOUNTED CEILING 70V LOUDSPEAKER



FLUSH-MOUNTED LONG-THROW CEILING 70V LOUDSPEAKER



PARTIALLY FLUSH CEILING-MOUNTED 70V LOUDSPEAKER WITH ADJUSTABLE HORN



PENDANT-MOUNTED CEILING 70V LOUDSPEAKER



2-WAY FULL RANGE LOUDSPEAKER WITH DOME TWEETER

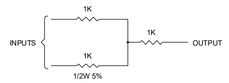


2-WAY FULL RANGE LOUDSPEAKER WITH HORN-LOADED HF DRIVER



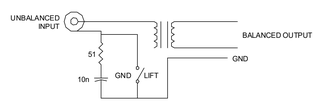
POWERED MONITOR LOUDSPEAKER

RESISTIVE SUMMER DETAIL

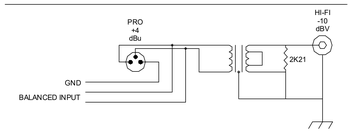


1. FOR BALANCED AUDIO LINES, SUM BOTH SIDES OF INPUTS WITHOUT INVERTING POLARITY.
2. RDL COMBINING NETWORK IS AN ACCEPTABLE SUBSTITUTE.

AUDIOVISUAL INPUT DETAIL



PRESS FEED OUTPUT DETAIL

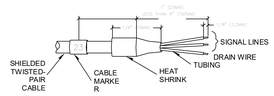


LOUDSPEAKER PATCH CABLE DETAIL

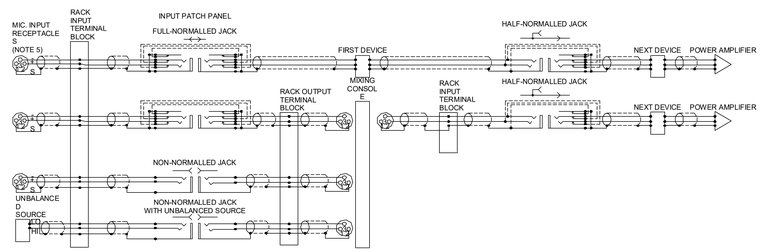


3" RED SHRINK TUBE AT EACH CONNECTOR "PATCH" PRINTED ON SHRINK TUBE

BALANCED AUDIO CABLE TERMINATION DETAIL

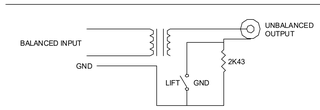


SIGNAL GROUNDING DETAIL



1. ALL LINES ARE BALANCED CIRCUITS, EXCEPT AS NOTED.
2. DASHED LINE INDICATE NORMALLED CONNECTIONS.
3. AUDIO SHIELDS SHALL BE CONNECTED AT DEVICE INPUTS AND OUTPUTS. SHIELDS MAY BE LIFTED AT DEVICE INPUTS TO BREAK GROUND LOOPS.
4. DO NOT BUS SHIELDS, EXCEPT AS SHOWN.
5. DO NOT CONNECT SHIELDS TO DEVICE CHASSIS IF SHIELDS ARE GROUNDED ELSEWHERE AS SHOWN.
6. MAINTAIN ELECTRICAL ISOLATION OF SHIELD FROM CONDUIT, ELECTRICAL BOXES AND PANELS.
7. TYPICAL EQUIPMENT ARRANGEMENT SHOWN. REFERENCE SYSTEM SCHEMATIC DRAWINGS FOR ACTUAL ARRANGEMENT.

AUDIOVISUAL OUTPUT DETAIL



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Audiovisual Functional Diagram Notes and Keys

Locus Map

Key Plan

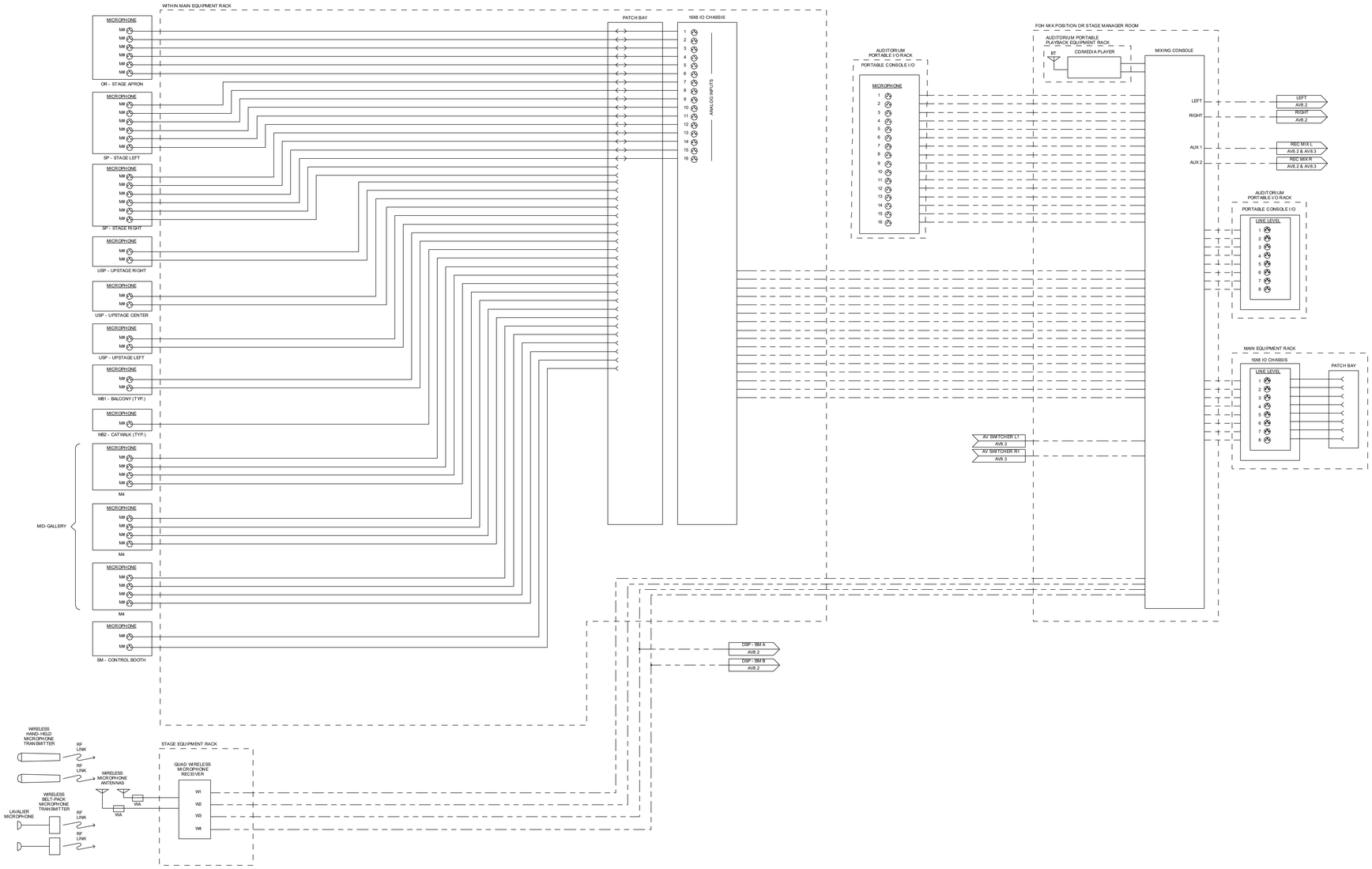
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1 AUDITORIUM AUDIO INPUTS
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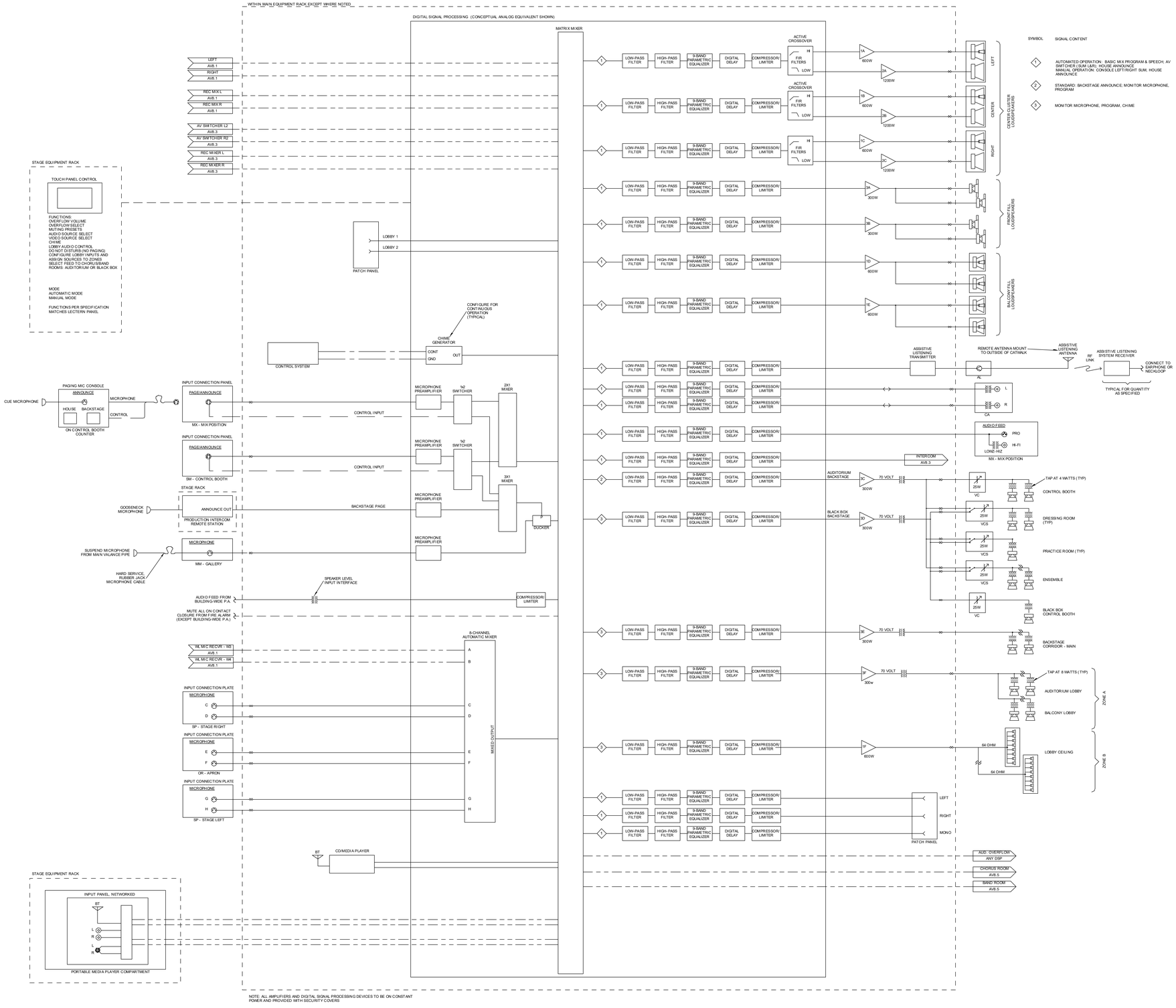
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No.	Description	Date

FILE:
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PROJECT

100% CONSTRUCTION DOCUMENTS, FINAL BID PACKAGE #4

Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

DRAWING TITLE

Audiovisual Functional Diagram

Locus Map

Key Plan

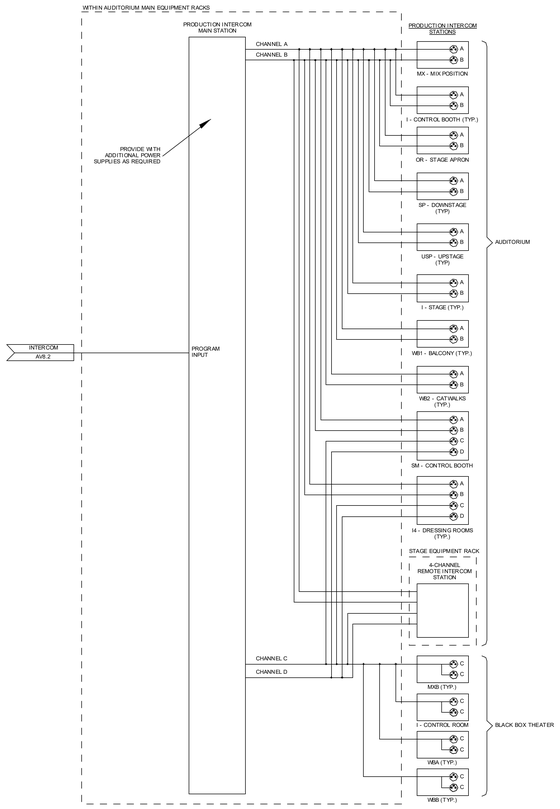
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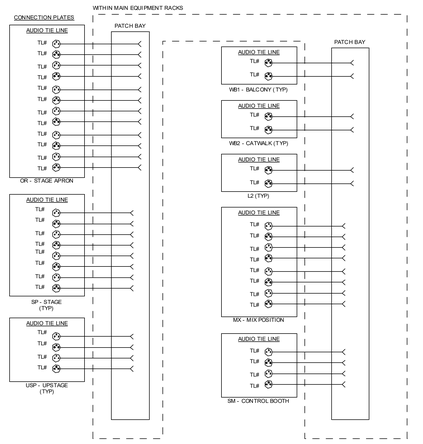
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AV8.2

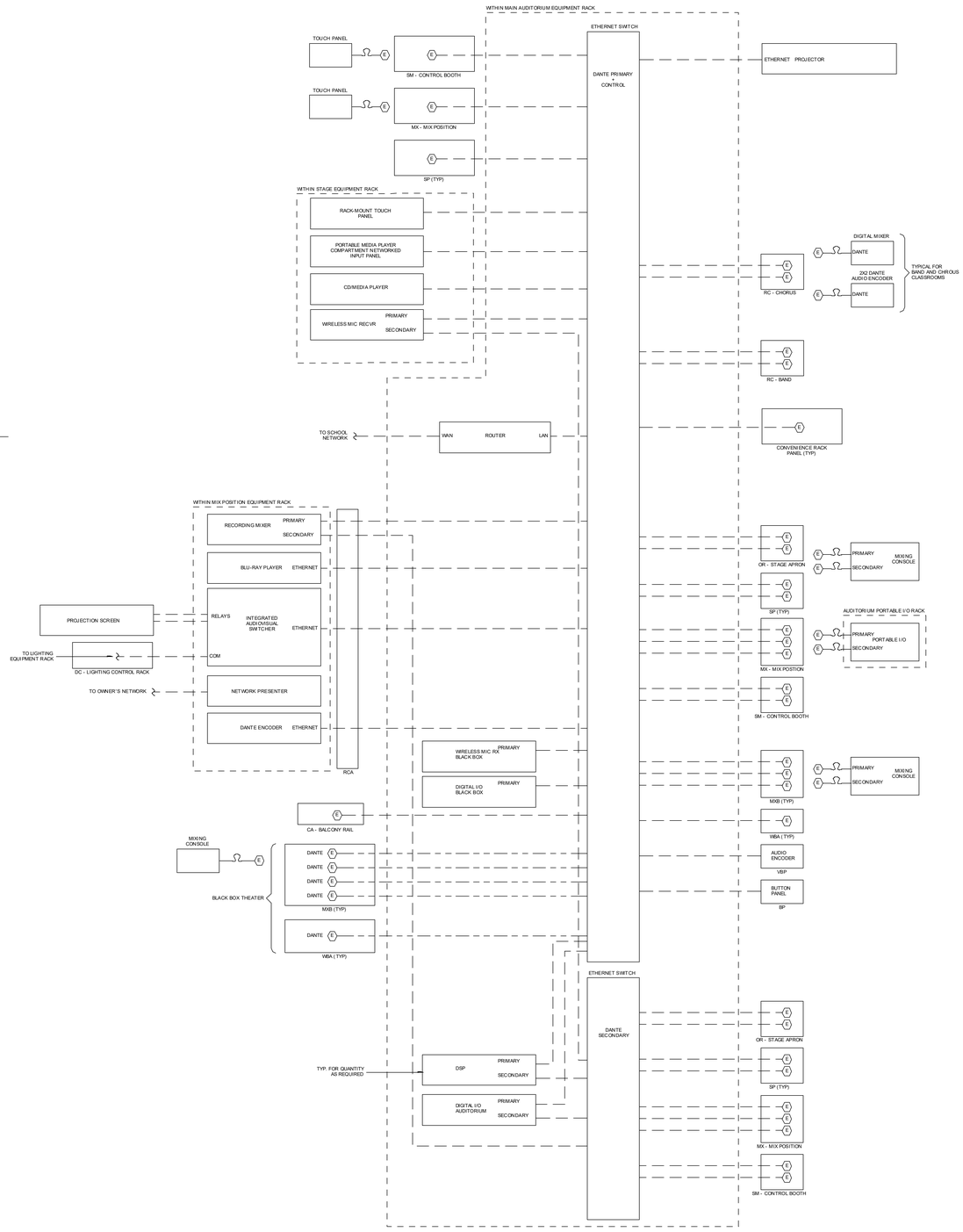
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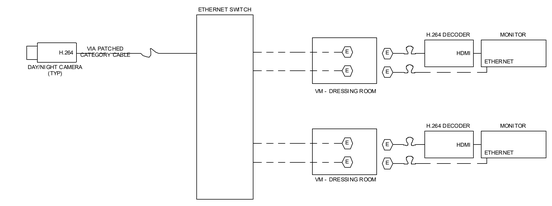
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4 AUDITORIUM AUDIO TIE-LINES
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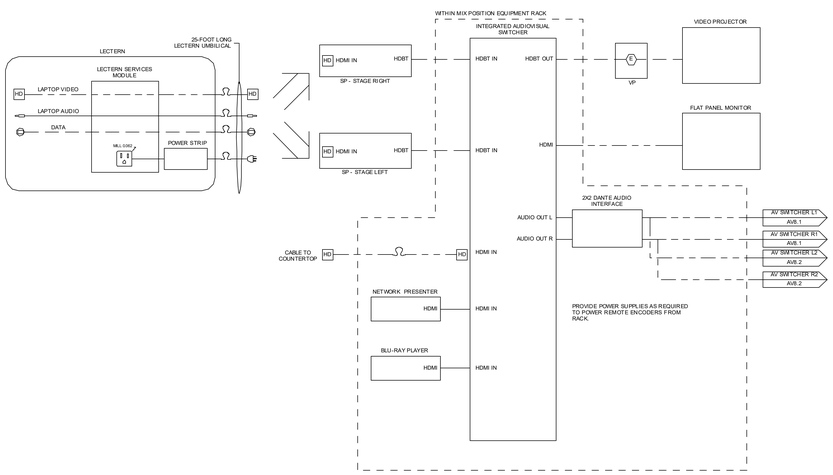


1 AUDITORIUM NETWORK AND CONTROL
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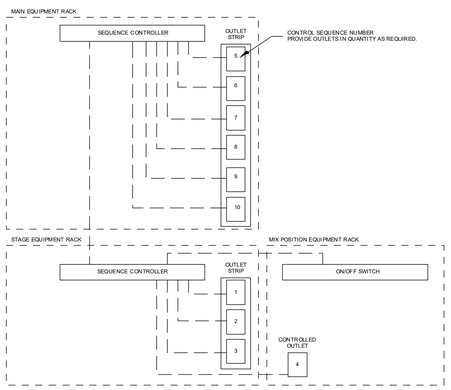


8 AUDITORIUM VIDEO MONITOR
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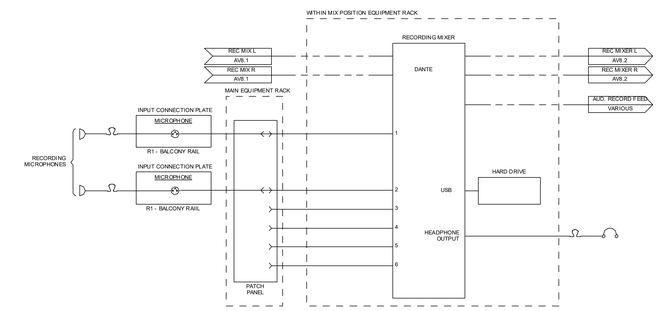
5 AUDITORIUM CATEGORY TIE-LINES
NTS



7 AUDITORIUM VIDEO PRESENTATION SYSTEM
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6 AUDITORIUM POWER SEQUENCING
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2 AUDITORIUM PRODUCTION AUDIO RECORDING
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Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

DRAWING TITLE

Audiovisual Functional Diagram

Locus Map

Key Plan

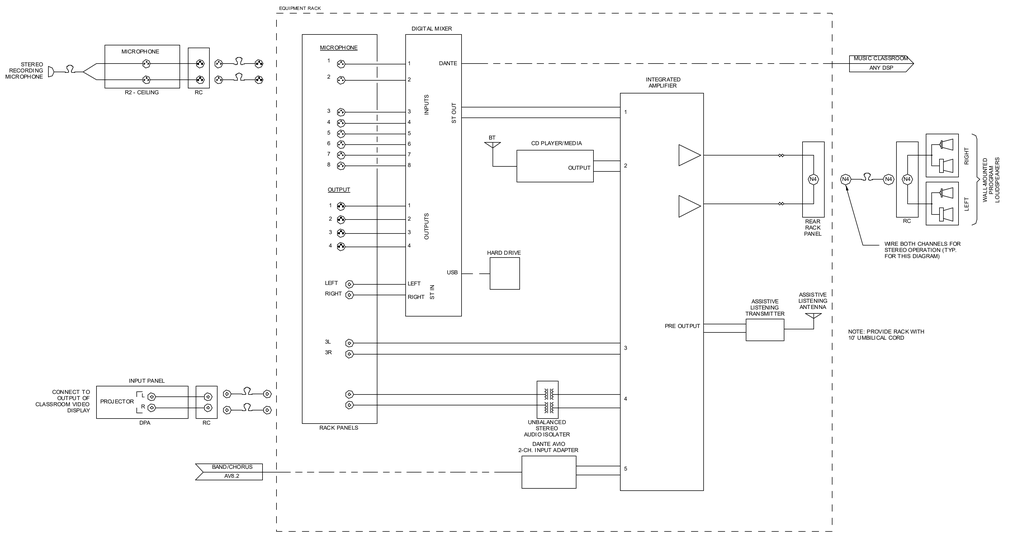
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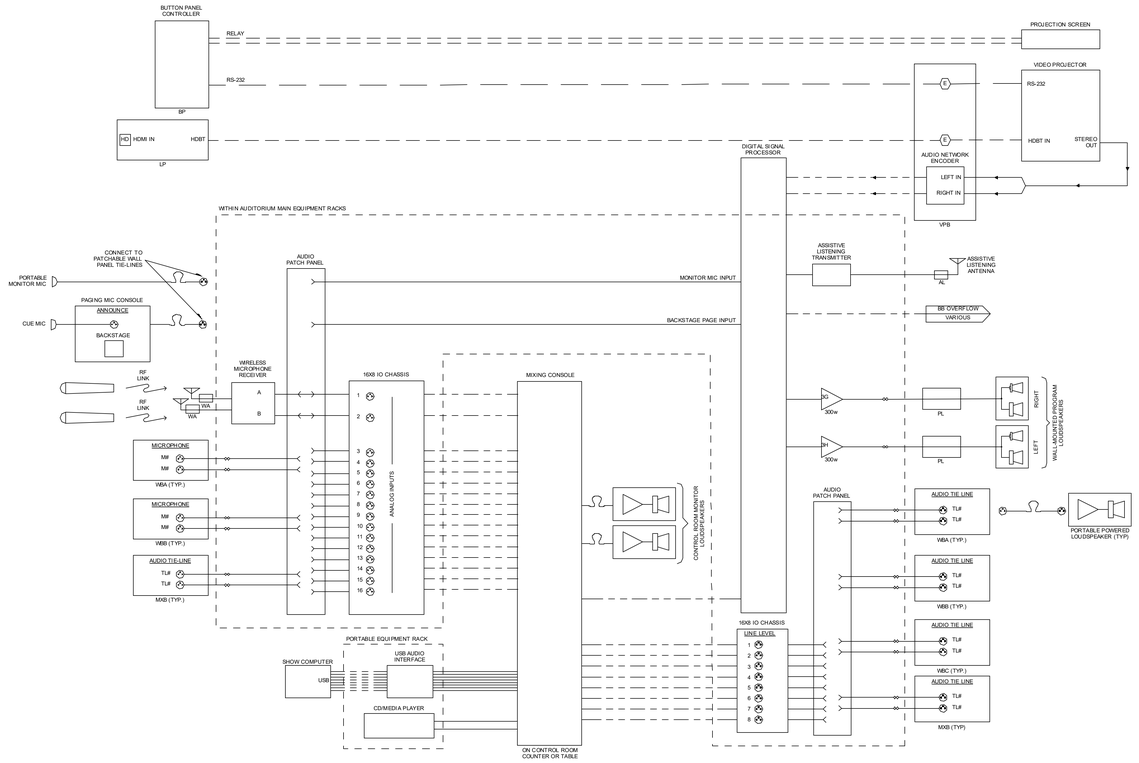
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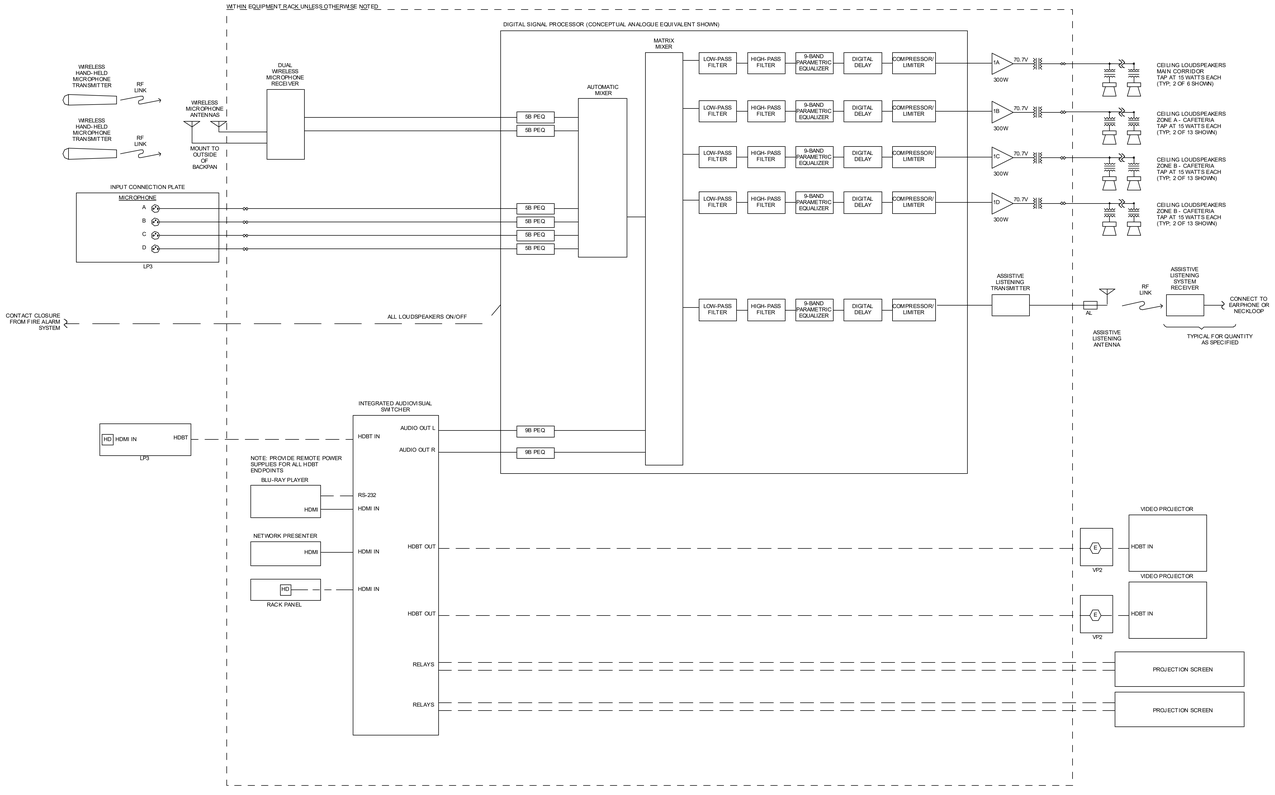
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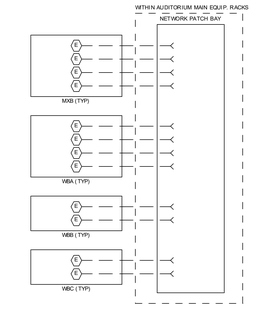
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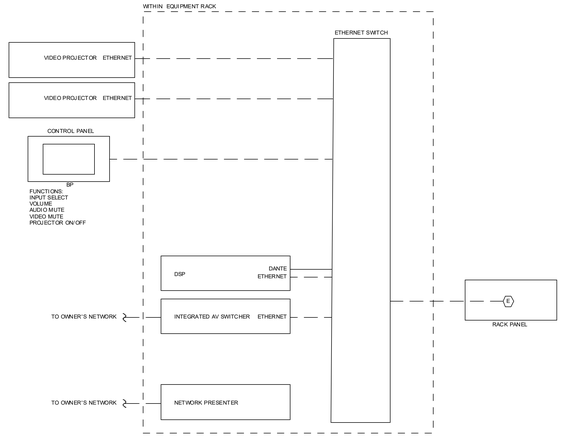
2 BLACK BOX THEATER AUDIO
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4 LARGE GROUP AUDIOVISUAL
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3 BLACK BOX THEATER CATEGORY TIE-LINES
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5 LARGE GROUP NETWORK AND CONTROL
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DRAWING TITLE

Audiovisual Functional Diagram

Locus Map

Key Plan

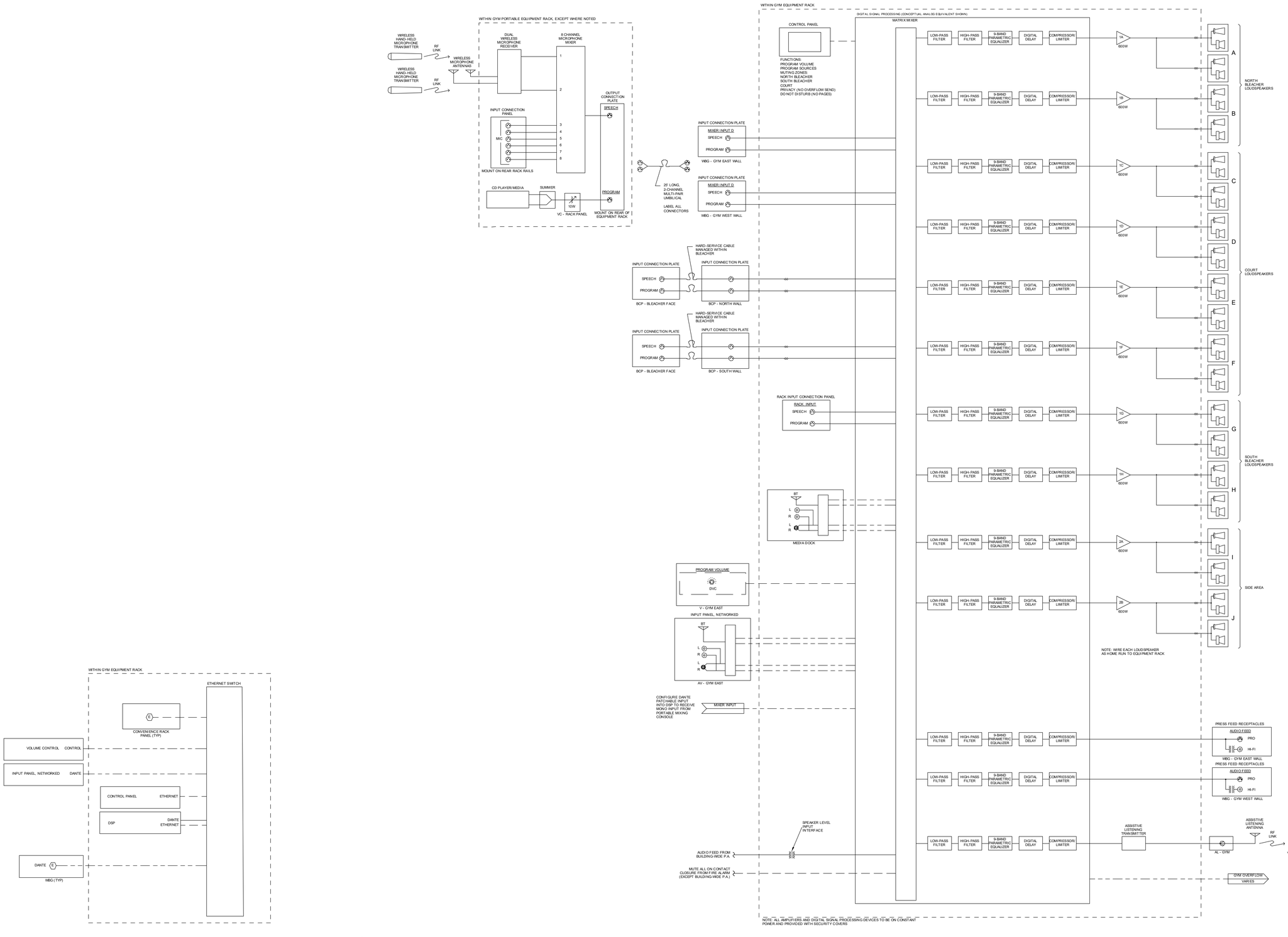
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JOB NO: #1904

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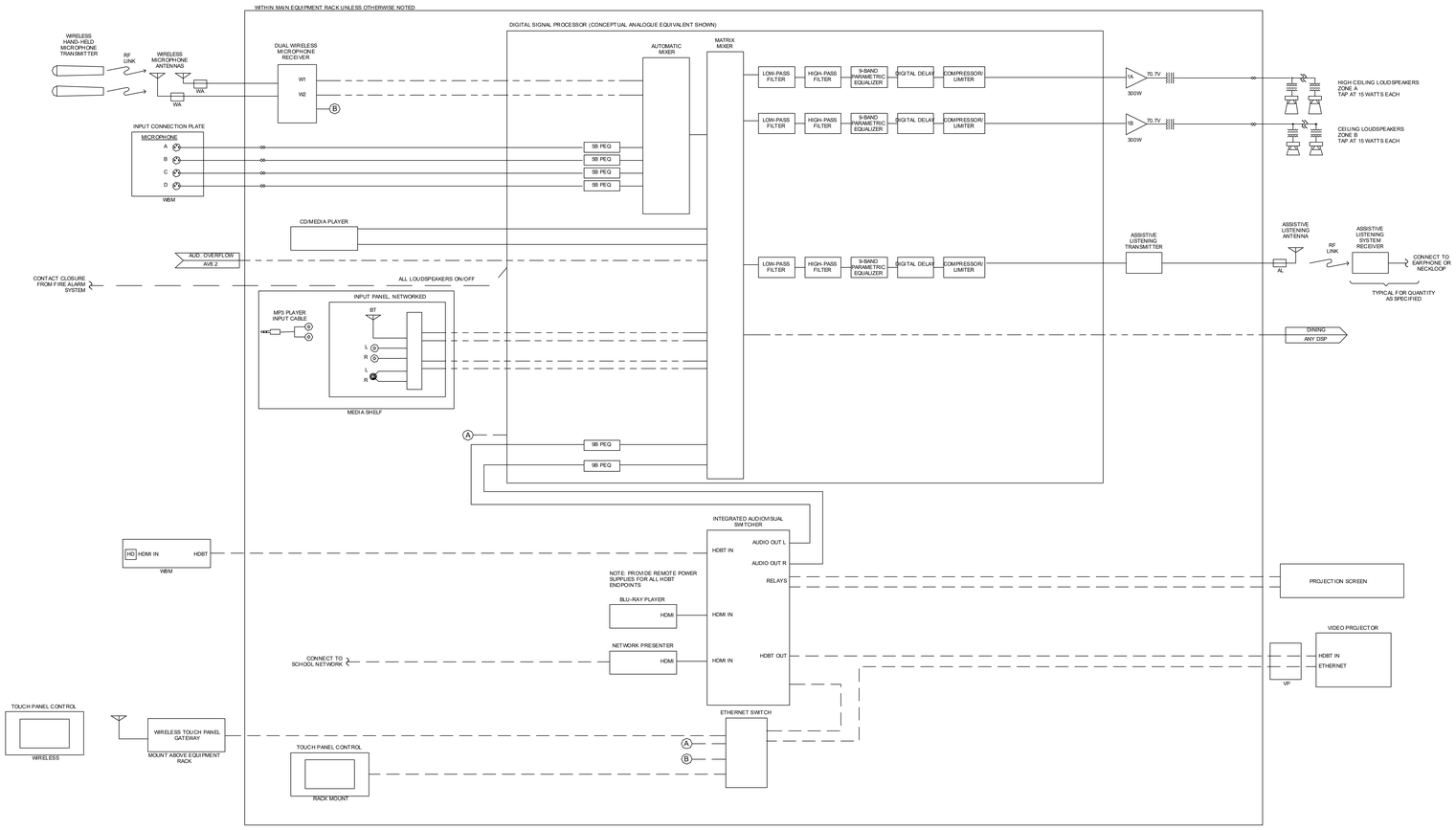
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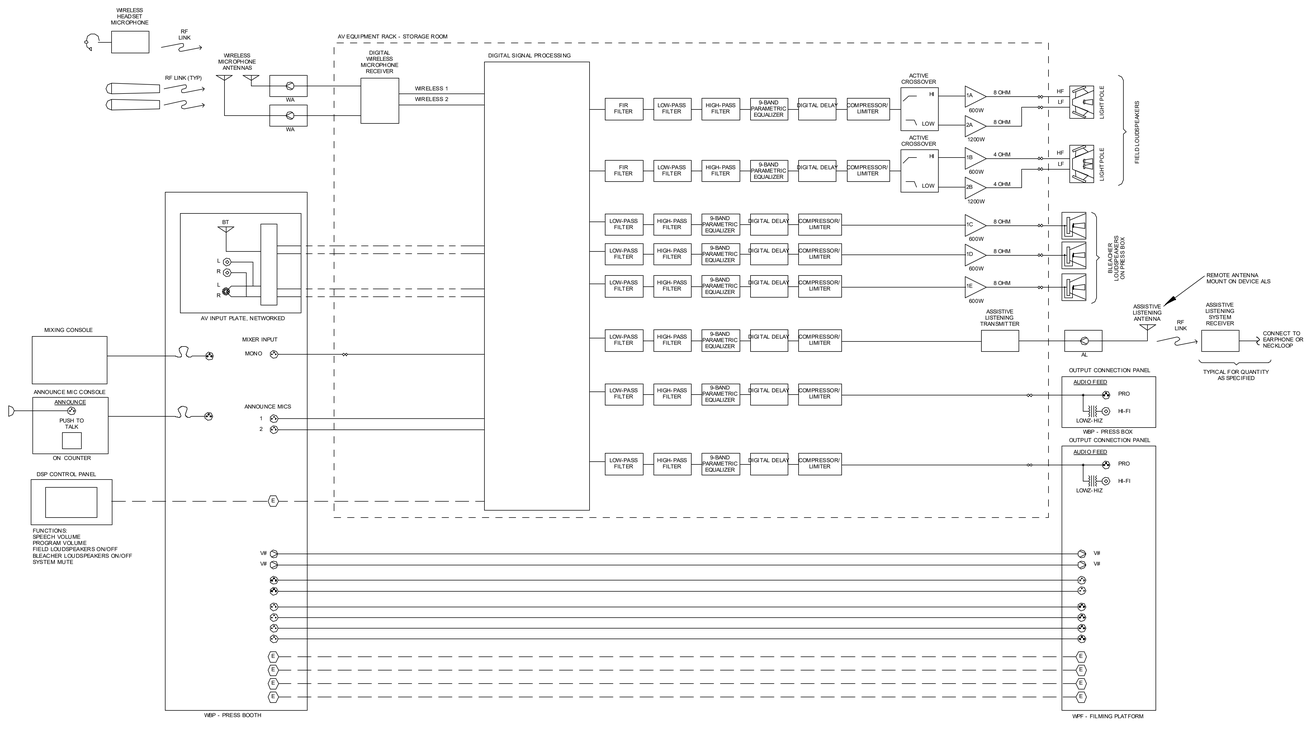
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DRAWING TITLE

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Locus Map

Key Plan

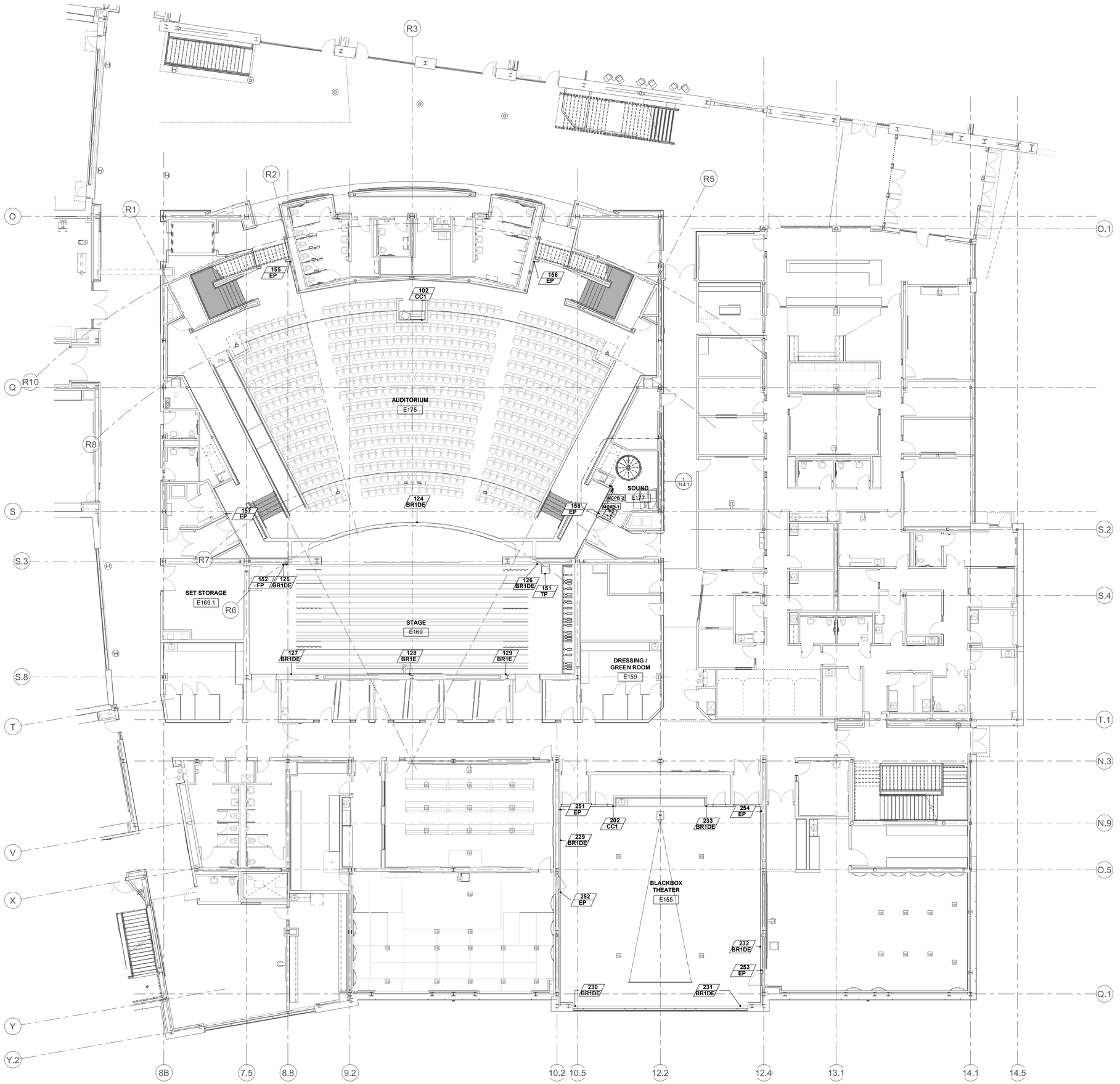
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DEVICE KEY

XXX — DEVICE NUMBER / DEVICE TYPE

COMPANY SWITCH AMPERAGE INDICATED

RISER DIAGRAM WIRING KEY

POWER

CONTROL

CONTROL WIRING LEGEND

TYPE	WIRE TYPE(S)	SIGNAL
A	(1) BELDEN 8471 (1) #14 AWG STRANDED (2) #16 AWG	ARCH. CTRL.
B	(1) BELDEN 1583A	NETWORK/DMX
C	(1) BELDEN 9729	DMX

NOTES

1. ALL EXPOSED SURFACES ON STAGE DEVICES FINISHED MATTE BLACK UNLESS OTHERWISE NOTED.
2. FOR DEVICES MOUNTED ON CATWALKS, MOUNT WITH LABEL AND CONNECTORS ON INSIDE OF CATWALK AND FACING WALKING SURFACE OF CATWALK, UNLESS OTHEWISE NOTED.
3. PROVIDE BRACKETS AND HARDWARE FOR MOUNTING CONTROL AND DISTRIBUTION DEVICES AS REQUIRED.
4. ALL LOW-VOLTAGE CONTROL WIRING INSTALLED IN METAL CONDUIT.
5. FINAL CONTROL WIRING TYPES TO BE CONFIRMED BY LIGHTING SYSTEM MANUFACTURER.
6. P.S.H.: PROJECT SWITCH HEIGHT
7. P.R.H.: PROJECT RECEPTACLE HEIGHT

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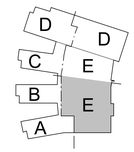
DRAWING TITLE

Theatrical Lighting Main Floor Plan Section E

Locus Map

True North

Key Plan



REVISIONS

No.	Description	Date

FILE:
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DEVICE KEY

/ XXX — DEVICE NUMBER / DEVICE TYPE

COMPANY SWITCH AMPERAGE INDICATED

RISER DIAGRAM WIRING KEY

POWER

CONTROL

CONTROL WIRING LEGEND

TYPE	WIRE TYPE(S)	SIGNAL
A	(1) BELDEN 8471 (1) #14 AWG STRANDED (2) #16 AWG	ARCH. CTRL.
B	(1) BELDEN 1583A	NETWORK/DMX
C	(1) BELDEN 9729	DMX

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7. P.R.H.: PROJECT RECEPTACLE HEIGHT

UPPER LOBBY E270

CONTROL E271

CONTROL RM. E255

153 EP · 154 EP · 101 CC1 · 112 BR1D · 113 BR1D · 114 BR1DE · 115 BR1E · 116 BR2DE · 117 BR2DE · 118 SP6DE · 119 SP6DE · 120 SP6DE · 121 SP6DE · 122 BP1D · 123 BP1D · 201 CC1 · 203 BP1DE · 204 BP1E · 205 BP1E · 206 BP1DE · 207 BP1E · 208 BP1DE · 209 BP1E · 210 BP1E · 211 BP1DE · 212 BP1E · 213 BP1DE · 214 BP1E · 215 BP1E · 216 BP1DE · 217 BP1E · 218 BP1E · 219 BP1E · 220 BP1E · 221 BP1DE · 222 BP1E · 223 BP1E · 224 BP1DE · 225 BP1E · 226 BP1E · 227 BP1DE · 228 BP1E · 234 BP1DE · 235 BP1E

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Doherty Memorial High School

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DRAWING TITLE

Theatrical Lighting Second Floor Plan Section E

Locus Map

True North

Key Plan

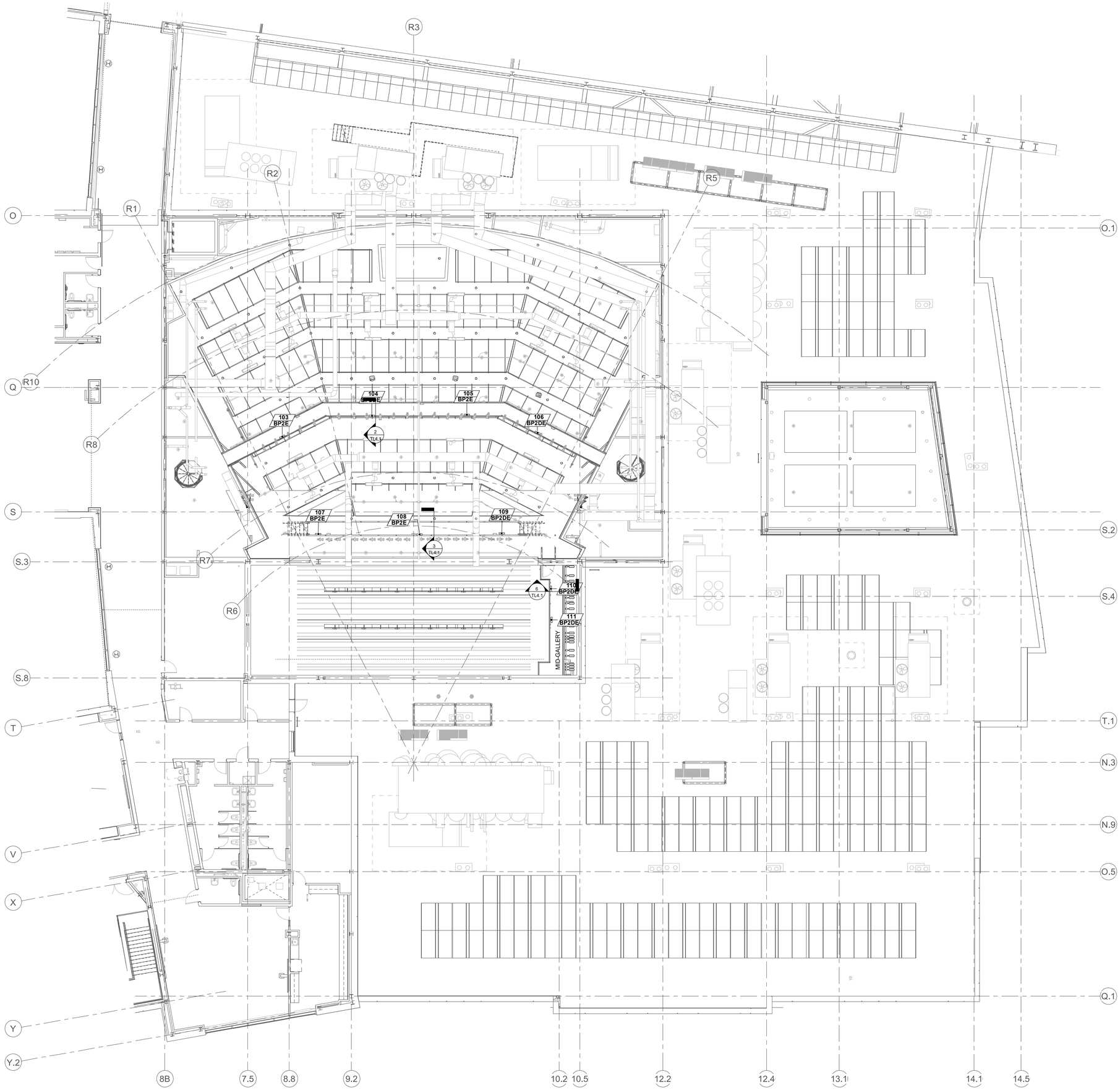
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DEVICE KEY

DEVICE NUMBER
XXX DEVICE TYPE

COMPANY SWITCH AMPERAGE INDICATED

RISER DIAGRAM WIRING KEY

POWER

CONTROL

CONTROL WIRING LEGEND

TYPE	WIRE TYPE(S)	SIGNAL
A	(1) BELDEN 8471 (1) #14 AWG STRANDED (2) #16 AWG	ARCH. CTRL.
B	(1) BELDEN 1583A	NETWORK/DMX
C	(1) BELDEN 9729	DMX

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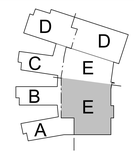
DRAWING TITLE

Theatrical Lighting Catwalk Level Plan Section E

Locus Map

True North

Key Plan



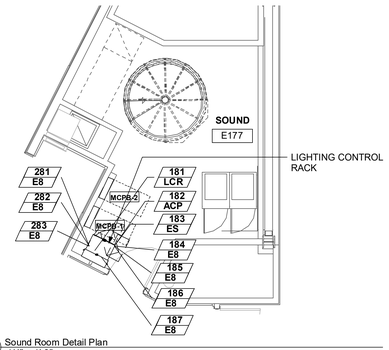
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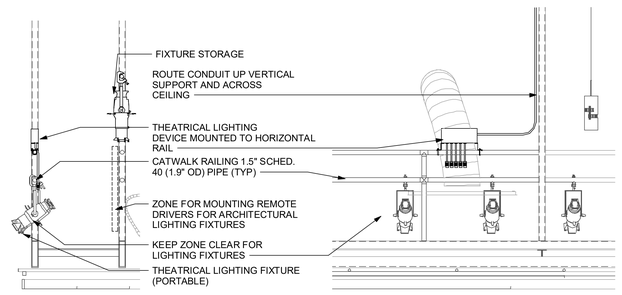
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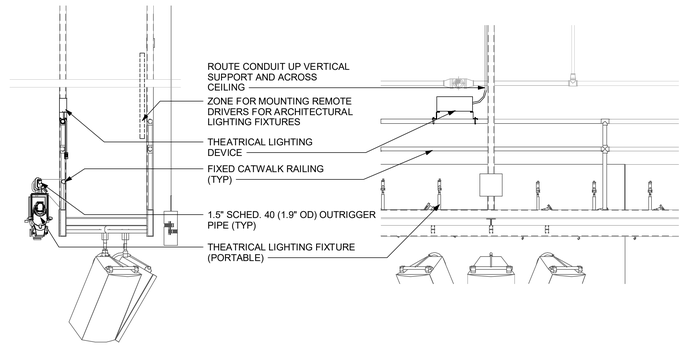
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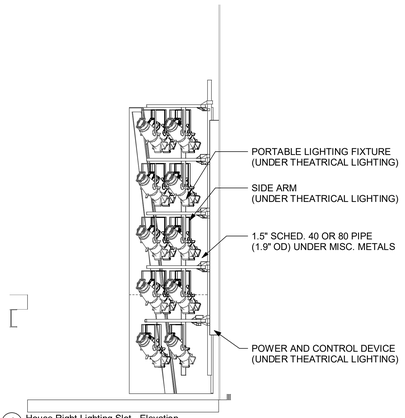
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1/4" = 1'-0"



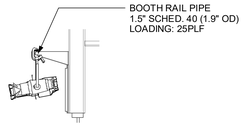
2 Main Catwalk Detail
1/2" = 1'-0"



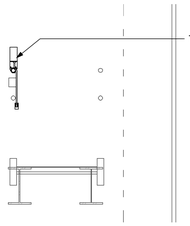
3 Near Catwalk Detail
1/2" = 1'-0"



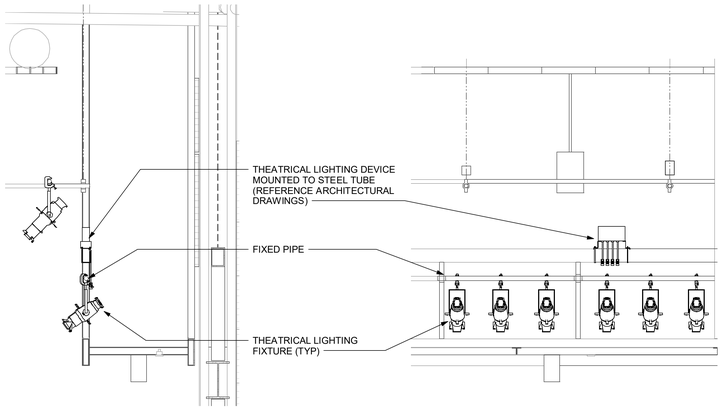
4 House Right Lighting Slot - Elevation
1/2" = 1'-0"



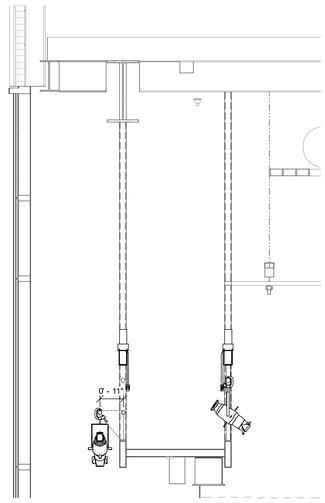
5 Booth Rail Detail Section
1/2" = 1'-0"



6 Auditorium Mid Gallery Section Detail
1/2" = 1'-0"



7 Black Box Theater Catwalk Detail
1/2" = 1'-0"



8 Black Box Theater Catwalk Section
1/2" = 1'-0"

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Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

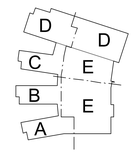
DRAWING TITLE

Theatrical Lighting Details

Locus Map

True North

Key Plan



REVISIONS

No.	Description	Date

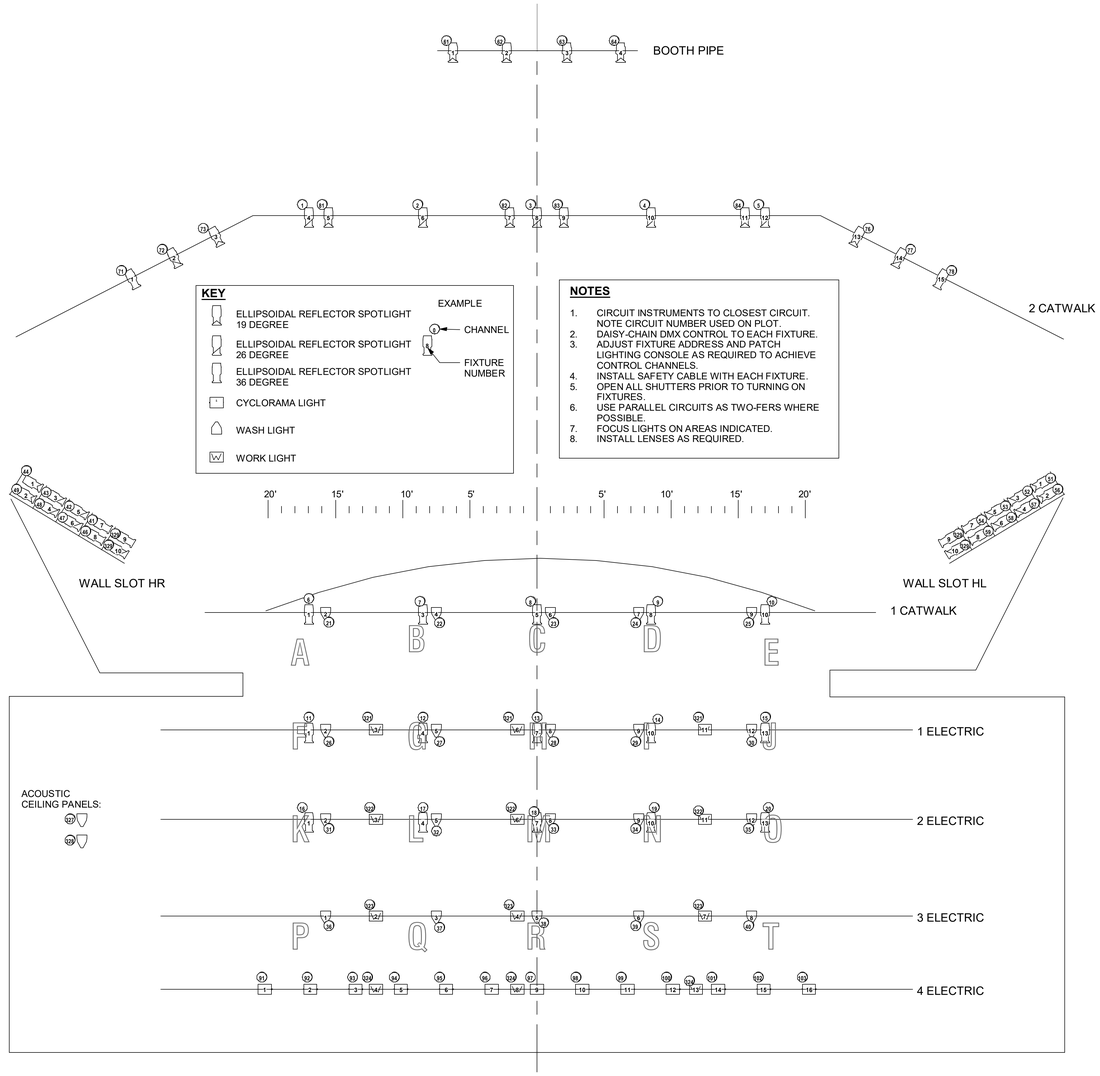
FILE:	
JOB NO:	#1904
SCALE:	As indicated
DWN. BY:	Author
CKD. BY:	Checker
DATE:	January 20, 2022

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Channel Schedule				
Ch #	Location	Instrument #	Model	Purpose
1	2 CATWALK	4	26 Degree ERS	A
2	2 CATWALK	6	26 Degree ERS	B
3	2 CATWALK	8	26 Degree ERS	C
4	2 CATWALK	10	26 Degree ERS	D
5	2 CATWALK	12	26 Degree ERS	E
6	1 CATWALK	1	36 Degree ERS	F
7	1 CATWALK	3	36 Degree ERS	G
8	1 CATWALK	5	36 Degree ERS	H
9	1 CATWALK	8	36 Degree ERS	I
10	1 CATWALK	10	36 Degree ERS	J
11	1 ELECTRIC	1	36 Degree ERS	K
12	1 ELECTRIC	4	36 Degree ERS	L
13	1 ELECTRIC	7	36 Degree ERS	M
14	1 ELECTRIC	10	36 Degree ERS	N
15	1 ELECTRIC	13	36 Degree ERS	O
16	2 ELECTRIC	1	36 Degree ERS	P
17	2 ELECTRIC	4	36 Degree ERS	Q
18	2 ELECTRIC	7	36 Degree ERS	R
19	2 ELECTRIC	10	36 Degree ERS	S
20	2 ELECTRIC	13	36 Degree ERS	T
21	1 CATWALK	2	LED PAR	A
22	1 CATWALK	4	LED PAR	B
23	1 CATWALK	6	LED PAR	C
24	1 CATWALK	7	LED PAR	D
25	1 CATWALK	9	LED PAR	E
26	1 ELECTRIC	2	LED PAR	F
27	1 ELECTRIC	5	LED PAR	G
28	1 ELECTRIC	8	LED PAR	H
29	1 ELECTRIC	9	LED PAR	I
30	1 ELECTRIC	12	LED PAR	J
31	2 ELECTRIC	2	LED PAR	K
32	2 ELECTRIC	5	LED PAR	L
33	2 ELECTRIC	8	LED PAR	M
34	2 ELECTRIC	9	LED PAR	N
35	2 ELECTRIC	12	LED PAR	O
36	3 ELECTRIC	1	LED PAR	P
37	3 ELECTRIC	3	LED PAR	Q
38	3 ELECTRIC	5	LED PAR	R
39	3 ELECTRIC	6	LED PAR	S
40	3 ELECTRIC	8	LED PAR	T
41	WALL SLOT HR	7	36 Degree ERS	A
42	WALL SLOT HR	5	26 Degree ERS	B/C
43	WALL SLOT HR	3	26 Degree ERS	C/D
44	WALL SLOT HR	1	19 Degree ERS	E
46	WALL SLOT HR	8	36 Degree ERS	F
47	WALL SLOT HR	6	26 Degree ERS	G/H
48	WALL SLOT HR	4	26 Degree ERS	H/I
49	WALL SLOT HR	2	19 Degree ERS	J
51	WALL SLOT HL	1	19 Degree ERS	A
52	WALL SLOT HL	3	26 Degree ERS	B/C
53	WALL SLOT HL	5	26 Degree ERS	C/D
54	WALL SLOT HL	7	36 Degree ERS	E
56	WALL SLOT HL	2	19 Degree ERS	F
57	WALL SLOT HL	4	26 Degree ERS	G/H
58	WALL SLOT HL	6	26 Degree ERS	H/I
59	WALL SLOT HL	8	36 Degree ERS	J
61	BOOTH PIPE	1	19 Degree ERS	WASH
62	BOOTH PIPE	2	19 Degree ERS	WASH
63	BOOTH PIPE	3	19 Degree ERS	WASH
64	BOOTH PIPE	4	19 Degree ERS	WASH
71	2 CATWALK	1	36 Degree ERS	STAGE LEFT
72	2 CATWALK	2	26 Degree ERS	STAGE CENTER
73	2 CATWALK	3	19 Degree ERS	STAGE RIGHT
76	2 CATWALK	13	19 Degree ERS	STAGE LEFT
77	2 CATWALK	14	26 Degree ERS	STAGE CENTER
78	2 CATWALK	15	36 Degree ERS	STAGE RIGHT
81	2 CATWALK	5	19 Degree ERS	LECTERN
82	2 CATWALK	7	19 Degree ERS	SPECIAL
83	2 CATWALK	9	19 Degree ERS	SPECIAL
84	2 CATWALK	11	19 Degree ERS	LECTERN
91	4 ELECTRIC	1	Selador Lustr 11	CYC
92	4 ELECTRIC	2	Selador Lustr 11	CYC
93	4 ELECTRIC	3	Selador Lustr 11	CYC
94	4 ELECTRIC	5	Selador Lustr 11	CYC
95	4 ELECTRIC	6	Selador Lustr 11	CYC
96	4 ELECTRIC	7	Selador Lustr 11	CYC
97	4 ELECTRIC	9	Selador Lustr 11	CYC
98	4 ELECTRIC	10	Selador Lustr 11	CYC
99	4 ELECTRIC	11	Selador Lustr 11	CYC
100	4 ELECTRIC	12	Selador Lustr 11	CYC
101	4 ELECTRIC	14	Selador Lustr 11	CYC
102	4 ELECTRIC	15	Selador Lustr 11	CYC
103	4 ELECTRIC	16	Selador Lustr 11	CYC
321	1 ELECTRIC	6	LED Work Light	WORK LIGHT
321	1 ELECTRIC	3	LED Work Light	WORK LIGHT
321	1 ELECTRIC	11	LED Work Light	WORK LIGHT
322	2 ELECTRIC	6	LED Work Light	WORK LIGHT
322	2 ELECTRIC	3	LED Work Light	WORK LIGHT
322	2 ELECTRIC	11	LED Work Light	WORK LIGHT
323	3 ELECTRIC	4	LED Work Light	WORK LIGHT
323	3 ELECTRIC	2	LED Work Light	WORK LIGHT
323	3 ELECTRIC	7	LED Work Light	WORK LIGHT
324	4 ELECTRIC	8	LED Work Light	WORK LIGHT
324	4 ELECTRIC	4	LED Work Light	WORK LIGHT
324	4 ELECTRIC	13	LED Work Light	WORK LIGHT
327	ACOUSTIC CEILING PANEL 1	1	ACOUSTIC CEILING PANEL	WASH
328	ACOUSTIC CEILING PANEL 2	1	ACOUSTIC CEILING PANEL	WASH
329	WALL SLOT HL	10	26 Degree ERS	CURTAIN WARMER
329	WALL SLOT HL	9	36 Degree ERS	CURTAIN WARMER
329	WALL SLOT HR	10	26 Degree ERS	CURTAIN WARMER
329	WALL SLOT HR	9	36 Degree ERS	CURTAIN WARMER

Instrument Schedule			
Instrument	CH #	Model	Purpose
BOOTH PIPE			
1	61	19 Degree ERS	WASH
2	62	19 Degree ERS	WASH
3	63	19 Degree ERS	WASH
4	64	19 Degree ERS	WASH
2 CATWALK			
1	71	36 Degree ERS	STAGE LEFT
2	72	26 Degree ERS	STAGE CENTER
3	73	19 Degree ERS	STAGE RIGHT
4	1	26 Degree ERS	A
5	81	19 Degree ERS	LECTERN
6	2	26 Degree ERS	B
7	82	19 Degree ERS	SPECIAL
8	3	26 Degree ERS	C
9	83	19 Degree ERS	SPECIAL
10	4	26 Degree ERS	D
11	84	19 Degree ERS	LECTERN
12	5	26 Degree ERS	E
13	76	19 Degree ERS	STAGE LEFT
14	77	26 Degree ERS	STAGE CENTER
15	78	36 Degree ERS	STAGE RIGHT
1 CATWALK			
1	6	36 Degree ERS	F
2	21	LED PAR	A
3	7	36 Degree ERS	G
4	22	LED PAR	B
5	8	36 Degree ERS	H
6	23	LED PAR	C
7	24	LED PAR	D
8	9	36 Degree ERS	I
9	25	LED PAR	E
10	10	36 Degree ERS	J
WALL SLOT HR			
1	44	19 Degree ERS	E
2	49	19 Degree ERS	J
3	43	26 Degree ERS	C/D
4	48	26 Degree ERS	H/I
5	42	26 Degree ERS	B/C
6	47	26 Degree ERS	G/H
7	41	36 Degree ERS	A
8	46	36 Degree ERS	F
9	329	36 Degree ERS	CURTAIN WARMER
10	329	26 Degree ERS	CURTAIN WARMER
WALL SLOT HL			
1	51	19 Degree ERS	A
2	56	19 Degree ERS	F
3	52	26 Degree ERS	B/C
4	57	26 Degree ERS	G/H
5	53	26 Degree ERS	C/D
6	58	26 Degree ERS	H/I
7	54	36 Degree ERS	E
8	59	36 Degree ERS	J
9	329	36 Degree ERS	CURTAIN WARMER
10	329	26 Degree ERS	CURTAIN WARMER
1 ELECTRIC			
1	11	36 Degree ERS	K
2	26	LED PAR	F
3	321	LED Work Light	WORK LIGHT
4	12	36 Degree ERS	L
5	27	LED PAR	G
6	321	LED Work Light	WORK LIGHT
7	13	36 Degree ERS	M
8	28	LED PAR	H
9	29	LED PAR	I
10	14	36 Degree ERS	N
11	321	LED Work Light	WORK LIGHT
12	30	LED PAR	J
13	15	36 Degree ERS	O
2 ELECTRIC			
1	16	36 Degree ERS	P
2	31	LED PAR	K
3	322	LED Work Light	WORK LIGHT
4	17	36 Degree ERS	Q
5	32	LED PAR	L
6	322	LED Work Light	WORK LIGHT
7	18	36 Degree ERS	R
8	33	LED PAR	M
9	34	LED PAR	N
10	19	36 Degree ERS	S
11	322	LED Work Light	WORK LIGHT
12	35	LED PAR	O
13	20	36 Degree ERS	T
3 ELECTRIC			
1	36	LED PAR	P
2	323	LED Work Light	WORK LIGHT
3	37	LED PAR	Q
4	323	LED Work Light	WORK LIGHT
5	38	LED PAR	R
6	39	LED PAR	S
7	323	LED Work Light	WORK LIGHT
8	40	LED PAR	T
4 ELECTRIC			
1	91	Selador Lustr 11	CYC
2	92	Selador Lustr 11	CYC
3	93	Selador Lustr 11	CYC
4	324	LED Work Light	WORK LIGHT
5	94	Selador Lustr 11	CYC
6	95	Selador Lustr 11	CYC
7	96	Selador Lustr 11	CYC
8	324	LED Work Light	WORK LIGHT
9	97	Selador Lustr 11	CYC
10	98	Selador Lustr 11	CYC
11	99	Selador Lustr 11	CYC
12	100	Selador Lustr 11	CYC
13	324	LED Work Light	WORK LIGHT
14	101	Selador Lustr 11	CYC
15	102	Selador Lustr 11	CYC
16	103	Selador Lustr 11	CYC
ACOUSTIC CEILING PANEL 1			
1	327	ACOUSTIC CEILING PANEL	WASH
ACOUSTIC CEILING PANEL 2			
1	328	ACOUSTIC CEILING PANEL	WASH



3 AUDITORIUM LIGHT PLOT
1/4" = 1'-0"

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PROJECT

100% CONSTRUCTION DOCUMENTS, FINAL BID PACKAGE #4

Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

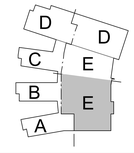
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Auditorium Light Plot

Locus Map

True North

Key Plan



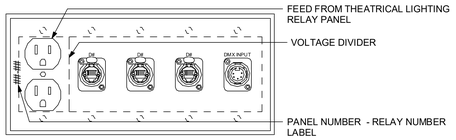
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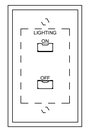
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SCALE: As indicated
DWN. BY: Author
CKD. BY: Checker
DATE: January 20, 2022

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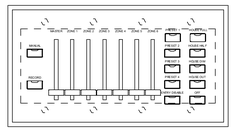
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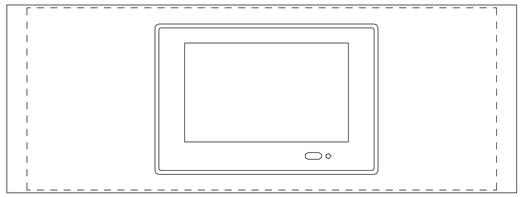
1 Device Detail - CC1
6" = 1'-0"



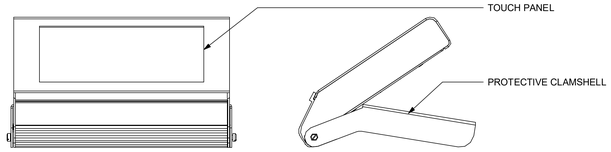
2 Device Detail - EP
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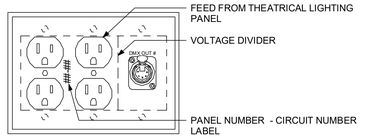
3 Device Detail - FP
6" = 1'-0"



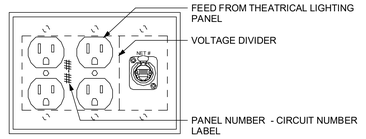
4 Device Detail - TP
6" = 1'-0"



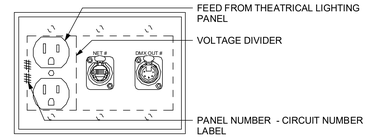
5 Device Detail - Portable Touch Panel
6" = 1'-0"



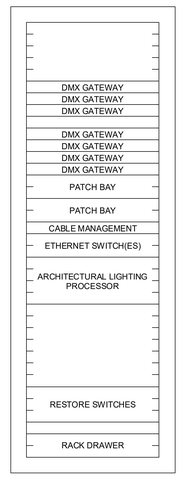
6 Device Detail - BR1D
6" = 1'-0"



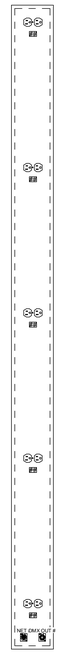
7 Device Detail - BR1E
6" = 1'-0"



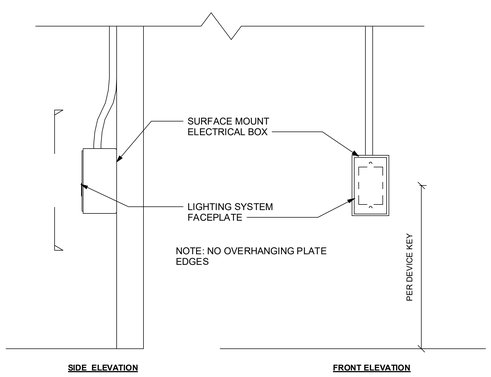
8 Device Detail - BR1DE
6" = 1'-0"



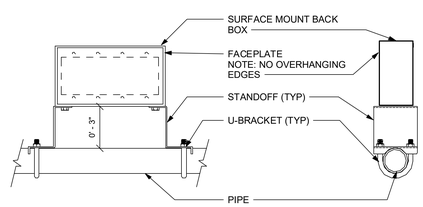
9 Elevation - Lighting Control Rack
NTS



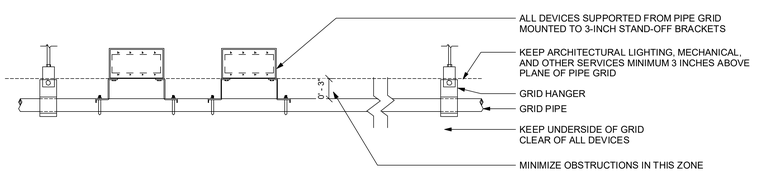
10 Device Detail - BR2DE - Lighting Slot
1 1/2" = 1'-0"



11 Mounting Detail - Surface Mount Box
3" = 1'-0"



12 Mounting Detail - Pipe Grid Mounted Device
3" = 1'-0"



13 Pipe Grid Coordination Detail
1 1/2" = 1'-0"

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DRAWING TITLE

Theatrical Lighting Plate and Panel Detail

Locus Map

Key Plan

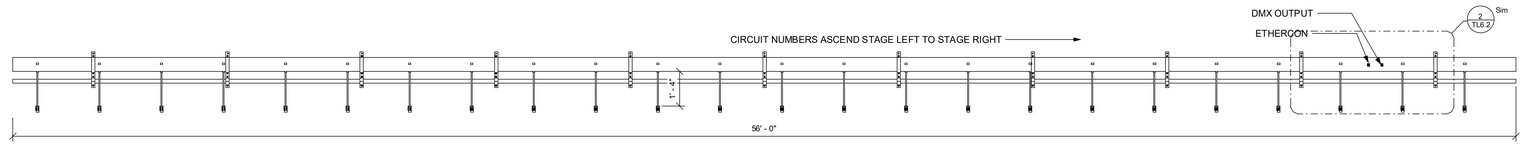
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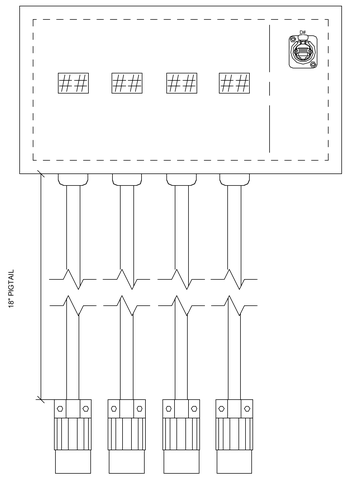
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DWN. BY: Author
CKD. BY: Checker
DATE: January 20, 2022

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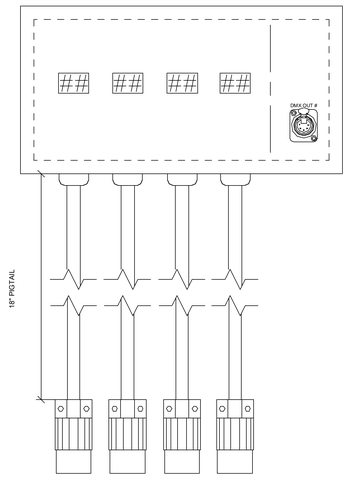
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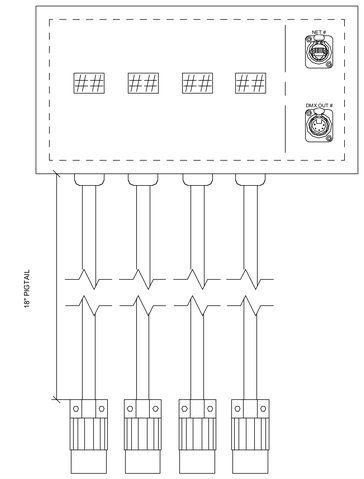
1 Device Detail - SP6DE
1/2" = 1'-0"



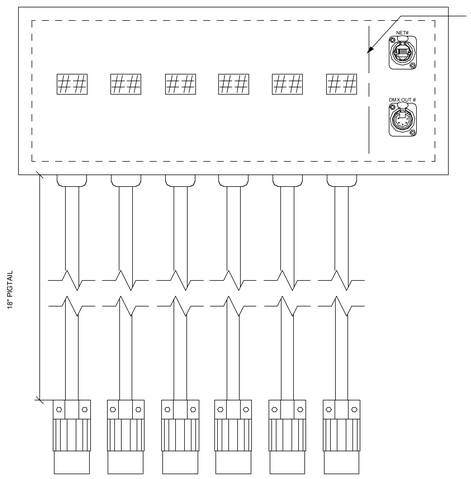
3 Device Detail BP1E
6" = 1'-0"



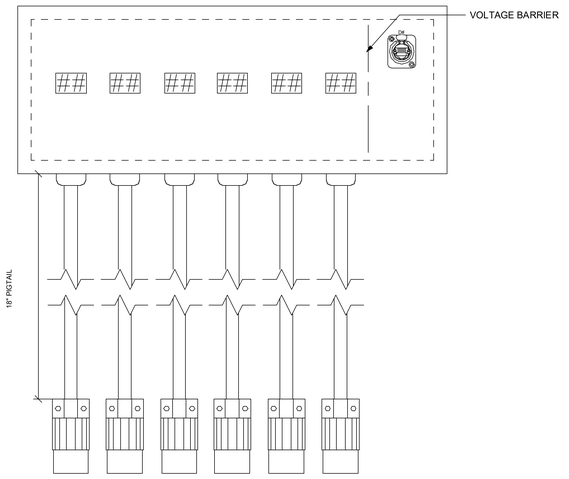
4 Device Detail - BP1D
6" = 1'-0"



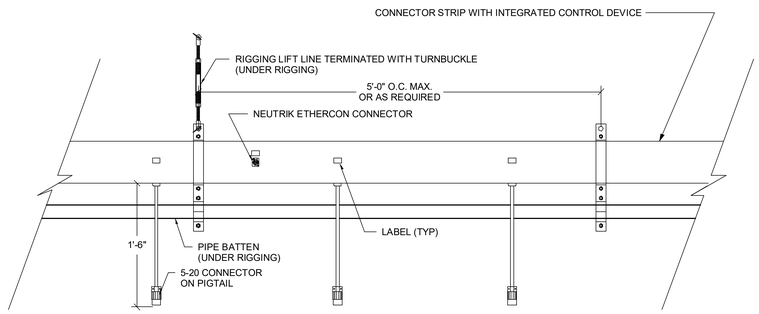
5 Device Detail - BP1DE
6" = 1'-0"



6 Device Detail - BP2DE - Catwalk
6" = 1'-0"



7 Device Detail - BP2E
6" = 1'-0"



2 Detail - Connector Strip with Pigtails
1 1/2" = 1'-0"

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DRAWING TITLE

Theatrical Lighting Plate and Panel Detail

Locus Map

Key Plan

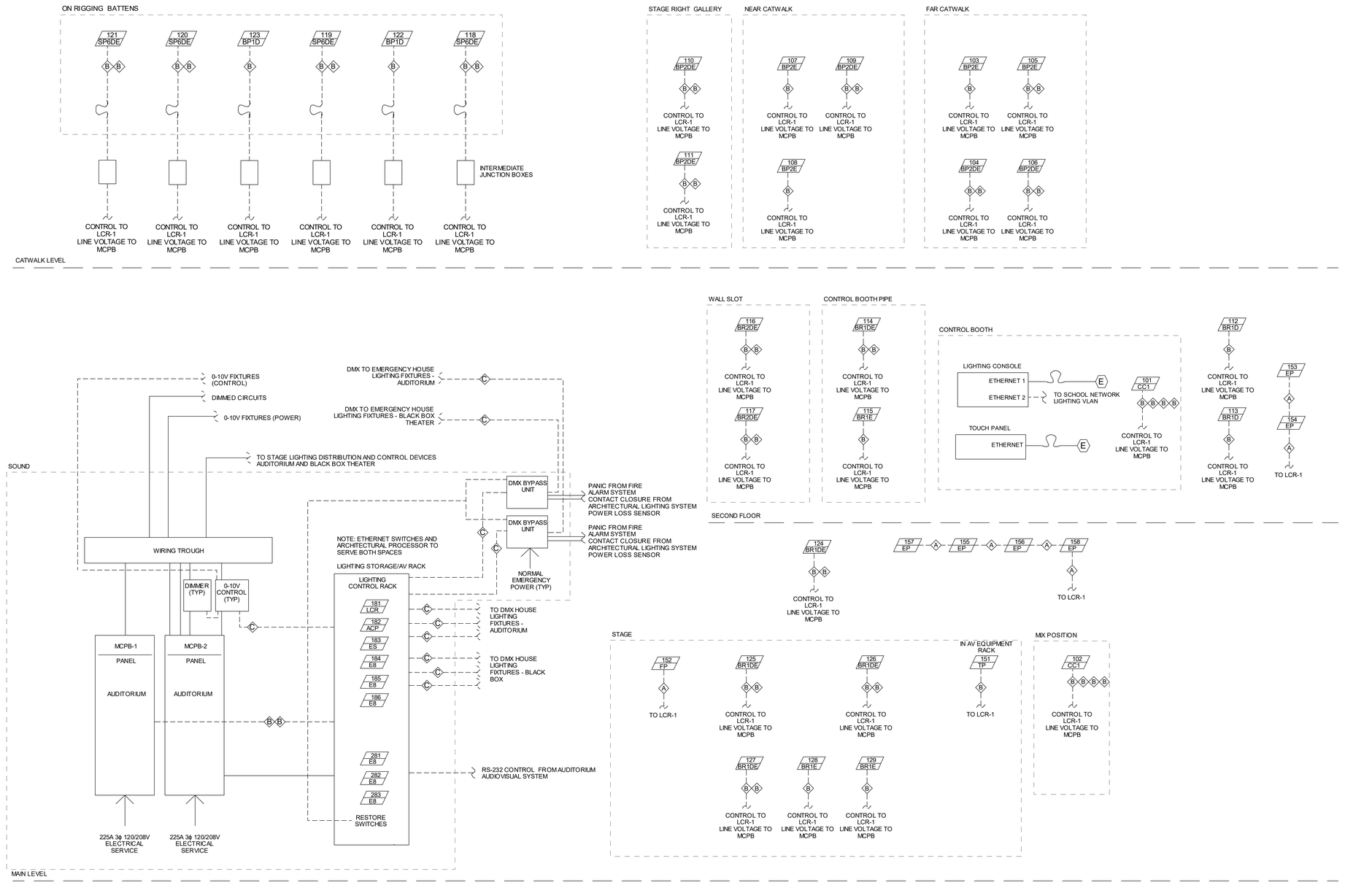
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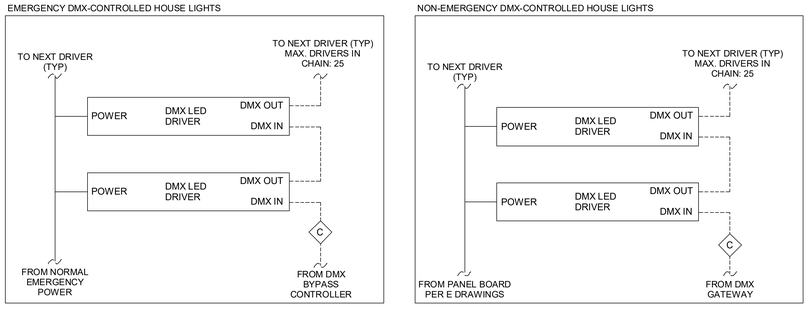
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SCALE: As indicated
DWN. BY: Author
CKD. BY: Checker
DATE: January 20, 2022

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1 Auditorium Riser Diagram
NTS



2 DMX Wiring Detail
NTS

DEVICE KEY

XXX — DEVICE NUMBER / DEVICE TYPE

COMPANY SWITCH AMPERAGE INDICATED

RISER DIAGRAM WIRING KEY

POWER

CONTROL

CONTROL WIRING LEGEND

TYPE	WIRE TYPE(S)	SIGNAL
A	(1) BELDEN 8471 (1) #14 AWG STRANDED (2) #16 AWG	ARCH. CTRL.
B	(1) BELDEN 1583A	NETWORK/DMX
C	(1) BELDEN 9729	DMX

NOTES

1. ALL EXPOSED SURFACES ON STAGE DEVICES FINISHED MATTE BLACK UNLESS OTHERWISE NOTED.
2. FOR DEVICES MOUNTED ON CATWALKS, MOUNT WITH LABEL AND CONNECTORS ON INSIDE OF CATWALK AND FACING WALKING SURFACE OF CATWALK, UNLESS OTHEWISE NOTED.
3. PROVIDE BRACKETS AND HARDWARE FOR MOUNTING CONTROL AND DISTRIBUTION DEVICES AS REQUIRED.
4. ALL LOW-VOLTAGE CONTROL WIRING INSTALLED IN METAL CONDUIT.
5. FINAL CONTROL WIRING TYPES TO BE CONFIRMED BY LIGHTING SYSTEM MANUFACTURER.
6. P.S.H.: PROJECT SWITCH HEIGHT
7. P.R.H.: PROJECT RECEPTACLE HEIGHT

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299 Highland St
Worcester MA 01602

PROJECT

100% CONSTRUCTION DOCUMENTS, FINAL BID PACKAGE #4

Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

DRAWING TITLE

Theatrical Lighting Riser Diagram - Auditorium

Locus Map

Key Plan

REVISIONS

No.	Description	Date

FILE:
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THEATRICAL LIGHTING DEVICE SCHEDULE - AUDITORIUM

DEVICE #	TYPE	DESCRIPTION	LOCATION	FINISH	MOUNT TYPE	BACK BOX	MOUNTING HEIGHT	# OF CIRCUITS	START #	END #	WORK LIGHT CIRCUITS	WL #	DMX INPUTS	DMX OUTPUTS	ETHERNET JACKS
101	CC1	CONTROL CONSOLE CONNECTION	CONTROL BOOTH	BLACK	FLUSH	FIVE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	1	1	1			1	0	3
102	CC1	CONTROL CONSOLE CONNECTION	MIX POSITION	PER ARCHITECT	FLUSH	FIVE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	1	2	2			1	0	3
103	BP2E	BOX WITH PIGTAILS, ETHERNET	MAIN CATWALK	BLACK	PIPE	CONNECTOR STRIP		2	3	4			0	0	1
104	BP2DE	BOX WITH PIGTAILS, DMX OUTPUT, ETHERNET	MAIN CATWALK	BLACK	PIPE	CONNECTOR STRIP		2	5	6			0	1	1
105	BP2E	BOX WITH PIGTAILS, ETHERNET	MAIN CATWALK	BLACK	PIPE	CONNECTOR STRIP		2	7	8			0	0	1
106	BP2DE	BOX WITH PIGTAILS, DMX OUTPUT, ETHERNET	MAIN CATWALK	BLACK	PIPE	CONNECTOR STRIP		2	9	10			0	1	1
107	BP2E	BOX WITH PIGTAILS, ETHERNET	NEAR CATWALK	BLACK	PIPE	CONNECTOR STRIP		2	11	12			0	0	1
108	BP2E	BOX WITH PIGTAILS, ETHERNET	NEAR CATWALK	BLACK	PIPE	CONNECTOR STRIP		2	13	14			0	0	1
109	BP2DE	BOX WITH PIGTAILS, DMX OUTPUT, ETHERNET	NEAR CATWALK	BLACK	PIPE	CONNECTOR STRIP		2	15	16			0	1	1
110	BP2DE	BOX WITH PIGTAILS, DMX OUTPUT, ETHERNET	STAGE RIGHT MID GALLERY	BLACK	SURFACE	CONNECTOR STRIP		2	17	18			0	1	1
111	BP2DE	BOX WITH PIGTAILS, DMX OUTPUT, ETHERNET	STAGE RIGHT MID GALLERY	BLACK	SURFACE	CONNECTOR STRIP		2	19	20			0	1	1
112	BR1D	BOX WITH RECEPTACLE, DMX OUTPUT	HOUSE RIGHT FOLLOW SPOT	PER ARCHITECT	FLUSH	THREE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	1	21	21			0	1	0
113	BR1D	BOX WITH RECEPTACLE, DMX OUTPUT	HOUSE LEFT FOLLOWSPOT	PER ARCHITECT	FLUSH	THREE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	1	22	22			0	1	0
114	BR1DE	BOX WITH RECEPTACLE, DMX OUTPUT, ETHERNET	CONTROL BOOTH PIPE	PER ARCHITECT	FLUSH	THREE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	1	23	23			0	1	1
115	BR1E	BOX WITH RECEPTACLE, ETHERNET	CONTROL BOOTH PIPE	PER ARCHITECT	FLUSH	THREE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	1	24	24			0	0	1
116	BR2DE	BOX WITH RECEPTACLE, DMX OUTPUT, ETHERNET	HOUSE RIGHT SLOT	BLACK	SURFACE	CUSTOM BACK BOX	PER DETAIL	2	25	26			0	1	1
117	BR2DE	BOX WITH RECEPTACLE, DMX OUTPUT, ETHERNET	HOUSE LEFT SLOT	BLACK	SURFACE	CUSTOM BACK BOX	PER DETAIL	2	27	28			0	1	1
118	SP6DE	CONNECTOR STRIP WITH PIGTAILS, DMX OUTPUT, ETHERNET	1 ELECTRIC	BLACK	PIPE	CONNECTOR STRIP		5	29	33	1	71	0	1	1
119	SP6DE	CONNECTOR STRIP WITH PIGTAILS, DMX OUTPUT, ETHERNET	2 ELECTRIC	BLACK	PIPE	CONNECTOR STRIP		5	34	38	1	72	0	1	1
120	SP6DE	CONNECTOR STRIP WITH PIGTAILS, DMX OUTPUT, ETHERNET	3 ELECTRIC	BLACK	PIPE	CONNECTOR STRIP		5	39	43	1	73	0	1	1
121	SP6DE	CONNECTOR STRIP WITH PIGTAILS, DMX OUTPUT, ETHERNET	4 ELECTRIC	BLACK	PIPE	CONNECTOR STRIP		5	44	48	1	74	0	1	1
122	BP1D	BOX WITH PIGTAILS, DMX OUTPUT	ACOUSTIC CEILING PANEL BATTEN	BLACK	PIPE	CUSTOM BACK BOX		1	49	49			0	1	0
123	BP1D	BOX WITH PIGTAILS, DMX OUTPUT	ACOUSTIC CEILING PANEL BATTEN	BLACK	PIPE	CUSTOM BACK BOX		1	50	50			0	1	0
124	BR1DE	BOX WITH RECEPTACLE, DMX OUTPUT, ETHERNET	STAGE APRON	BLACK	FLUSH	THREE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	1	51	51			0	1	1
125	BR1DE	BOX WITH RECEPTACLE, DMX OUTPUT, ETHERNET	DOWNSTAGE LEFT	BLACK	FLUSH	THREE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	1	52	52			0	1	1
126	BR1DE	BOX WITH RECEPTACLE, DMX OUTPUT, ETHERNET	DOWNSTAGE RIGHT	BLACK	FLUSH	THREE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	1	53	53			0	1	1
127	BR1DE	BOX WITH RECEPTACLE, DMX OUTPUT, ETHERNET	UPSTAGE LEFT	BLACK	FLUSH	THREE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	1	54	54			0	1	1
128	BR1E	BOX WITH RECEPTACLE, ETHERNET	UPSTAGE CENTER	BLACK	FLUSH	THREE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	1	55	55			0	0	1
129	BR1E	BOX WITH RECEPTACLE, ETHERNET	UPSTAGE RIGHT	BLACK	FLUSH	THREE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	1	56	56			0	0	1
151	TP	TOUCH PANEL	AUDIOVISUAL EQUIPMENT RACK		RACK								0	0	0
152	FP	FADER PANEL		PER ARCHITECT	FLUSH	PER MANUFACTURER	PROJECT SWITCH HEIGHT						0	0	0
153	EP	ENTRY PANEL	BALCONY HOUSE RIGHT	PER ARCHITECT	FLUSH	ONE GANG ELECTRICAL BOX	PROJECT SWITCH HEIGHT						0	0	0
154	EP	ENTRY PANEL	BALCONY HOUSE LEFT	PER ARCHITECT	FLUSH	ONE GANG ELECTRICAL BOX	PROJECT SWITCH HEIGHT						0	0	0
155	EP	ENTRY PANEL	REAR HOUSE RIGHT	PER ARCHITECT	FLUSH	ONE GANG ELECTRICAL BOX	PROJECT SWITCH HEIGHT						0	0	0
156	EP	ENTRY PANEL	REAR HOUSE LEFT	PER ARCHITECT	FLUSH	ONE GANG ELECTRICAL BOX	PROJECT SWITCH HEIGHT						0	0	0
157	EP	ENTRY PANEL	HOUSE RIGHT	PER ARCHITECT	FLUSH	ONE GANG ELECTRICAL BOX	PROJECT SWITCH HEIGHT						0	0	0
158	EP	ENTRY PANEL	HOUSE LEFT	PER ARCHITECT	FLUSH	ONE GANG ELECTRICAL BOX	PROJECT SWITCH HEIGHT						0	0	0
181	LCR	LIGHTING CONTROL RACK						1	57	57			0	0	0
182	ACP	ARCHITECTURAL CONTROL PROCESSOR			RACK								0	0	1
183	ES	ETHERNET SWITCH			RACK								0	0	0
184	E8	DMX OUTPUT GATEWAY, 8-PORT			RACK								0	0	1
185	E8	DMX OUTPUT GATEWAY, 8-PORT			RACK								0	0	1
186	E8	DMX OUTPUT GATEWAY, 8-PORT			RACK								0	0	1
187	E8	DMX OUTPUT GATEWAY, 8-PORT			RACK								0	0	1
194	HL	DIMMER CIRCUITS						1	58	58			0	0	0
195	PLS	POWER LOSS SENSOR CIRCUITS						3	59	61			0	0	0
196	RL	0-10V AND RELAY CIRCUITS						2	62	63			0	1	0
199	SP	SPARE CIRCUITS						4	64	67			0	0	0

AUDITORIUM HOUSE LIGHTING CONTROL SCHEDULE

ZONE	LOCATION	DMX UNIVERSE	FIXTURE TYPE	CONTROL TYPE	DIMMER	CIRCUIT	NOTES
1	DOWN LIGHTS - MAIN	3	AP	DMX			INDIVIDUALLY ADDRESSED FOR ACCESS FROM CONSOLE
2	DOWN LIGHTS - BALCONY	3	AP	DMX			INDIVIDUALLY ADDRESSED FOR ACCESS FROM CONSOLE
3	DOWN LIGHTS - UNDER BALCONY	3	DX/DXE	DMX			
4	DOWN LIGHTS - SIDE	3	DX/DXE	DMX			
5	PROSCENIUM UPLIGHT	3	LA-1	DMX			
6	PROSCENIUM GRAZER	3	LA-5B	DMX			
7	SIDE WALL UPLIGHT	3	LA-1	DMX			
8	SIDE WALL TAPE LIGHT	3	LA-3	DMX			
9	SIDE WALL TAPE LIGHT	3	LA-4	DMX			
10	SIDE WALL TRACK HEADS	3	LATH-1	DMX			
11	SIDE WALL GRAZER	3	LA-5A	DMX			
12	PATHWAY LIGHTS - MAIN LEVEL	3	N2	0-10V		62	
13	PATHWAY LIGHTS - BALCONY	3	N2	0-10V		62	
14	SOUND & LIGHT LOCK DOWNLIGHT, HOUSE	3	DX/DXE	DMX			MAIN LEVEL AND BALCONY
15	SOUND & LIGHT LOCK STEP LIGHT, HOUSE	3	N2	0-10V		62	MAIN LEVEL AND BALCONY
16	SOUND & LIGHT LOCK DOWNLIGHT, STAGE	3	DX/DXE	DMX			
17	SOUND & LIGHT LOCK STEP LIGHT, STAGE	3	N2	0-10V		62	
18	BLUE LIGHTS - STAGE LEFT	3	V1	0-10V		62	
19	BLUE LIGHTS - CENTER	3	V1	0-10V		62	
20	BLUE LIGHTS - STAGE RIGHT	3	V1	0-10V		62	
21-24	WORK LIGHTS - ELECTRIC BATTEN CIRCUITS	3		DMX		71-74	SWITCHED CIRCUITS ON ELECTRIC BATTENS
25	SEATING END ARMS - LOWER	3	N1	DIMMER	1	58	COORDINATE WITH SEATING MANUFACTURER
26	SEATING END ARMS - UPPER	3	N1	DIMMER	2	58	COORDINATE WITH SEATING MANUFACTURER
27-28	ACOUSTIC CEILING PANELS	3		DMX			CEILING PANEL LIGHTS, ADDRESS INDIVIDUALLY, CREATE SUBS FOR EACH PANEL
29	CURTAIN WARMERS	3		DMX			COLOR-CHANGING THEATRICAL FIXTURES

FIXTURES WITHOUT CIRCUITS TO BE POWERED PER E DRAWINGS.

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DRAWING TITLE

Theatrical Lighting Schedules - Auditorium

Locus Map

Key Plan

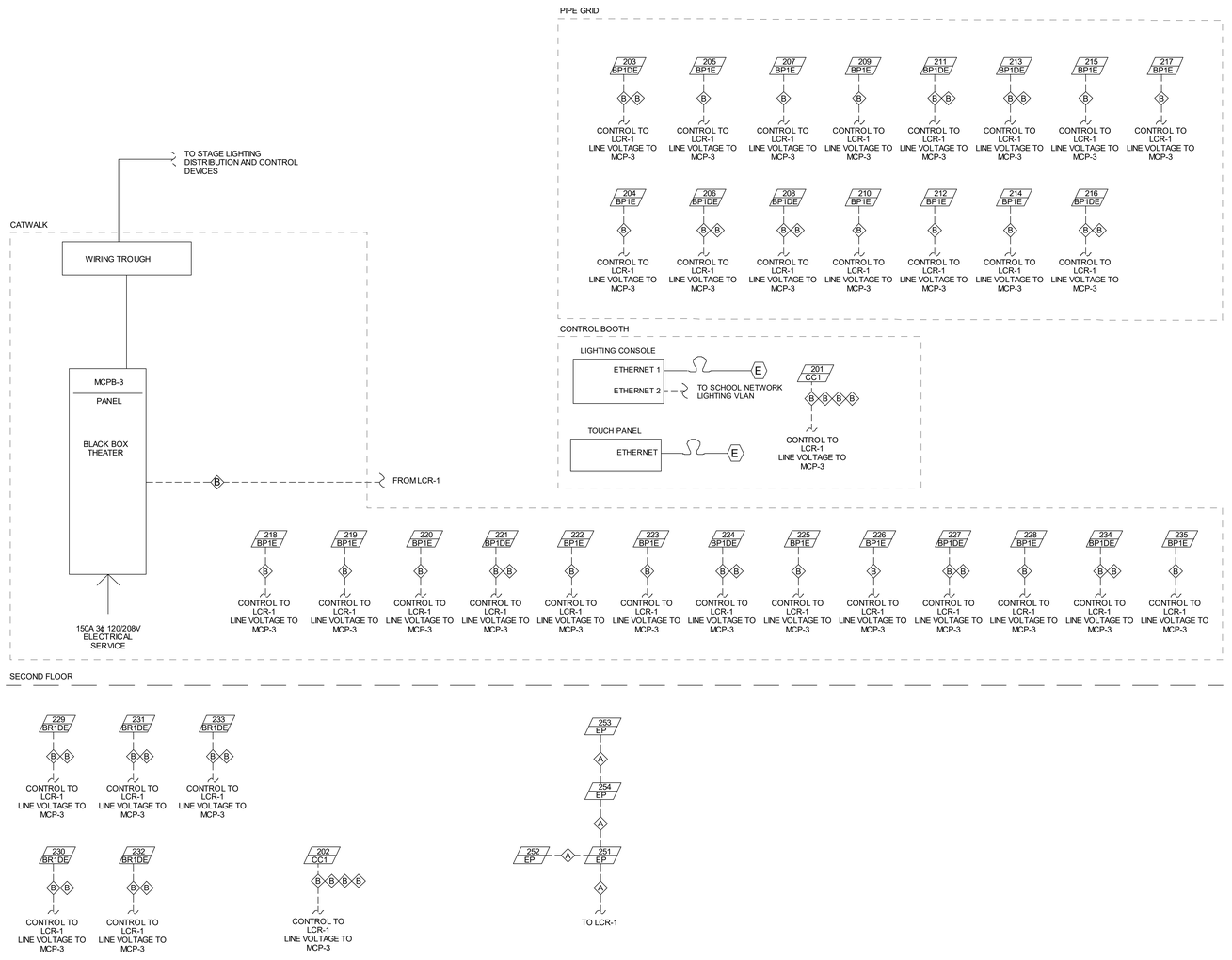
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1 Black Box Riser Diagram
NTS

DEVICE KEY

XXX — DEVICE NUMBER / DEVICE TYPE

COMPANY SWITCH AMPERAGE INDICATED

RISER DIAGRAM WIRING KEY

———— POWER

- - - - - - - - CONTROL

CONTROL WIRING LEGEND

TYPE	WIRE TYPE(S)	SIGNAL
A	(1) BELDEN 8471 (1) #14 AWG STRANDED (2) #16 AWG	ARCH. CTRL.
B	(1) BELDEN 1583A	NETWORK/DMX
C	(1) BELDEN 9729	DMX

NOTES

1. ALL EXPOSED SURFACES ON STAGE DEVICES FINISHED MATTE BLACK UNLESS OTHERWISE NOTED.
2. FOR DEVICES MOUNTED ON CATWALKS, MOUNT WITH LABEL AND CONNECTORS ON INSIDE OF CATWALK AND FACING WALKING SURFACE OF CATWALK, UNLESS OTHEWISE NOTED.
3. PROVIDE BRACKETS AND HARDWARE FOR MOUNTING CONTROL AND DISTRIBUTION DEVICES AS REQUIRED.
4. ALL LOW-VOLTAGE CONTROL WIRING INSTALLED IN METAL CONDUIT.
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DRAWING TITLE

Theatrical Lighting Riser Diagram - Black Box

Locus Map

Key Plan

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THEATRICAL LIGHTING DEVICE SCHEDULE - BLACK BOX

DEVICE #	TYPE	DESCRIPTION	LOCATION	FINISH	MOUNT TYPE	BACK BOX	MOUNTING HEIGHT	# OF CIRCUITS	START #	END #	DMX INPUTS	DMX OUTPUTS	ETHERNET JACKS
201	CC1	CONTROL CONSOLE CONNECTION	CONTROL BOOTH	BLACK	FLUSH	FIVE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	1	1	1	1	0	3
202	CC1	CONTROL CONSOLE CONNECTION	SOUTH WALL	BLACK	FLUSH	FIVE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	1	2	2	1	0	3
203	BP1DE	BOX WITH PIGTAILS, ETHERNET, DMX OUTPUT	PIPE GRID	BLACK	PIPE	CUSTOM BACK BOX	ABOVE PIPE GRID, PER DETAIL	1	3	3	0	1	1
204	BP1E	BOX WITH PIGTAILS, ETHERNET	PIPE GRID	BLACK	PIPE	CUSTOM BACK BOX	ABOVE PIPE GRID, PER DETAIL	1	4	4	0	0	1
205	BP1E	BOX WITH PIGTAILS, ETHERNET	PIPE GRID	BLACK	PIPE	CUSTOM BACK BOX	ABOVE PIPE GRID, PER DETAIL	1	5	5	0	0	1
206	BP1DE	BOX WITH PIGTAILS, ETHERNET, DMX OUTPUT	PIPE GRID	BLACK	PIPE	CUSTOM BACK BOX	ABOVE PIPE GRID, PER DETAIL	1	6	6	0	1	1
207	BP1E	BOX WITH PIGTAILS, ETHERNET	PIPE GRID	BLACK	PIPE	CUSTOM BACK BOX	ABOVE PIPE GRID, PER DETAIL	1	7	7	0	0	1
208	BP1DE	BOX WITH PIGTAILS, ETHERNET, DMX OUTPUT	PIPE GRID	BLACK	PIPE	CUSTOM BACK BOX	ABOVE PIPE GRID, PER DETAIL	1	8	8	0	1	1
209	BP1E	BOX WITH PIGTAILS, ETHERNET	PIPE GRID	BLACK	PIPE	CUSTOM BACK BOX	ABOVE PIPE GRID, PER DETAIL	1	9	9	0	0	1
210	BP1E	BOX WITH PIGTAILS, ETHERNET	PIPE GRID	BLACK	PIPE	CUSTOM BACK BOX	ABOVE PIPE GRID, PER DETAIL	1	10	10	0	0	1
211	BP1DE	BOX WITH PIGTAILS, ETHERNET, DMX OUTPUT	PIPE GRID	BLACK	PIPE	CUSTOM BACK BOX	ABOVE PIPE GRID, PER DETAIL	1	11	11	0	1	1
212	BP1E	BOX WITH PIGTAILS, ETHERNET	PIPE GRID	BLACK	PIPE	CUSTOM BACK BOX	ABOVE PIPE GRID, PER DETAIL	1	12	12	0	0	1
213	BP1DE	BOX WITH PIGTAILS, ETHERNET, DMX OUTPUT	PIPE GRID	BLACK	PIPE	CUSTOM BACK BOX	ABOVE PIPE GRID, PER DETAIL	1	13	13	0	1	1
214	BP1E	BOX WITH PIGTAILS, ETHERNET	PIPE GRID	BLACK	PIPE	CUSTOM BACK BOX	ABOVE PIPE GRID, PER DETAIL	1	14	14	0	0	1
215	BP1E	BOX WITH PIGTAILS, ETHERNET	PIPE GRID	BLACK	PIPE	CUSTOM BACK BOX	ABOVE PIPE GRID, PER DETAIL	1	15	15	0	0	1
216	BP1DE	BOX WITH PIGTAILS, ETHERNET, DMX OUTPUT	PIPE GRID	BLACK	PIPE	CUSTOM BACK BOX	ABOVE PIPE GRID, PER DETAIL	1	16	16	0	1	1
217	BP1E	BOX WITH PIGTAILS, ETHERNET	PIPE GRID	BLACK	PIPE	CUSTOM BACK BOX	ABOVE PIPE GRID, PER DETAIL	1	17	17	0	0	1
218	BP1E	BOX WITH PIGTAILS, ETHERNET	CATWALK	BLACK	PER DETAIL	CUSTOM BACK BOX		1	18	18	0	0	1
219	BP1E	BOX WITH PIGTAILS, ETHERNET	CATWALK	BLACK	PER DETAIL	CUSTOM BACK BOX		1	19	19	0	0	1
220	BP1E	BOX WITH PIGTAILS, ETHERNET	CATWALK	BLACK	PER DETAIL	CUSTOM BACK BOX		1	20	20	0	0	1
221	BP1DE	BOX WITH PIGTAILS, ETHERNET, DMX OUTPUT	CATWALK	BLACK	PER DETAIL	CUSTOM BACK BOX		1	21	21	0	1	1
222	BP1E	BOX WITH PIGTAILS, ETHERNET	CATWALK	BLACK	PER DETAIL	CUSTOM BACK BOX		1	22	22	0	0	1
223	BP1E	BOX WITH PIGTAILS, ETHERNET	CATWALK	BLACK	PER DETAIL	CUSTOM BACK BOX		1	23	23	0	0	1
224	BP1DE	BOX WITH PIGTAILS, ETHERNET, DMX OUTPUT	CATWALK	BLACK	PER DETAIL	CUSTOM BACK BOX		1	24	24	0	1	1
225	BP1E	BOX WITH PIGTAILS, ETHERNET	CATWALK	BLACK	PER DETAIL	CUSTOM BACK BOX		1	25	25	0	0	1
226	BP1E	BOX WITH PIGTAILS, ETHERNET	CATWALK	BLACK	PER DETAIL	CUSTOM BACK BOX		1	26	26	0	0	1
227	BP1DE	BOX WITH PIGTAILS, ETHERNET, DMX OUTPUT	CATWALK	BLACK	PER DETAIL	CUSTOM BACK BOX		1	27	27	0	1	1
228	BP1E	BOX WITH PIGTAILS, ETHERNET	CATWALK	BLACK	PER DETAIL	CUSTOM BACK BOX		1	28	28	0	0	1
229	BR1DE	BOX WITH RECEPTACLE, DMX OUTPUT, ETHERNET	EAST WALL	BLACK	FLUSH	THREE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	1	29	29	0	1	1
230	BR1DE	BOX WITH RECEPTACLE, DMX OUTPUT, ETHERNET	NORTH WALL	BLACK	FLUSH	THREE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	1	30	30	0	1	1
231	BR1DE	BOX WITH RECEPTACLE, DMX OUTPUT, ETHERNET	NORTH WALL	BLACK	FLUSH	THREE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	1	31	31	0	1	1
232	BR1DE	BOX WITH RECEPTACLE, DMX OUTPUT, ETHERNET	WEST WALL	BLACK	FLUSH	THREE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	1	32	32	0	1	1
233	BR1DE	BOX WITH RECEPTACLE, DMX OUTPUT, ETHERNET	SOUTH WALL	BLACK	FLUSH	THREE GANG ELECTRICAL BOX	PROJECT RECEPTACLE HEIGHT	1	33	33	0	1	1
234	BP1DE	BOX WITH PIGTAILS, ETHERNET, DMX OUTPUT	CATWALK	BLACK	PER DETAIL	CUSTOM BACK BOX		1	34	34	0	1	1
235	BP1E	BOX WITH PIGTAILS, ETHERNET	CATWALK	BLACK	PER DETAIL	CUSTOM BACK BOX		1	35	35	0	0	1
251	EP	ENTRY PANEL	SOUTHEAST ENTRANCE	BLACK	FLUSH	ONE GANG ELECTRICAL BOX	PROJECT SWITCH HEIGHT				0	0	0
252	EP	ENTRY PANEL	EAST ENTRANCE	BLACK	FLUSH	ONE GANG ELECTRICAL BOX	PROJECT SWITCH HEIGHT				0	0	0
253	EP	ENTRY PANEL	NORTH WEST ENTRANCE	BLACK	FLUSH	ONE GANG ELECTRICAL BOX	PROJECT SWITCH HEIGHT				0	0	0
254	EP	ENTRY PANEL	SOUTHWEST ENTRANCE	BLACK	FLUSH	ONE GANG ELECTRICAL BOX	PROJECT SWITCH HEIGHT				0	0	0
281	E8	DMX OUTPUT GATEWAY, 8-PORT			RACK						0	0	1
282	E8	DMX OUTPUT GATEWAY, 8-PORT			RACK						0	0	1
283	E8	DMX OUTPUT GATEWAY, 8-PORT			RACK						0	0	1
291	SP	SPARE CIRCUITS						4	36	39	0	0	0

BLACK BOX HOUSE LIGHTING CONTROL SCHEDULE

ZONE	LOCATION	DMX UNIVERSE	FIXTURE TYPE	CONTROL TYPE	CIRCUIT	NOTES
1	DOWNLIGHTS	6	PX12	DMX		INDIVIDUALLY ADDRESSED FOR ACCESS FROM CONSOLE
2	UNDER CATWALK	6	DX	DMX		INDIVIDUALLY ADDRESSED FOR ACCESS FROM CONSOLE
3	SOUND & LIGHT LOCK DOWNLIGHT	6	DX	DMX		
4	CATWALK LIGHTS	6	PX	DMX		

FIXTURES WITHOUT CIRCUITS TO BE POWERED PER E DRAWINGS.

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Locus Map

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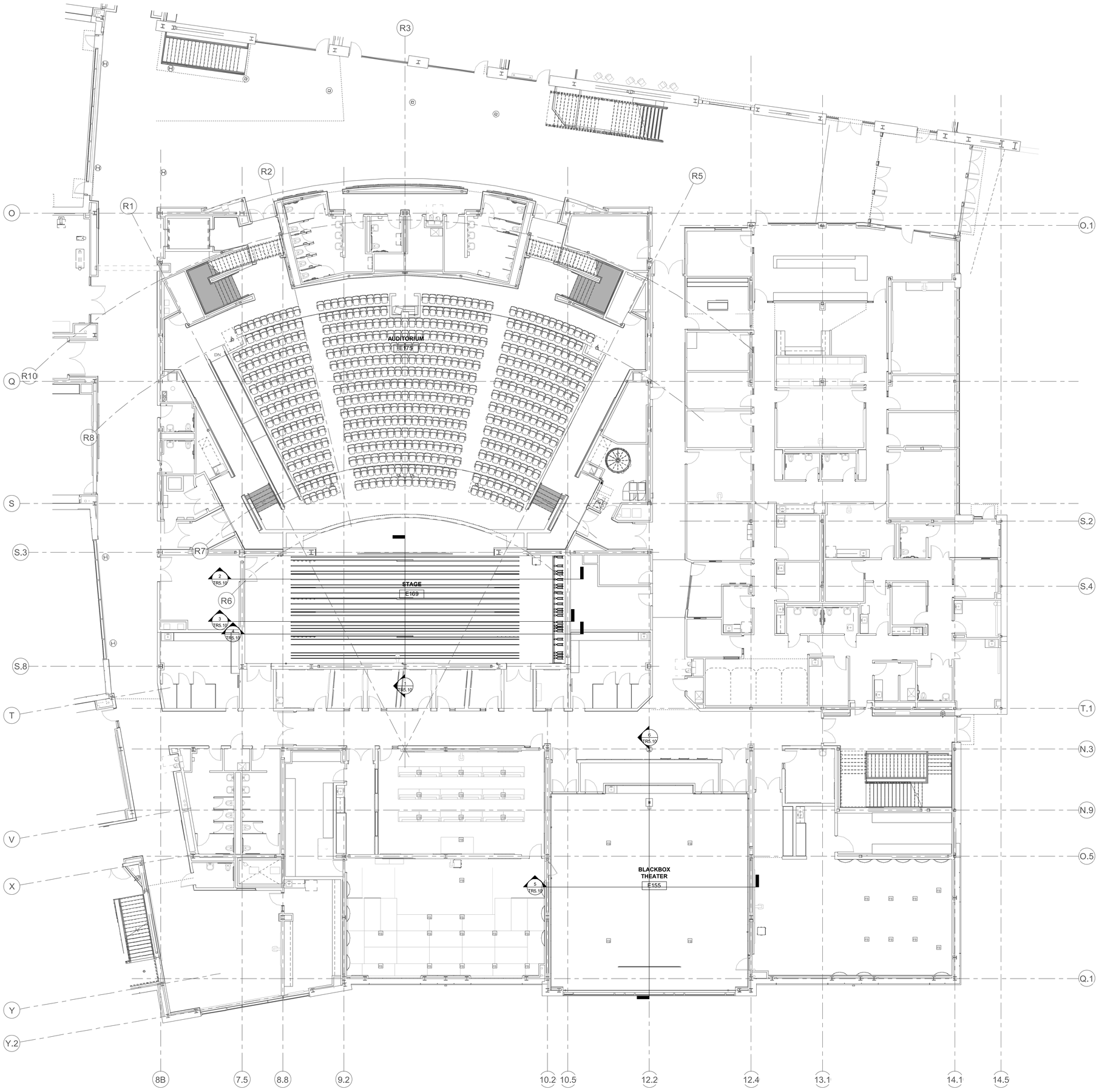
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Doherty Memorial High School

299 Highland Street, Worcester, MA 01602

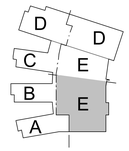
DRAWING TITLE

Theatrical Rigging Main Floor Plan Section E

Locus Map

True North

Key Plan



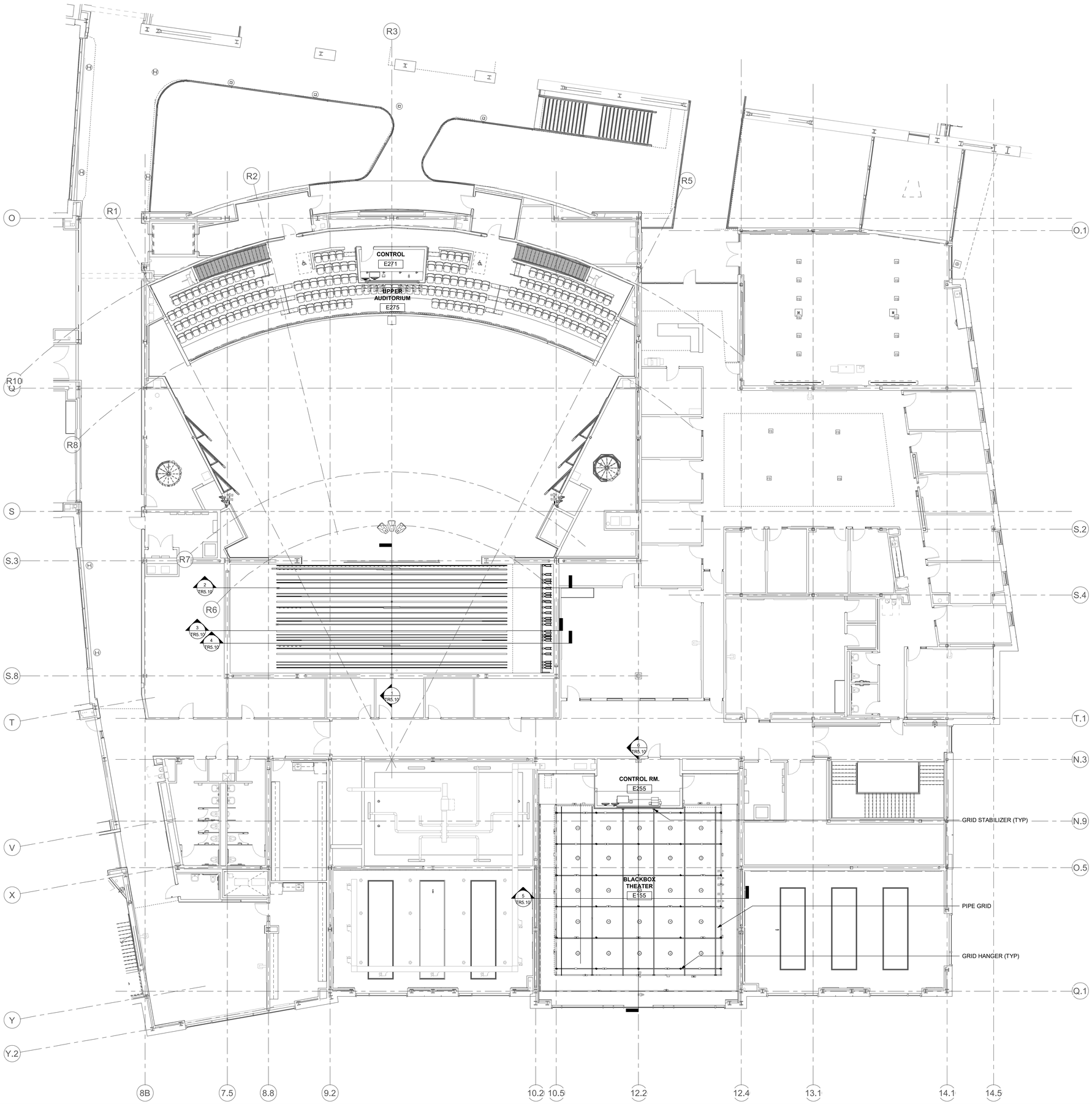
REVISIONS

No.	Description	Date

FILE:
JOB NO: #1904
SCALE: 1/8" = 1'-0"
DWN. BY: Author
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TR3.4

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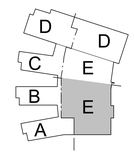
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Theatrical Rigging Level 2 Plan Section E

Locus Map

True North

Key Plan



REVISIONS

No.	Description	Date

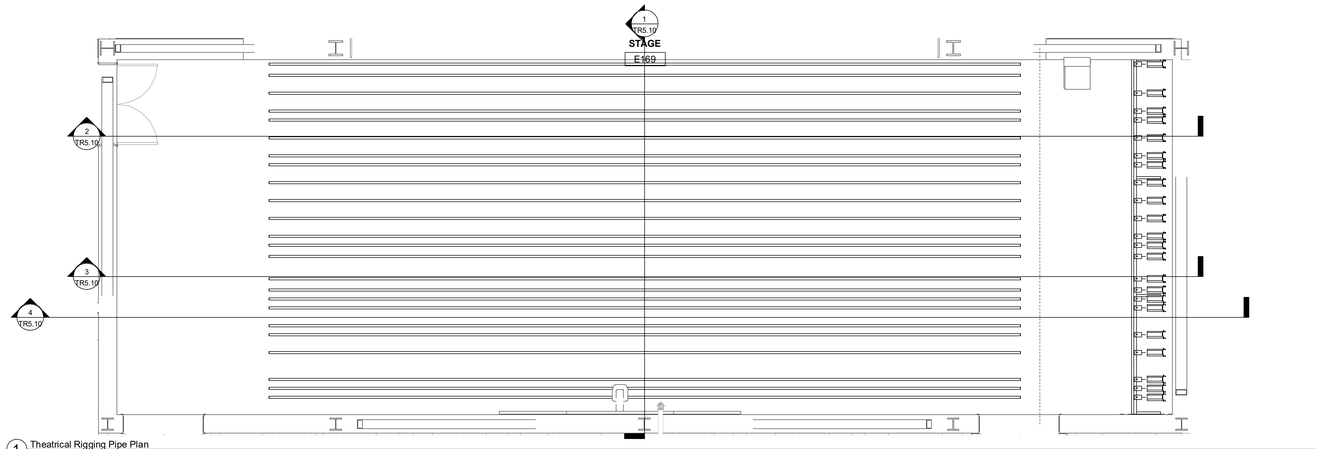
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DATE:	January 20, 2022

TR3.12

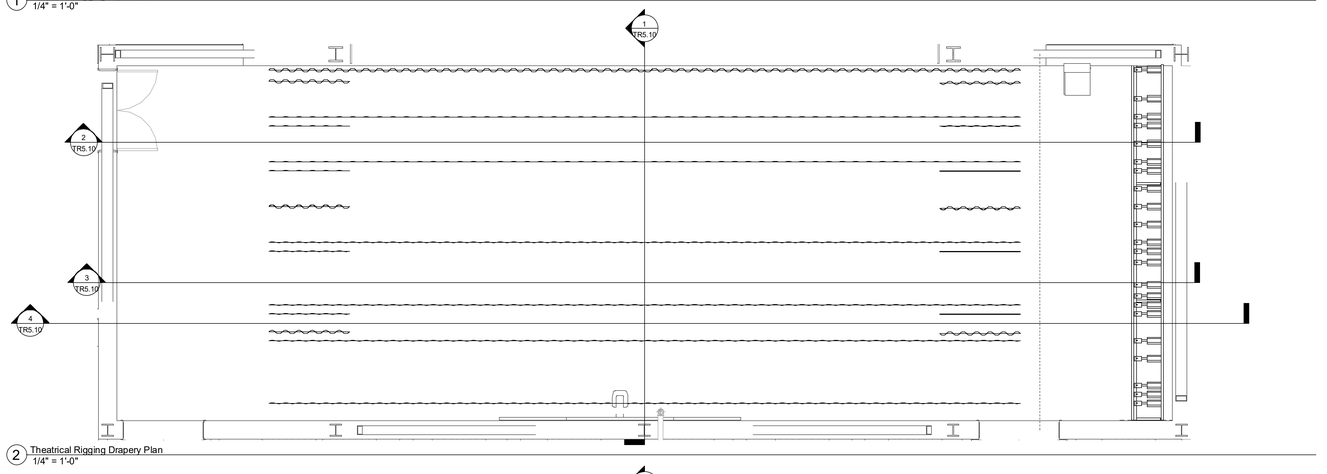
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LINESET SCHEDULE

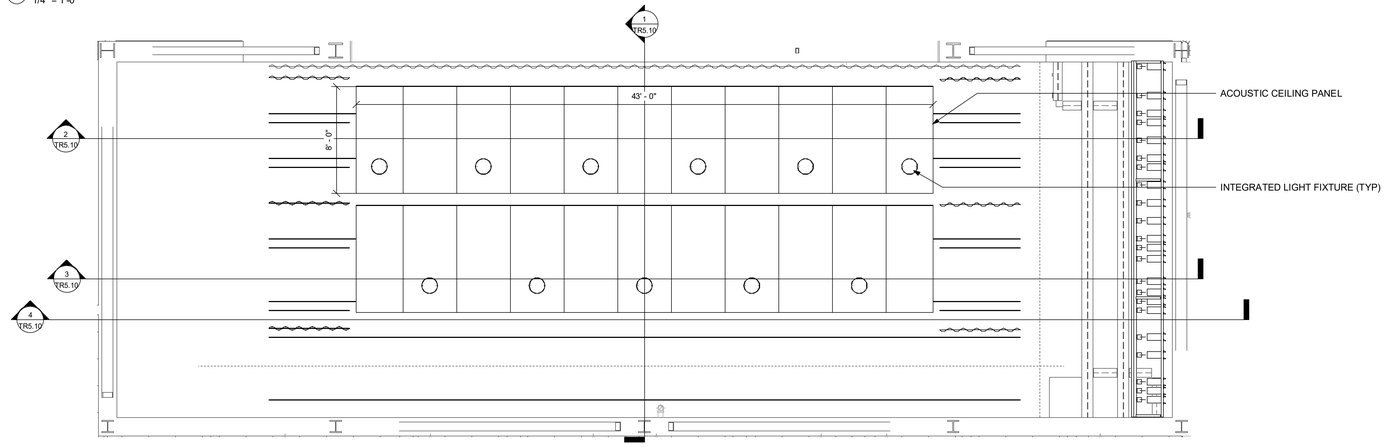
SET NUMBER	DISTANCE FROM PLASTER	USAGE	WEIGHT (DEAD)	ARBOR HEIGHT	CAPACITY (LIVE)	PIPE LENGTH	COMMENTS
1	0' - 6"	Main Valance	150 lb	6' - 0"	1,285 lb	56' - 0"	
2	1' - 4"	Main Curtain	300 lb		0 lb	56' - 0"	Dead Hung
3	2' - 8"	1 Electric	300 lb	6' - 0"	1,285 lb	56' - 0"	
4	4' - 0"	Border	150 lb	6' - 0"	1,285 lb	56' - 0"	
5	4' - 8"	Leg	200 lb	6' - 0"	1,285 lb	56' - 0"	
6	6' - 0"	Acoustic Ceiling Panel	1,700 lb	8' - 0"	1,710 lb	56' - 0"	
7	7' - 4"	Border	150 lb	6' - 0"	1,285 lb	56' - 0"	
8	8' - 0"	Leg	200 lb	6' - 0"	1,285 lb	56' - 0"	
9	9' - 4"	2 Electric	300 lb	6' - 0"	1,285 lb	56' - 0"	
10	10' - 8"	Mid-Stage Traveler	300 lb	6' - 0"	1,285 lb	56' - 0"	
11	12' - 0"	General Purpose	0 lb	6' - 0"	1,285 lb	56' - 0"	
12	13' - 4"	Border	150 lb	6' - 0"	1,285 lb	56' - 0"	
13	14' - 0"	Legs	200 lb	6' - 0"	1,285 lb	56' - 0"	
14	14' - 10"	Acoustic Ceiling Panel	1,700 lb	8' - 0"	1,710 lb	56' - 0"	
15	16' - 6"	3 Electric	300 lb	6' - 0"	1,285 lb	56' - 0"	
16	17' - 4"	General Purpose	0 lb	6' - 0"	1,285 lb	56' - 0"	
17	18' - 0"	Border	150 lb	6' - 0"	1,285 lb	56' - 0"	
18	18' - 8"	Legs	200 lb	6' - 0"	1,285 lb	56' - 0"	
19	20' - 0"	Upstage Traveler	300 lb		0 lb	56' - 0"	Dead Hung
20	20' - 8"	Scrim	200 lb	6' - 0"	1,285 lb	56' - 0"	
21	22' - 0"	4 Electric	300 lb	6' - 0"	1,285 lb	56' - 0"	
22	24' - 0"	General Purpose	0 lb	6' - 0"	1,285 lb	56' - 0"	
23	24' - 8"	General Purpose	0 lb	6' - 0"	1,285 lb	56' - 0"	
24	25' - 4"	Cyclorama	250 lb	6' - 0"	1,285 lb	56' - 0"	



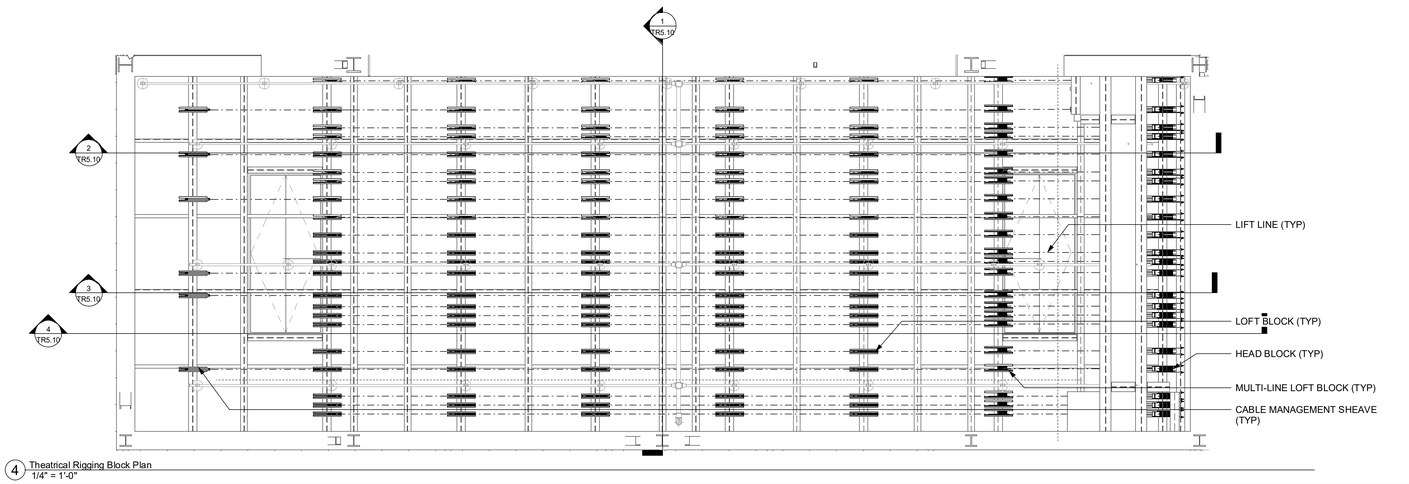
1 Theatrical Rigging Pipe Plan
1/4" = 1'-0"



2 Theatrical Rigging Drapery Plan
1/4" = 1'-0"



3 Theatrical Rigging Acoustic Ceiling Panel Plan
1/4" = 1'-0"



4 Theatrical Rigging Block Plan
1/4" = 1'-0"

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Doherty Memorial High School

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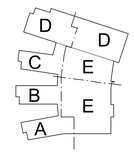
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Theatrical Rigging Enlarged Plans

Locus Map

True North

Key Plan



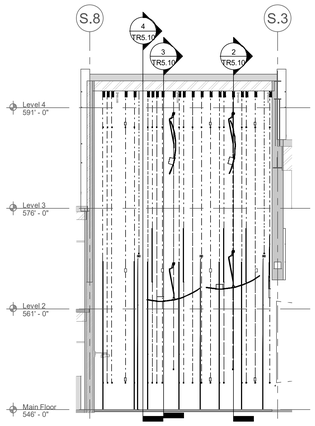
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No.	Description	Date

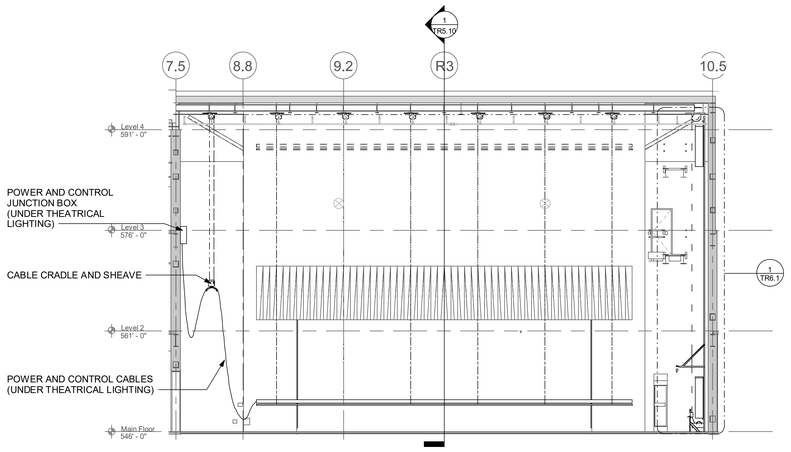
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DWN. BY:	Author
CKD. BY:	Checker
DATE:	January 20, 2022

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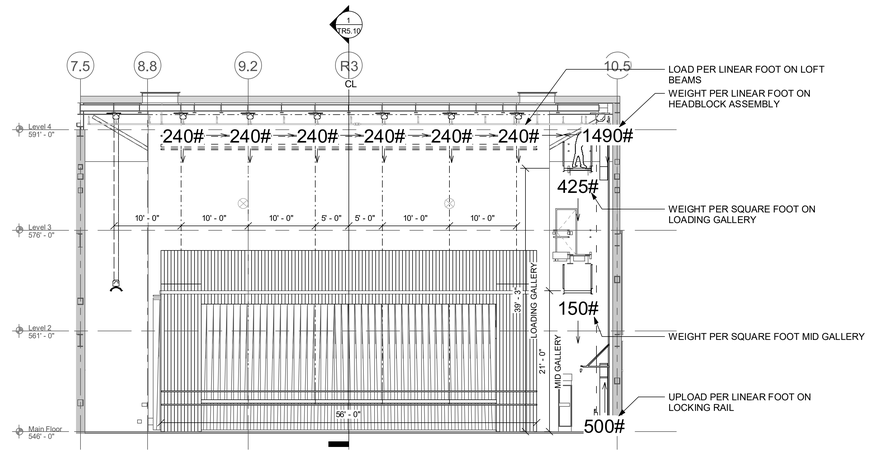
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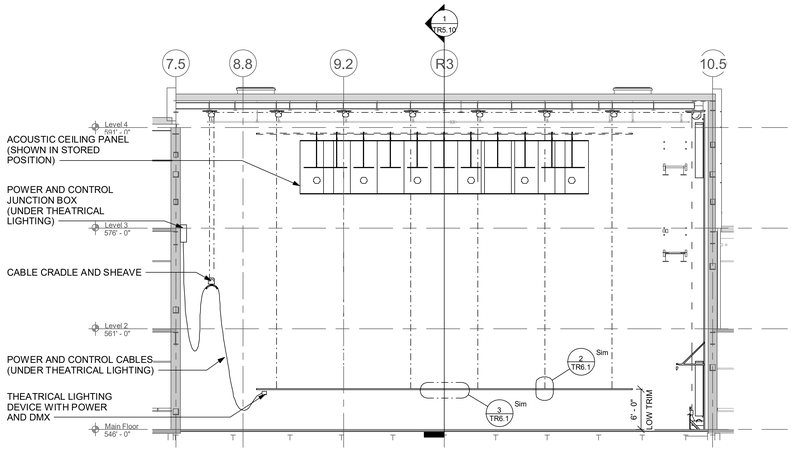
1 Auditorium Stage - Centerline Section
1/8" = 1'-0"



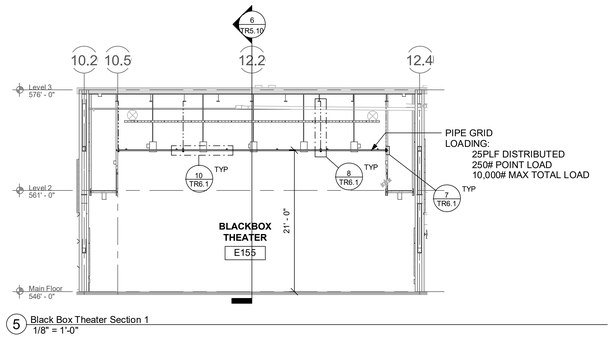
2 Auditorium Stage - Transverse Section @ Electric Batten
1/8" = 1'-0"



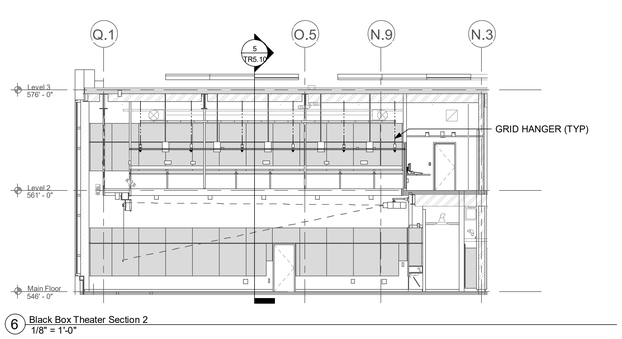
3 Auditorium Stage - Loading Diagram
1/8" = 1'-0"



4 Auditorium Stage - Transverse Section @ Acoustic Ceiling Panel
1/8" = 1'-0"



5 Black Box Theater Section 1
1/8" = 1'-0"



6 Black Box Theater Section 2
1/8" = 1'-0"

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Doherty Memorial High School

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DRAWING TITLE

Theatrical Rigging Sections

Locus Map

Key Plan

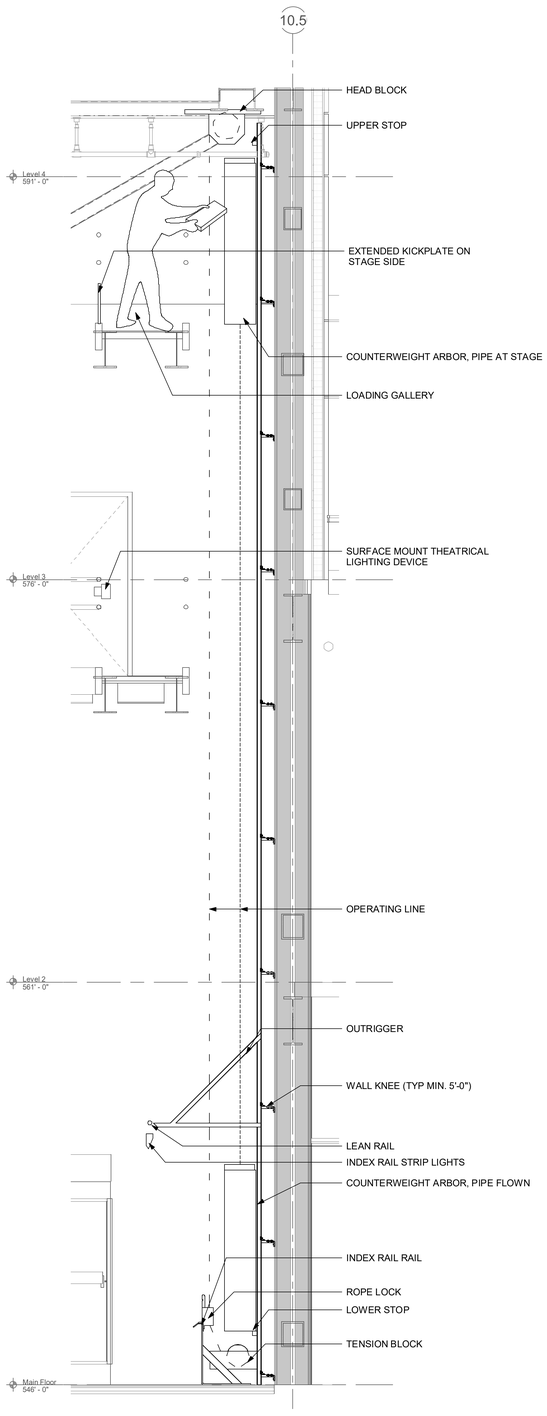
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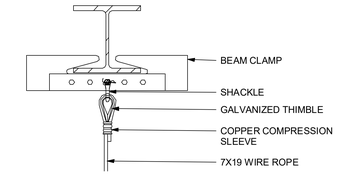
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DWN. BY: Author
CKD. BY: Checker
DATE: January 20, 2022

TR5.10

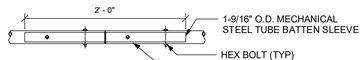
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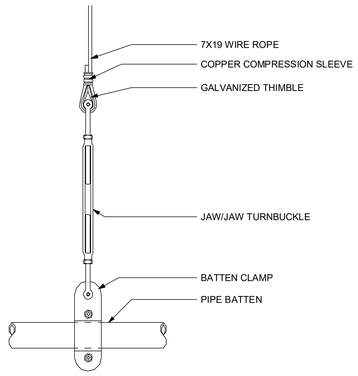
1 Auditorium Rigging Wall Detail Section
1/2" = 1'-0"



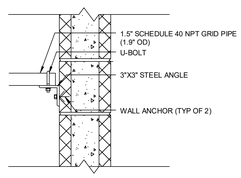
2 Dead Hung Batten Termination
3" = 1'-0"



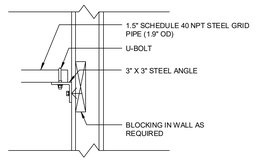
3 Batten Sleeve Detail (Typ)
1 1/2" = 1'-0"



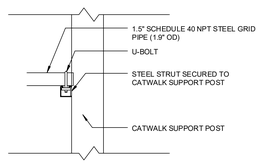
4 Batten Termination - Pipe Clamp
3" = 1'-0"



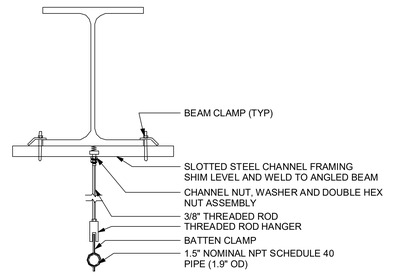
5 Grid Stabilizer - CMU Wall
1 1/2" = 1'-0"



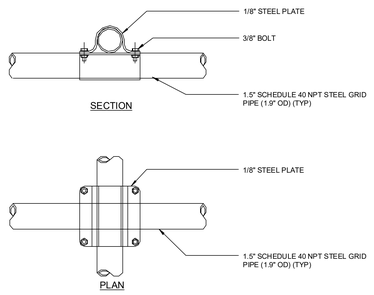
6 Grid Stabilizer - Stud Wall
1 1/2" = 1'-0"



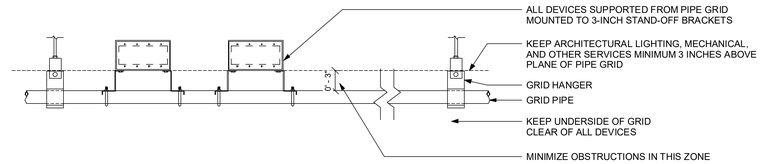
7 Grid Stabilizer - Catwalk Support
1 1/2" = 1'-0"



8 Pipe Grid Hanger From Beam (Typ.)
1 1/2" = 1'-0"



9 Grid Overlap Clamp
3" = 1'-0"



10 Pipe Grid Coordination Detail
1 1/2" = 1'-0"

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DRAWING TITLE

Theatrical Rigging Details

Locus Map

Key Plan

REVISIONS

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TR6.1

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