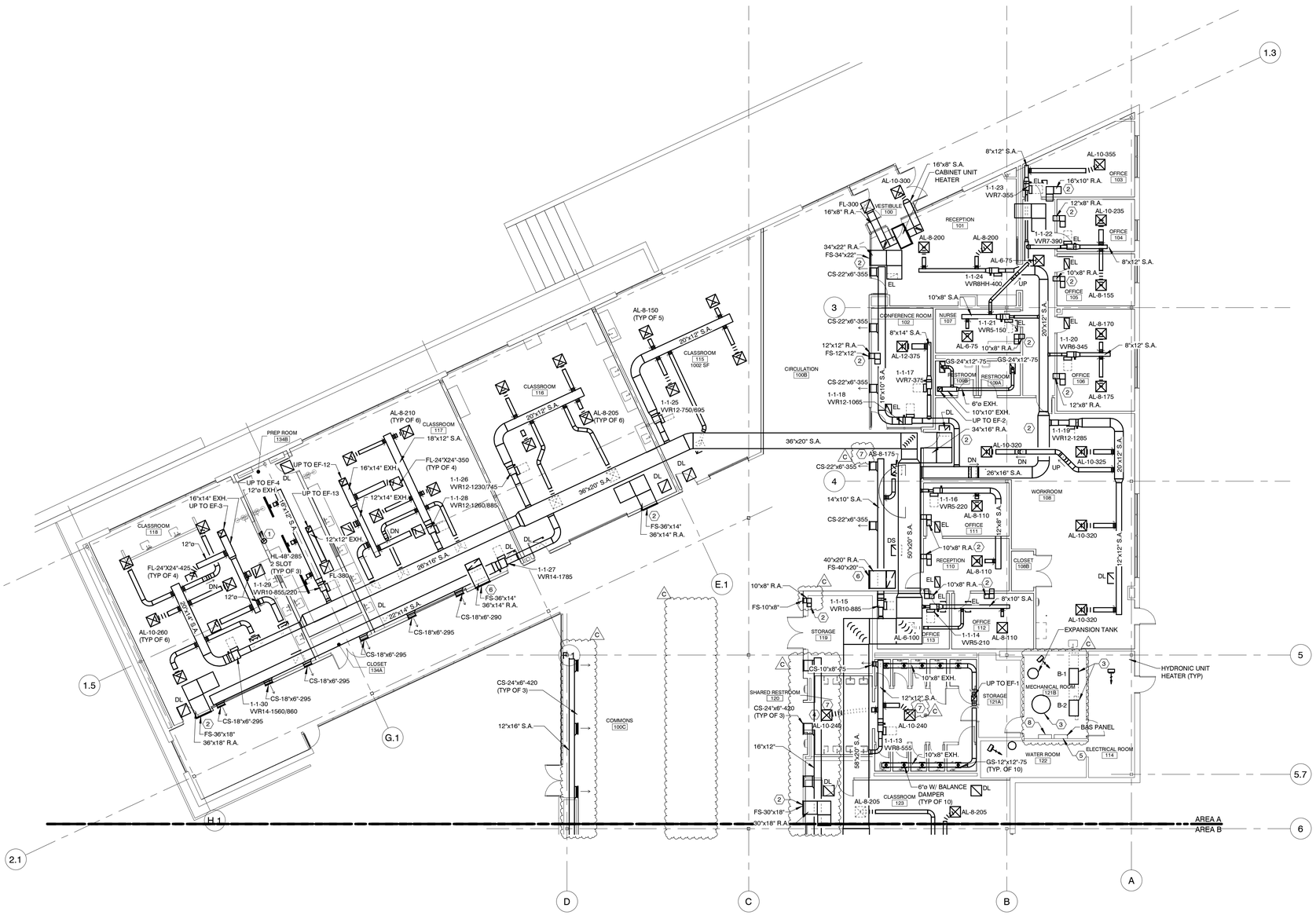

1 **LEVEL 1 MECHANICAL PLAN AREA A**
SCALE: 3/32" = 1'-0"

GENERAL NOTES

1. DDC SPACE TEMPERATURE AND HUMIDITY SENSORS ARE SHOWN ON THE MECHANICAL PIPING PLAN FOR CLARITY.
2. ALL DUCTWORK IN EXPOSED AREAS TO BE TIGHT TO JOIST/BEAMS.
3. LOW PRESSURE DUCTWORK IN EXPOSED AREAS TO BE LINED. PROVIDE K-27 FOR EXPOSED MEDIUM PRESSURE DUCTWORK. ALL DUCTWORK IN EXPOSED AREAS TO BE CLEANED AND PREPPED FOR PAINTING. PAINTING TO BE DONE BY GENERAL CONTRACTOR.

CODED NOTES

1. EXHAUST DUCT FROM FUME HOOD UP TO EXHAUST FAN ON ROOF.
2. LINED TRANSFER DUCT. REFER TO DETAIL ON M801.
3. PROVIDE COMBUSTION AIR DUCT AND EXHAUST FLUE UP THROUGH ROOF PER MANUFACTURERS RECOMMENDATIONS.
4. DUCT TO BE RAN IN BETWEEN JOIST.
5. BAS PANEL TO TIE INTO EXISTING CONTROLS FROM CLARK STATE FACILITY. CONTRACTOR TO COORDINATE WITH CLARK STATE.
6. LINED TRANSFER DUCT IN JOIST SPACE. TRANSFER DUCT TO TURN DOWN VERTICALLY.
7. PROVIDE YOUNG REGULATOR. MOUNT IN DIFFUSER.
8. TEMPERATURE CONTROL CONTRACTOR TO FURNISH AND INSTALL TEMPERATURE CONTROL CABINET. CONTRACTOR TO FURNISH RELAY CONTACTS FOR ALL SINGLE PHASE EXHAUST FAN MOTORS. RELAY CONTACT TO HAVE MANUAL BYPASS. ALL INTERNAL WIRING TO BE DONE BY CONTROLS CONTRACTOR.

△C

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HAWA engineers

EDGE PLANNING LANDSCAPE ARCHITECTURE URBAN DESIGN

Jezerinac Geers Structural Engineering

MARKER

GLOBAL IMPACT STEM ACADEMY
GISA - UPPER CAMPUS

PROJECT ADDRESS
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LEVEL 1 MECHANICAL PLAN - AREA A

M100

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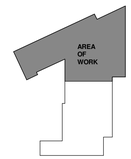
HAWA PROJECT No.	DRAWN BY
22124	TSK
DESIGNED BY	CHECKED BY
J.J. PORTER, P.E.	NBH



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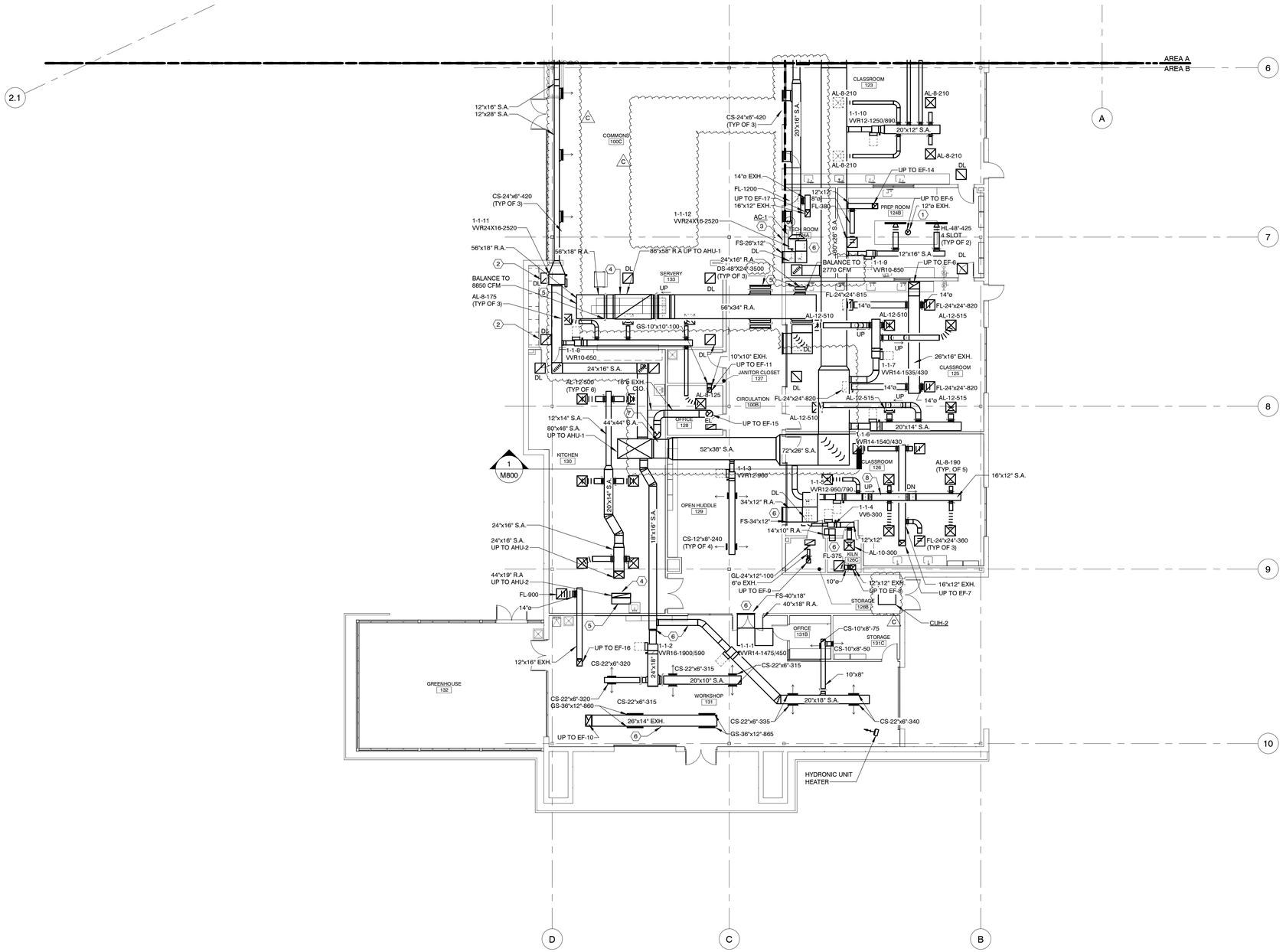

1 **LEVEL 1 MECHANICAL PLAN AREA B**
SCALE: 3/32" = 1'-0"

GENERAL NOTES

1. DDC SPACE TEMPERATURE AND HUMIDITY SENSORS ARE SHOWN ON THE MECHANICAL PIPING PLAN FOR CLARITY.
2. ALL DUCTWORK IN EXPOSED AREAS TO BE TIGHT TO JOIST/BEAMS.
3. LOW PRESSURE DUCTWORK IN EXPOSED AREAS TO BE LINED. PROVIDE K-27 FOR EXPOSED MEDIUM PRESSURE DUCTWORK. ALL DUCTWORK IN EXPOSED AREAS TO BE CLEANED AND PREPPED FOR PAINTING. PAINTING TO BE DONE BY GENERAL CONTRACTOR.

CODED NOTES

1. EXHAUST DUCT UP FROM FUME HOOD TO EXHAUST FAN ON ROOF.
2. LINED TRANSFER DUCT ON RETURN GRILLE. SEE DETAIL ON M801.
3. REFRIGERANT LINES ROUTED FROM AC-1 UP TO CU-1 MOUNTED ON ROOF.
4. ALL RETURN DUCT TO BE LINED.
5. COVER DUCT OPENING WITH 1/2" WIRE MESH.
6. LINED TRANSFER DUCT. REFER TO DETAIL ON M801.
7. 16" EXH DN TO KITCHEN HOOD. CONNECT TO HOOD PER MANUFACTURERS RECOMMENDATIONS.
8. DUCT TO BE RAN IN BETWEEN JOIST.

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LEVEL 1 MECHANICAL PLAN - AREA B

M101

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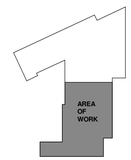

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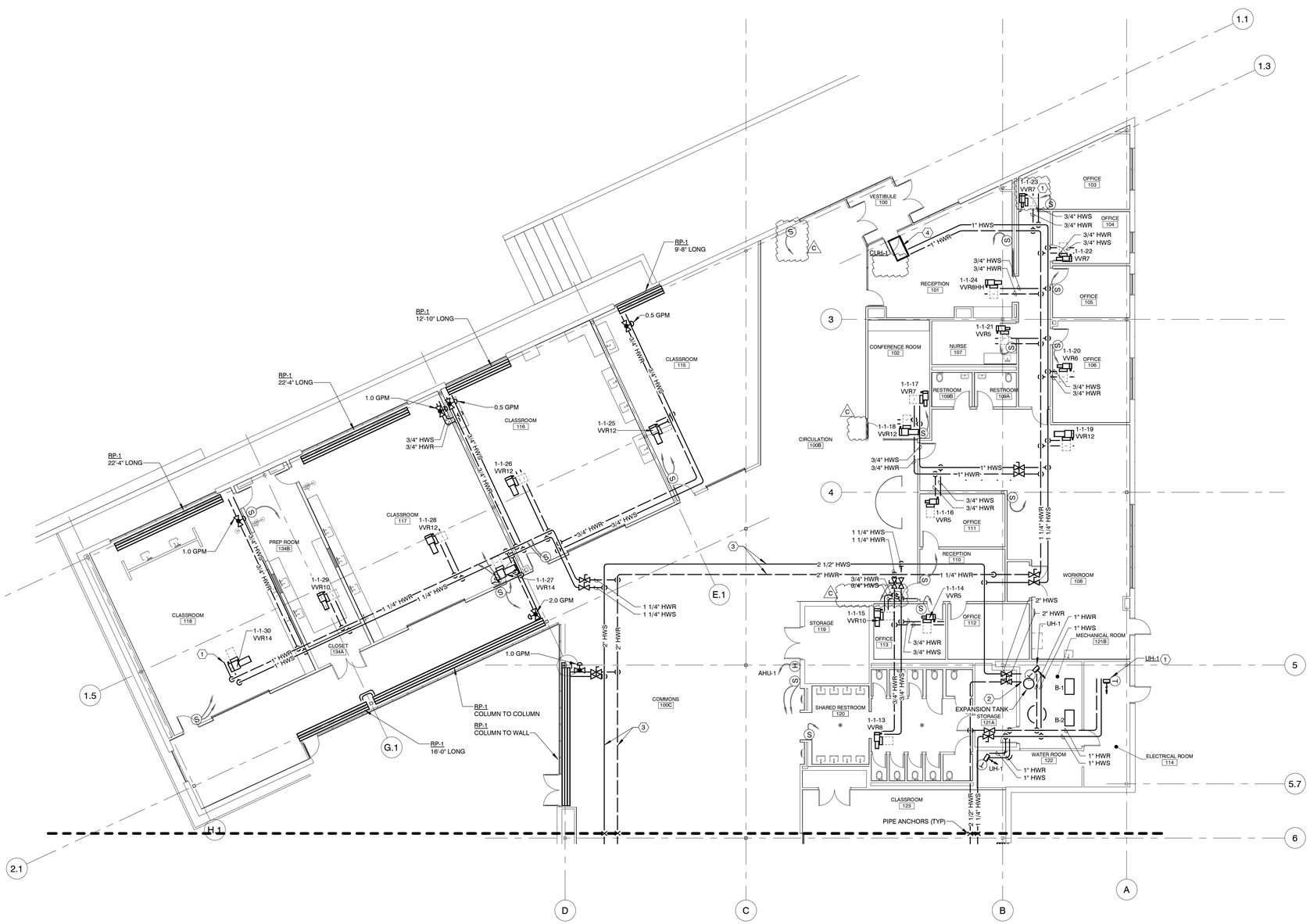

1 **LEVEL 1 MECHANICAL PIPING - AREA A**
SCALE: 3/32" = 1'-0"

GENERAL NOTES

1. ALL PIPING IN EXPOSED AREAS TO BE CLEANED AND PREPPED FOR PAINTING. PAINTING TO BE DONE BY GENERAL CONTRACTOR.

CODED NOTES

1. PROVIDE BOX WITH 3-WAY CONTROL VALVE. REFER TO PIPING DIAGRAM ON SHEET M801.
2. HWS & HWR TO MECHANICAL ROOM. SEE PIPING SCHEMATIC ON SHEET M802 FOR CONTINUATION.
3. RUN PIPE IN JOIST SPACE.
4. CUH SENSOR TO BE MOUNTED IN RETURN DUCT.

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AREA OF WORK

N **KEY PLAN**
SCALE: NTS

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LEVEL 1 MECHANICAL PIPING PLAN - AREA A

M150

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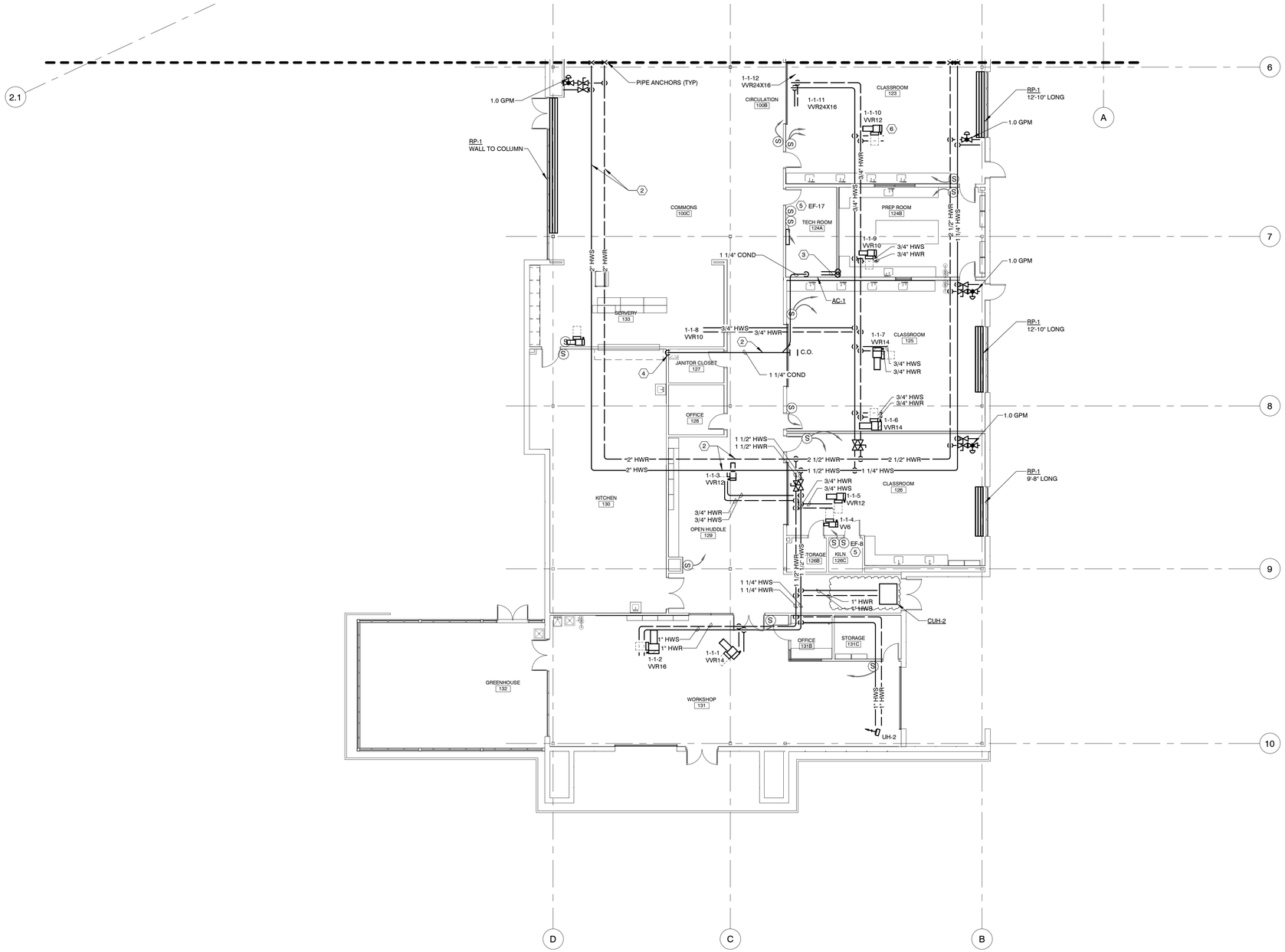

1 **LEVEL 1 MECHANICAL PIPING - AREA B**
SCALE: 3/32" = 1'-0"

GENERAL NOTES

1. ALL PIPING IN EXPOSED AREAS TO BE CLEANED AND PREPPED FOR PAINTING. PAINTING TO BE DONE BY GENERAL CONTRACTOR.

CODED NOTES

1. PROVIDE BOX WITH 3-WAY CONTROL VALVE. REFER TO PIPING DIAGRAM ON SHEET M801.
2. RUN PIPE IN JOIST SPACE.
3. EXTEND REFRIGERANT AND LIQUID SUCTION LINES TO CONDENSING UNIT SHOWN ON ROOF PLAN M201. PIPE SIZE PER MANUFACTURERS RECOMMENDATION.
4. 1 1/4" D TO JANITORS RECEPTOR.
5. TEMPERATURE SENSOR INTERLOCKED WITH EXHAUST FAN.

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LEVEL 1 MECHANICAL PIPING PLAN - AREA B

M151

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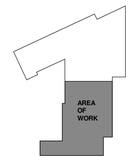

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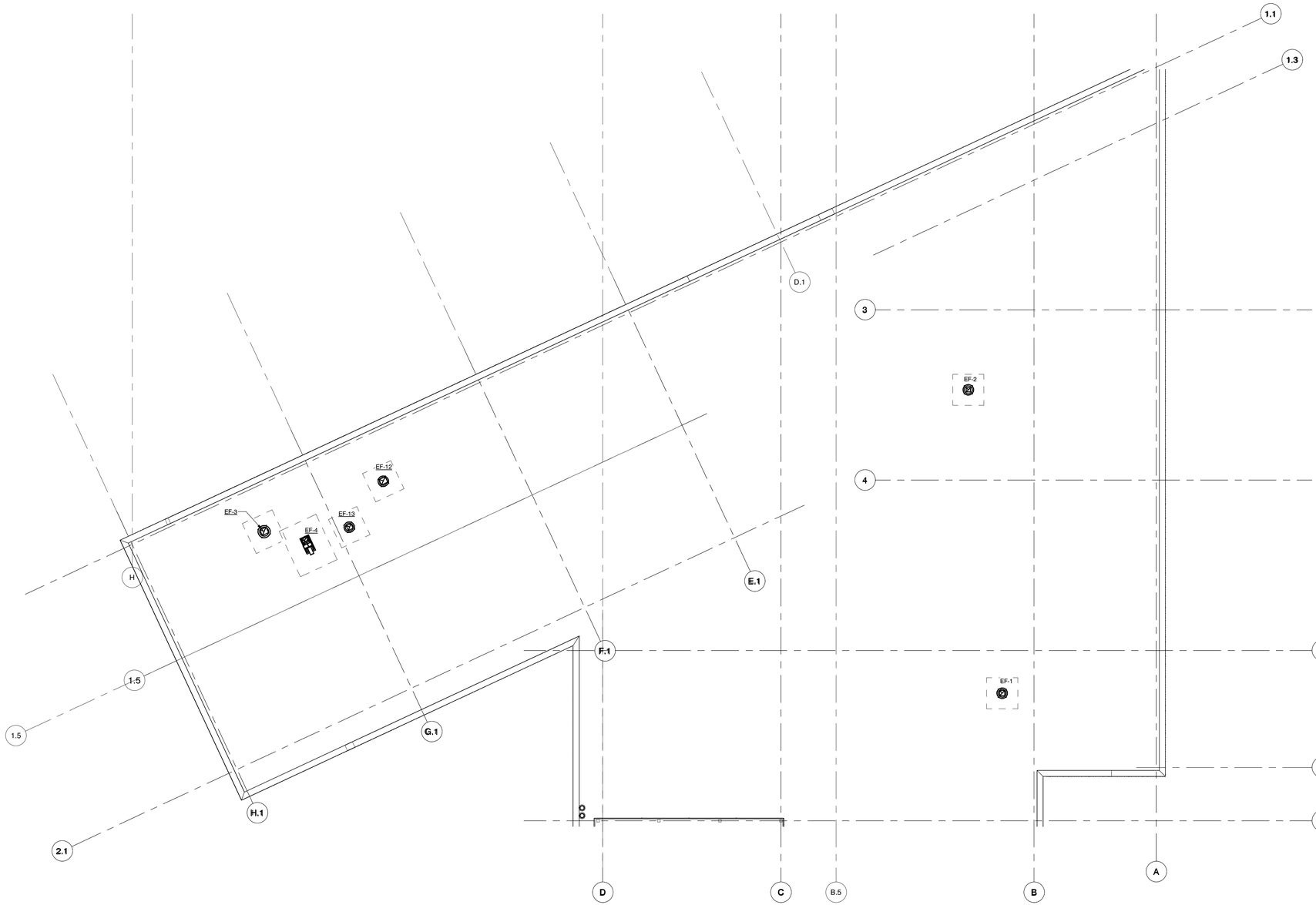

1 **ROOF PLAN AREA A**
SCALE: 3/32" = 1'-0"

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SCALE: NTS

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STATE OF OHIO
JAMES J. PORTER
E-70794
REGISTERED
PROFESSIONAL ENGINEER

PERMIT SET

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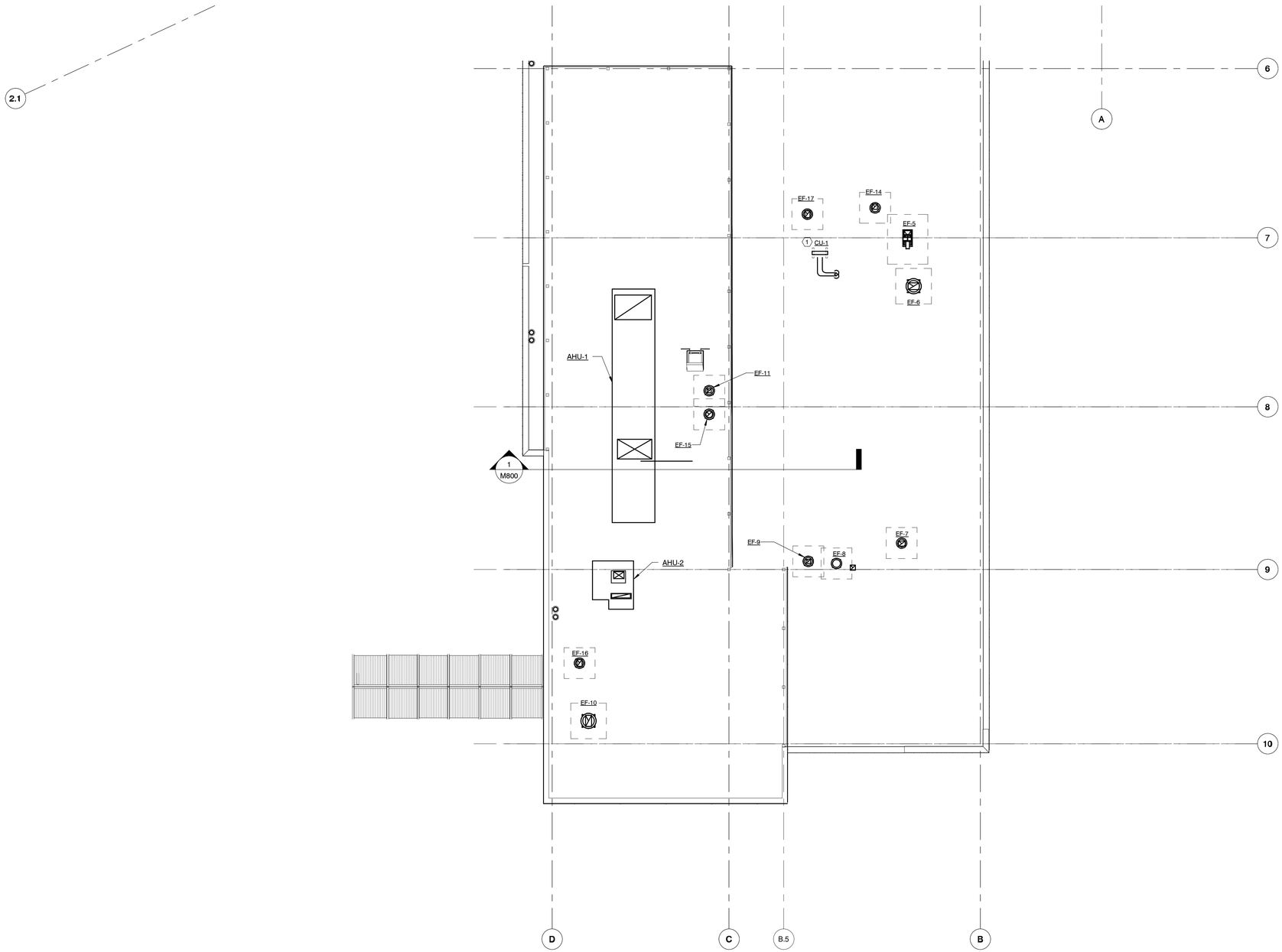
ROOF MECHANICAL PLAN - AREA A

M200



1 **ROOF PLAN AREA B**
SCALE: 3/32" = 1'-0"

CODED NOTES

1. MOUNT ON PATE TYPE CURB SIMILAR TO ES-1.
2. PROVIDE CURB FOR RTU. CONDENSTATE TO SPLASH BLOCK ON ROOF.

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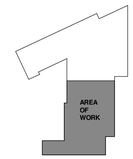

N **KEY PLAN**
SCALE: NTS

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ROOF MECHANICAL PLAN - AREA B

M201

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PACKAGED AIR HANDLING UNIT SCHEDULE

ALL EQUIPMENT BASED ON DAIKIN, UNLESS OTHERWISE SPECIFIED

UNIT			SUPPLY FAN DATA						RETURN FAN DATA							COMPRESSOR				COOLING COIL DATA						GAS HEAT DATA				HOT GAS REHEAT DATA				GENERAL INFORMATION				
UNIT NUMBER	LOCATION AREA SERVED	MODEL NUMBER	FAN QUANTITY	CFM	TSP	ESP	RPM	MOTOR HP (EA)	BHP (EA)	FAN QUANTITY	CFM	TSP	ESP	RPM	MOTOR HP (EA)	BHP (EA)	HP (EA.)	No. of. COMP.	FLA (EA.)	No. of STAGES	EDB (°F) EWB(°F)	LDB (°F) LWB (°F)	SENS MBH	TOTAL MBH	SQ. FT. COIL	AIR PRESS DROP.	FACE VEL	MBH INPUT	MBH OUTPUT	MODULATION	HEAT EXCHANGER MATERIAL	MBH TOTAL CAP.	EDB (°F)	LDB (°F)	AIR PRESS DROP.	VOLT.	PHASE	MCA	MROPD	FILTER AREA SQ. FT.	REMARKS
AHU-1	LABS/GENERAL OFFICE	RPS110D	1	31,000	5.58	2.50	1027	50	38.88	1	27,900	1.5	1.5	743	20	13.32	-	6	26.9	6	79.0 / 65.1	53.1 / 52.7	878	1135	75.9	0.39"	408.4	625	500	20:1	SS	569	53.1	70.0	0.22"	460	3	275.5	300	56.0	20% OA, SPRING ISOLATED RAILS (2" DEFLECTION SPRINGS)
AHU-2	KITCHEN	DPS015A	1	3,000	2.46	1.50	2666	4	1.85	-	-	-	-	-	-	-	-	2	7.9 / 12.8	VARIABLE COMPRESSOR	95.0 / 76.0	58.6 / 58.6	119	187	15.4	0.2"	194.4	300	240	10:1	SS	37	58.6	70.0	0.04"	460	3	30.2	40	18.0	SINGLE ZONE VAV, 100% O.A. W/ R.A. DURING UNOCCUPIED TIMES

FAN SCHEDULE

MANUFACTURER'S MODEL NUMBER BASED ON GREENHECK UNLESS OTHERWISE NOTED.
KEY: CENT. CENTRIFUGAL: PROP. PROPELLER: F.C. FORWARD CURVED; B.I.-BACKWARD INCLINE; A.F.-AIR FOIL; A.T.L.-ACROSS THE LINE; VFD-VARIABLE FREQUENCY DRIVE

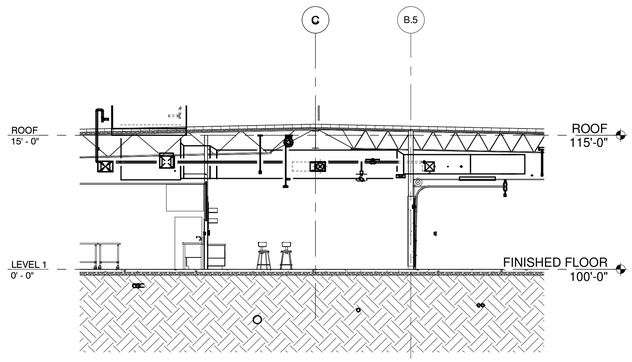
UNIT DWSIGNATION	FUNCTION	LOCATION	MFGR. MODEL NUMBER	FAN TYPE	WHEEL TYPE & SIZE	CFM	E.S.P. "W.G.	R.P.M.	TIP SPEED F.P.M.	OUTLET VELOCITY F.P.M	MAX. SOUND RATING (SONES)	MOTOR H.P.	BHP REQ'D	VOLT / PHASE	TYPE MOTOR STARTING	DAMPER GRAVITY	DAMPER MOTOR OPERATED	DRIVE BELT	DRIVE DIRECT	REMARKS
EF-1	SHARED RESTROOMS (120)	ROOF	G-099-VG	CENT.	B.I. & 11 1/8"	750	0.5"	1384	4,053	781	9.1	1/4	0.13	115 / 1	ATL		X		X	
EF-2	SINGLE RESTROOM (109)	ROOF	G-097-VG	CENT.	B.I. 11 1/8"	150	0.5"	1325	3,882	182	6.3	1/4	0.06	115 / 1	ATL		X		X	INTERLOCKED WITH AHU-1
EF-3	CHEMISTRY LAB (118)	ROOF	G-140-VG	CENT.	B.I. 14 5/8"	1700	0.5"	1156	4,427	1288	9.8	1/2	0.32	115 / 1	ATL		X		X	OCCUPANCY SENSOR
EF-4*	PREP HOOD (134B)	ROOF	FJI-08-BI-X	CENT.	B.I. 8"	620	0.5"	2097	5,763	1206	19.3	1/3	0.23	460 / 3	ATL		X	X		WALL SWITCH
EF-5*	PREP HOOD (124B)	ROOF	FJI-08-BI-X	CENT.	B.I. 8"	620	0.5"	2097	5,763	1206	19.3	1/3	0.23	460 / 3	ATL		X	X		C WALL SWITCH
EF-6	ENVIRO LAB (125)	ROOF	G-200-VG	CENT.	B.I. 21 3/8"	3275	0.5"	788	4,407	1370	10.5	1	0.59	115 / 1	ATL		X		X	OCCUPANCY SENSOR
EF-7	ART CLASSROOM (126)	ROOF	G-120-VG	CENT.	B.I. 13"	1080	0.5"	1188	4,062	1161	8.6	1/2	0.16	115 / 1	ATL		X		X	OCCUPANCY SENSOR
EF-8	KILN (126C)	ROOF	G-098-VG	CENT.	B.I. 11 1/8"	375	0.5"	1725	3,579	391	6.2	1/4	0.07	115 / 1	ATL		X		X	WALL SWITCH, TEMP CONTROLLED
EF-9	STORAGE/DARK ROOM (126B)	ROOF	G-097-VG	CENT.	B.I. 11 1/8"	100	0.5"	1134	3,320	104	4.6	1/4	0.03	115 / 1	ATL		X		X	CONTINUOUS OPERATION
EF-10	AG LAB (131)	ROOF	G-200-VG	CENT.	B.I. 21 3/8"	3450	0.5"	811	4,536	1444	11.2	1	0.64	115 / 1	ATL		X		X	OCCUPANCY SENSOR
EF-11	JANITORS CLOSET (127)	ROOF	G-097-VG	CENT.	B.I. 11 1/8"	100	0.5"	1134	3,320	104	4.6	1/4	0.03	115 / 1	ATL		X		X	INTERLOCKED WITH AHU-1
EF-12	PHYSICAL SCIENCE LAB (117)	ROOF	G-120-VG	CENT.	B.I. 13"	1410	0.5"	1399	4,785	1516	12.2	1/2	0.26	115 / 1	ATL		X		X	OCCUPANCY SENSOR
EF-13	PREP (134B)	ROOF	G-098-VG	CENT.	B.I. 11 1/8"	380	0.5"	1226	3,592	396	6.2	1/4	0.07	115 / 1	ATL		X		X	INTERLOCKED WITH AHU-1
EF-14	PREP (124B)	ROOF	G-098-VG	CENT.	B.I. 11 1/8"	380	0.5"	1226	3,592	396	6.2	1/4	0.07	115 / 1	ATL		X		X	C INTERLOCKED WITH AHU-1
EF-15**	KITCHEN HOOD (130)	ROOF	DU180HFA	CENT.	-	2400	1.5"	1190	-	554	14.8	1 1/2	1.245	460 / 3	ATL		X	X		PUSHBUTTON, BASED ON CAPTIVEAIRE
EF-16	KITCHEN (130)	ROOF	G-100-VG	CENT.	B.I. 11 1/8"	900	0.5"	1392	4055	1000	7.7	1/4	0.18	115 / 1	ATL		X		X	INTERLOCKED WITH AHU-2 C
EF-17	DATA ROOM (124A)	ROOF	G-120-VG	CENT.	B.I. 13"	1200	0.5"	1263	4318	1290	9.7	1/2	0.19	115 / 1	ATL		X		X	TEMPERATURE CONTROLLED

NOTE: * EXHAUST FAN TO BE CHEMICAL COATED. DUCTWORK TO BE 304 STAINLESS STEEL.
** EXHAUST FAN FURNISHED WITH KITCHEN HOOD.

PUMP SCHEDULE

MANUFACTURER'S MODEL NUMBER BASED ON GRUNDFOS UNELSS OTHERWISE NOTED
KEY: CC-CLOSE COUPLED END SUCTION; F.C.-FLEXIBLE COUPLED END SUCTION; A.T.L.-ACROSS THE LINE
H.S.C.-FLEXIBLE COUPLED HORIZONTAL SPLIT CASE; I.L.-IN LINE; VFD-VARIABLE FREQUENCY DRIVE

UNIT DESIGNATION	FUNCTION	LOCATION	MFGR. MODEL NUMBER	TYPE	GPM	FT. HD.	EFF. %	SUCT. SIZE	DISCH. SIZE	MOTOR H.P.	BHP REQ'D.	VOLT / PHASE	TYPE MOTOR STARTING	REMARKS
P-1	PRIMARY	MECHANICAL ROOM	VL 12707	I.L.	25	20	51%	1 1/4"	1 1/4"	1/2	0.25	208 / C 3	ATL	OPERATING
P-2	PRIMARY	MECHANICAL ROOM	VL 12707	I.L.	25	20	51%	1 1/4"	1 1/4"	1/2	0.25	208 / 3	ATL	OPERATING
P-3	SECONDARY	MECHANICAL ROOM	VL 2095A	I.L.	65	50	45%	2"	2"	3	1.81	460 / 3	ATL	OPERATING
P-4	SECONDARY	MECHANICAL ROOM	VL 2095A	I.L.	65	50	45%	2"	2"	3	1.81	460 / 3	ATL	STAND BY



1 **AHU-1 SUPPLY DUCT**
SCALE: 1/8" = 1'-0"

AIR TERMINAL SCHEDULE

TYPE OF OUTLET — AL - 8 - 300 — AIR QUANTITY IN C.F.M (DIFF. & REG. ONLY)
L - LAY-IN
S - SURFACE MOUNTED
SIZE OF OUTLET (NECK SIZE DIAMETER FOR DIFFUSERS) INLET DUCT SAME SIZE UNLESS NOTED OTHERWISE. FOR LINEAR DIFFUSERS INDICATES LENGTH.

TYPE	DESCRIPTION
A	SQUARE CEILING SUPPLY AIR DIFFUSER (24"x24" CEILING MODULE SIZE, STEEL) - TITUS TMSA
B	SQUARE CEILING SUPPLY AIR DIFFUSER (12"x12" CEILING MODULE SIZE FOR SURFACE MOUNTED, STEEL) - TITUS TMSA
C	SUPPLY AIR REGISTER (NECK SIZE FOR SURFACE MOUNTED PER DRAWINGS, STEEL) - TITUS 300RL WITH OPPOSED BLADE DAMPER (AG-15)
D	RETURN, RELIEF, AND EXHAUST AIR GRILLE (24"x24" CEILING MODULE SIZE FOR LAY-IN, NECK SIZE FOR SURFACE MOUNTED, UNLESS INDICATED OTHERWISE ON DRAWINGS, STEEL) - TITUS 350RL
E	RETURN, RELIEF, AND EXHAUST AIR GRILLE (24"x12" CEILING MODULE SIZE FOR LAY-IN, NECK SIZE FOR SURFACE MOUNTED, UNLESS INDICATED OTHERWISE ON DRAWINGS, STEEL) - TITUS 350RL
F	RETURN AND EXHAUST REGISTERS (24"x24" CEILING MODULE SIZE FOR LAY-IN, NECK SIZE FOR SURFACE MOUNTED PER DRAWINGS, STEEL) - TITUS 350RL WITH OPPOSED BLADE DAMPER (AG-15)
G	RETURN AND EXHAUST REGISTERS (CEILING MODULE SIZE FOR LAY-IN, NECK SIZE FOR SURFACE MOUNTED PER DRAWINGS, STEEL) - TITUS 350RL WITH OPPOSED BLADE DAMPER (AG-15)
H	LINEAR CEILING SUPPLY AIR DIFFUSER 1" SLOTS. TITUS ML-39 ALUMINUM. 14" TALL x 10" DEEP LINED PLENUM TO BE INSTALLED ON ALL LINEAR DEVICES SPANNING ENTIRE LENGTH.

CABINET UNIT HEATER SCHEDULE

MFGR'S. MODEL NO. BASED ON DAIKIN UNLESS OTHERWISE NOTED. CAPACITIES
BASED ON 140°F EWT, 30°F. WTD AND 60°F. EAT. MAX. ALL MOTORS 115V-1Ø., 60 CYCLE.

UNIT NO.	MFGR. MODEL NUMBER	ARRANGEMENT	CAPACITY M B H	GPM	WPD FT.HD	DEPTH RECESS	HP	REMARKS
CUH-1	FHHH202	HORIZONTAL CONCEALED	13.9	1.0	0.27	-	1/20	-
C CUH-2	FHHC202	HORIZONTAL CABINET	13.4	0.9	0.16	-	1/20	-

HVAC LEGEND

SYMBOL	DESCRIPTION
	RETURN RISER
	SUPPLY RISER
	AIR VENT - PLAN VIEW
	CAPPED LINE
	RISE OR DROP
	PIPE BRANCH TOP CONNECTION
	PIPE BRANCH BOTTOM CONNECTION
	PIPE ANCHOR
	PIPE FLANGES
	PIPE GUIDE
	PIPE UNION
	FLEXIBLE PIPE CONNECTION
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	Y-TYPE STRAINER
	PETE'S PLUG
	AUTO CONTROL VALVE
	BALL VALVE
M	BALL VALVE WITH MEMORY STOP
	GATE VALVE (SCREWED BODY)
	DRAIN VALVE W/CAPPED HOSE END
	GLOBE VALVE
	GATE VALVE (FLANGED BODY)
	COMB BALANCE AND STOP VALVE
	SOLENOID VALVE
	CHECK VALVE
	GAS COCK OR BALANCE VALVE
	METERED BALANCE VALVE
	AUTOMATIC BALANCING VALVE
	BUTTERFLY VALVE

SYMBOL	DESCRIPTION
M	BUTTERFLY VALVE WITH MEMORY STOP
T	TEMPERATURE SENSOR
F	FLOW SWITCH
	FLEXIBLE DUCT
	SPIN-IN FITTING WITH BALANCE DAMPER
	SUPPLY DUCT UP
	SUPPLY DUCT DOWN
	R.A., O.A., OR EXH. DUCT UP
	R.A., O.A., OR EXH. DUCT DOWN
	45° BOOT BRANCH TAKEOFF
	ELBOW WITH TURNING VANES
	FIRE DAMPER
	MANUAL DAMPER
A	AUTO CONTROL DAMPER
M	MOTOR OPERATED DAMPER
	ACCESS DOOR
Ø	ROUND DUCT
	FLAT OVAL DUCT
S	DDC TEMPERATURE SENSOR
T	THERMOSTAT
H	HUMIDISTAT
	THERMOMETER
	CONNECT TO EXISTING
	POINT OF DISCONNECT

	DOMESTIC COLD WATER LINE
	DRAIN LINE
HCR	HEATING WATER RETURN
HCS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
HG	HOT GAS LINE
LIQ	LIQUID LINE
COND	LOW PRESSURE CONDENSATE
NPCW	NON POTABLE COLD WATER
SUCT	REFRIGERANT SUCTION
	EXISTING WORK TO REMAIN
	EXISTING WORK TO BE REMOVED

HVAC ABBREVIATIONS

AB.	ABOVE
A.D.	ACCESS DOOR
A.F.F.	ABOVE FINISHED FLOOR
APPROX.	APPROXIMATELY
ARCH.	ARCHITECT
AUTO. CONT.	AUTOMATIC CONTROL
BSBD. RAD.	BASEBOARD RADIATION
BTM	BOTTOM
BLDG.	BUILDING
CAB.	CABINET
CAP.	CAPACITY
CLG.	CEILING
CONC.	CONCRETE
CONN.	CONNECT
CONTR.	CONTRACTOR
CONT.	CONTINUATION
CONV.	CONVECTOR
COORD.	COORDINATE
DTL.	DETAIL
DIA.	DIAMETER
DIFF.	DIFFUSER
DISCH.	DISCHARGE
DN.	DOWN
ELEC.	ELECTRICAL
ELEM.	ELEMENT
ELEV.	ELEVATION
EXH	EXHAUST
EXIST.	EXISTING
FT. HD.	FEET OF HEAD
FIN. RAD.	FINNED RADIATION
F. DPR.	FIRE DAMPER
FLEX.	FLEXIBLE
F & T	FLOAT AND THERMOSTATIC
FLR.	FLOOR
F.D.	FLOOR DRAIN
FURN.	FURNISH
GA.	GAGE
GEN.	GENERAL
GRAV.	GRAVITY
GR.	GRILLE
HTR.	HEATER
HTG.	HEATING
H & A/C	HEATING AND AIR CONDITIONING
H & C	HEATING AND COOLING
H & V	HEATING AND VENTILATING
H.V.	HIGH VELOCITY
IND. U.	INDUCTION UNIT
MAN. DPR.	MANUAL DAMPER
MFR.	MANUFACTURER
MECH.	MECHANICAL
M. A.	MIXED AIR
MTD.	MOUNTED
NOM.	NOMINAL
OPNG.	OPENING
O.A.	OUTSIDE AIR
PLBG.	PLUMBING
PRESS.	PRESSURE
P.R.V.	PRESSURE REDUCING VALVE
PROP.	PROPELLER
RAD.	RADIATOR
REFG.	REFRIGERATION
REG.	REGISTER
RHC.	REHEAT COIL
REQD.	REQUIRED
REL.	RELIEF
R.A.	RETURN AIR
RM.	ROOM
SCHED.	SCHEDULE
SHT.MTL.	SHEET METAL
SQ.	SQUARE
STAT.	THERMOSTAT
S.A.	SUPPLY AIR
S & R	SUPPLY AND RETURN
TEMP.	TEMPERATURE
THERM.	THERMOMETER
TYP.	TYPICAL
T.C.C.	TEMP CONTROL CONTRACTOR
U.H.	UNIT HEATER
U.V.	UNIT VENTILATOR
VIB. ISOL.	VIBRATION ISOLATOR
W/W	WALL TO WALL
W/	WITH

HVAC NOTES

1. ALL PIPING SHOWN IS AB. CLG. IN AREAS WITH DROPPED CLG'S., OR AT BTM. OF SUPPORT STRUCT. FOR FLR. OR ROOF AB. IN EXPOSED STRUCT. AREAS, UNLESS NOTED OTHERWISE. CONCEAL PIPING WHENEVER POSSIBLE UNLESS NOTED OTHERWISE.
2. THE HVAC CONTR. IS TO SECURE AND VERIFY ALL MEASUREMENTS AND CONDITIONS AT JOB BEFORE PROCEEDING W/FABRICATION OF WORK.
3. THE HVAC CONTR. IS TO PROVIDE ALL ADDITIONAL STEEL, HANGER MATERIALS, RODS AND CLAMPS AS REQ'D. FOR COORDINATION W/WORK OF OTHER TRADES.
4. THE HVAC CONTR. IS RESPONSIBLE FOR FIRESTOPPING AT ALL HVAC RELATED PENETRATIONS OF FIRE AND SMOKE RATED FLOORS, WALLS AND PARTITIONS. REFER TO ARCHITECTURAL FLR. PLANS FOR LOCATIONS OF ALL RATED STRUCTURES.
5. COORD. EXACT LOCATION OF ALL GAS HVAC EQUIP. CONN'S. AND MAKE-UP WATER TIE-IN POINTS WITH THE PLUMBING CONTR. IN ADVANCE.
6. COORD. EXACT LOCATION OF FLOOR AND HUB DRAINS FOR HVAC EQUIP. W/ PLBG. CONTR. PRIOR TO INSTALLATION.
7. PIPING AND DUCT LAYOUT IS ONLY SCHEMATIC, EXACT LOCATION OF PIPES AND DUCTS TO BE COORD. ON JOB W/BLDG. STRUCTURE, AND WORK OF OTHER CONTRS.
8. SUPPORT ALL PIPE AT INTERVALS PER SPECIFICATION.
9. RUN ALL WATER SUPPLY AND RETURN MAINS LEVEL UNLESS OTHERWISE NOTED.
10. RUNOUTS TO UNITS BELOW MAINS TO BE TAKEN FROM BTM. OF MAINS AT 45°, PITCH DN TO UNITS. RUNOUTS TO UNITS AB. MAINS TO BE TAKEN FROM TOP OF MAINS AT 45°, PITCH UP TO UNITS. PITCH -1" IN 10'-0".
11. RUN ALL DRAIN LINES INDIRECT TO NEAREST F.D.
12. INSTALL MANUAL AIR VENTS AS INDICATED ON ALL UP-FEED HOT WATER HEATING UNITS.
13. INSTALL MANUAL AIR VENTS AT HIGH POINTS OF SYSTEM, AS SHOWN ON DRAWINGS AND AS REQ'D. FOR PROPER AIR VENTING OF SYSTEMS.
14. INSTALL WATER BALANCING DEVICES ON ALL WATER HEATING UNITS.
15. FOR FINNED RADIATION OR RADIANT PANEL PIPING, ONLY CONTROL VALVES ARE SHOWN ON FLOOR PLANS FOR CLARITY. PROVIDE ADDITIONAL VALVING AS SHOWN ON DETAILS.
16. MBH VALUES SHOWN FOR UNIT VENTILATORS ARE EQUAL TO HEAT LOSS PLUS VENTILATION LOAD.
17. ALL DUCTS AND PIPES AB. CLG. UNLESS OTHERWISE NOTED.
18. OPNGS. THROUGH ROOF BY GEN. CONTR. FURN. AND SETTING OF PREFABRICATED CURBS AND FANS BY HVAC CONTR.
19. OFFSET DUCTS INTO JOIST SPACE FOR CLEARANCE WHERE SPACE AB. CLG. IS NOT SUFFICIENT FOR DUCTS TO CROSS OTHER DUCTS OR WORK OF OTHER CONTRS.
20. NOTIFY GEN. CONTR. OF SIZE AND LOCATION OF ALL RECESSES AND OPNGS. REQ'D FOR HVAC WORK.
21. FLASHING AND COUNTERFLASHING AT GOOSENECK BY HVAC CONTR.
22. INSTALL BALANCING DPRS. AS SHOWN AND AS REQ'D FOR PROPER BALANCING OF AIR HANDLING SYSTEMS.
23. CROSS-HATCHED DUCT TO BE LINED INSIDE W/1" THICK COATED GLASS FIBER INSUL. DUCT DIMENSION GIVEN IS ACTUAL INSIDE OPNG. AFTER INSUL. IS APPLIED AND SHALL NOT BE SMALLER.
24. PROVIDE AIRTIGHT A.D. IN DUCTS ADJACENT TO ALL AUTOMATIC DPRS. AND F. DPRS.
25. REFER TO ARCH. REFLECTED CLG. PLAN FOR EXACT LOCATION OF DIFFUSERS, GRILLES, ETC.
26. "AUTO-CONTROL" DPRS. ARE TO BE PROVIDED BY TEMP. CONTROL CONTR. ALL OTHER DPRS. INCLUDING "MOTORIZED DPRS." ARE TO BE PROVIDED BY HVAC CONTR.
27. NO DUCTS OR PIPING IS TO RUN AB. ELEC. SWITCHGEAR OR PANELS. MAKE ADJUSTMENTS NECESSARY TO REROUTE FOR ACTUAL INSTALLATION OF ELEC. EQUIP.
28. NO DUCTS OR PIPING IS TO RUN THRU OR AB. ELEC. UTILITY, TELE. EQUIP. OR ELEVATOR MACHINE RM'S. OR CLOSETS (INCLUDING ELEVATOR SHAFTS), EXCEPT FOR PIPING SERVING EQUIP. OR DEVICES FOR THAT SPECIFIC AREA. PROVIDE DRIP PANS BELOW ANY LIQUID TRANSMISSION PIPING THAT IS REQ'D. IN THESE AREAS.

RADIANT CEILING PANEL SCHEDULE

MFGR'S. MODEL NO. BASED ON AIRTEX. HEATING CAPACITIES BASED ON 140° ENTERING WATER TEMPERATURE, 30°F DROP AND 70°F AIR TEMPERATURE.

UNIT NO.	MFGR. MODEL NUMBER	CAPACITY (BTU/HR/LINEAL FOOT)	PANEL WIDTH (INCHES)	REMARKS
RP-1	HEF-2	192	18	4 TUBES PER PANEL

EQUIPMENT NOTES

BOILERS (B-1 and 2)
PATTERSON-KELLEY,MACH CONDENSING BOILER, MODEL CM-399, 399 MBH OUTPUT, 25 GPM, 140°F LWT, 30°F WTR., 1 1/2" WATER CONNECTIONS, 1" NATURAL GAS CONNECTION, 5" AIR INLET CONNECTION, 4" FLUE VENT CONNECTION, ELECTRICAL: 10A 120 V, 1 PHASE MOTOR, 300 W PHASE CONTROL POWER. PROVIDE MOTOR OPERATED DAMPER ON INTAKE AIR INTERLOCKED WITH BOILER.

TECH ROOM AIR CONDITIONING UNIT (AC-1/CU-1)
DAIKIN DUCTLESS SPLIT, AC-1 MODEL #FTK18NMVJU, 18.0 MBH SENSIBLE COOLING, 18.0 SEER, 12.5 EER, BUILT IN CONDENSATE PUMP. LOW AMBIENT CONTROL TO 0 DEGREES F, 208-230V/1PHASE, 18.3 MCA, THERMOSTAT #DTST-ONE-ADA-A WITH INTERFACE.

UNIT HEATER SCHEDULE

MANUFACTURERS MODEL NO. BASED ON DAIKIN UNLESS OTHERWISE NOTED.
CAPACITIES BASED ON 140°F EWT, 30°F WTD AND 60°F EAT. ALL MOTORS 115V, 1 PHASE

UNIT	MFGR. MODEL NUMBER	ARRANGEMENT	CAPACITY MBH	GPM	WPD FT. HD	HP	REMARKS
UH-1	UHH-18	HORIZONTAL PROJECTION	13	5	0.49	1/30	
UH-2	UHH-108	HORIZONTAL PROJECTION	81	8.1	0.85	1/8	

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C	07/13/2023	ADDENDUM C

PERMIT SET
DATE PRINTED 23 JUNE 2023
PROJECT NUMBER 202291.00

DRAWN BY: HAWA | CHECKED BY: HAWA

MECHANICAL SCHEDULES, LEGEND, NOTES, DETAILS

M800

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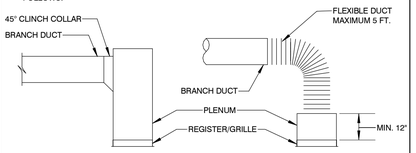
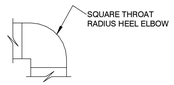
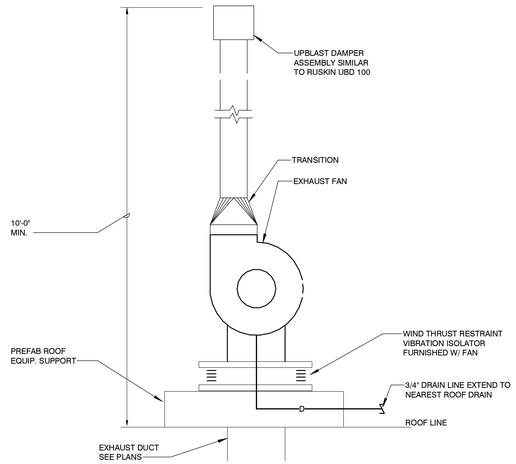
DUCT INSTALLATION NOTES

1. THE USE OF MULTI-PIECE ADJUSTABLE ANGLES AND ELBOWS IS PROHIBITED.
2. THE USE OF FLEXIBLE DUCT IS ACCEPTABLE IN LOW PRESSURE DUCT SYSTEMS. FLEXIBLE DUCT SHALL BE TERMINAL DUCT AND SHALL NOT EXCEED 5 FT. IN LENGTH ON SUPPLY AIR DUCT AND 3 FT. LENGTH ON RETURN AND EXHAUST DUCT. DO NOT MAKE MORE THAN ONE (1) 90° BEND W/ FLEXIBLE DUCT. BEND RADIUS SHALL BE MINIMUM OF TWO (2) TIMES DUCT DIAMETER. NO FLEXIBLE DUCT IS ALLOWED IN EXPOSED LOCATIONS.
   A. DUCT SHALL BE RATED FOR MINIMUM 10"W.G. INTERNAL WORKING PRESSURE, FOR ALL DUCT SIZES.
   B. VINYL, CLEAR PLASTIC OR MYLAR TYPE LINERS ARE EXPRESSLY PROHIBITED.
3. RETURN AIR AND EXHAUST GRILLES/REGISTERS SHALL BE CONNECTED TO THE BRANCH DUCT AS FOLLOWS:



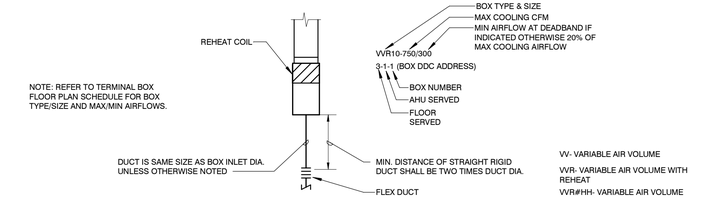
4. THE USE OF A SQUARE THROAT RADIUS HEEL ELBOW IN SUPPLY AIR, RETURN AIR, OR EXHAUST SYSTEM IS EXPRESSLY PROHIBITED.





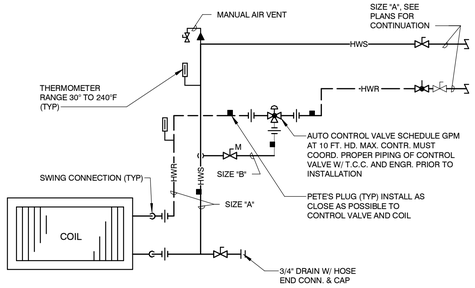
EXHAUST FAN DETAIL
NO SCALE

TERMINAL BOX MASTER SCHEDULE

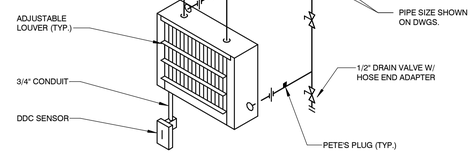


BOX TYPE & SIZE	AIR QUANTITY MAX SUPPLY CFM	MIN. AIRFLOW (CFM) (6)	VAV BOX INLET DIA. SIZE	BOX & COIL AIRSIDE△ Ps AT MAX. CFM "W.G."	MAX ALLOWABLE SOUND LEVEL (1)		REHEAT COIL (3)						DUCT SIZE (5)	PIPE SIZE	
					DISCH	RAD	GPM	ROW(S)	(2)MBH	LAT(7)	LWT	WPD FT. HD.		A	B
VVR4	140 MAX	25	4"Ø	0.05	30	<20	0.5	2	3.4	99	106	0.1	12"x8"	3/4"	3/4"
VVR5	141-230	30	5"Ø	0.10	30	<20	0.5	2	4.6	91	102	0.1	12"x8"	3/4"	3/4"
VVR6	231-350	35	6"Ø	0.30	30	<20	0.75	2	6.3	88	103	0.1	12"x8"	3/4"	3/4"
VVR7	351-480	50	7"Ø	0.30	29	<20	1.25	2	9.1	89	105	0.3	12"x10"	3/4"	3/4"
VVR8	481-625	65	8"Ø	0.37	30	<20	1.75	2	11.1	88	107	0.6	12"x10"	3/4"	3/4"
VVR10	626-900	105	10"Ø	0.37	23	<20	2.5	2	16.2	88	107	1.4	14"x12"	3/4"	3/4"
VVR12	901-1300	150	12"Ø	0.41	22	<20	3.5	2	23.0	88	107	3.1	16"x14"	3/4"	3/4"
VVR14	1301-1850	215	14"Ø	0.41	23	<20	5.0	2	33.6	88	106	2.6	20"x14"	1"	1"
VVR16	1851-2300	290	16"Ø	0.41	23	<20	6.0	2	41.5	88	106	3.8	24"x14"	1"	1"
VVR24x16	2301-3000	550	24"x16"	0.34	30	21	7.5	2	59.2	91	104	6.7	38"x14"	1"	1"
VV6	350 MAX	-	6"Ø	0.01	31	<20	-	-	-	-	-	-	12"x8"	-	-
VV8	351-625	-	8"Ø	0.01	32	<20	-	-	-	-	-	-	12"x10"	-	-
VV10	626-900	-	10"Ø	0.01	26	<20	-	-	-	-	-	-	14"x12"	-	-
VV12	901-1300	-	12"Ø	0.01	25	<20	-	-	-	-	-	-	16"x14"	-	-
VV14	1301-1850	-	14"Ø	0.01	26	<20	-	-	-	-	-	-	20"x14"	-	-
VV16	1851-2300	-	16"Ø	0.01	27	<20	-	-	-	-	-	-	24"x14"	-	-
VV24x16	2301-3000	-	24"x16"	0.01	33	23	-	-	-	-	-	-	38"x14"	-	-
VVR4HH	140 MAX	25	4"Ø	0.07	30	<20	1.0	3	7.2	102	106	0.2	12"x8"	3/4"	3/4"
VVR5HH	141-230	30	5"Ø	0.15	30	<20	1.0	3	9.8	94	100	0.2	12"x8"	3/4"	3/4"
VVR6HH	231-350	35	6"Ø	0.39	30	<20	1.25	3	12.9	89	99	0.4	12"x8"	3/4"	3/4"
VVR8HH	351-500	65	8"Ø	0.39	26	<20	2.0	3	18.7	89	101	1.0	12"x10"	3/4"	3/4"
VVR10HH	501-725	105	10"Ø	0.39	23	<20	2.5	3	26.4	89	99	0.7	14"x12"	3/4"	3/4"
VVR12HH	726-1000	150	12"Ø	0.40	20	<20	3.0	3	35.3	87	96	1.2	16"x14"	3/4"	3/4"
VVR14HH	1001-1400	215	14"Ø	0.39	21	<20	4.0	3	50.0	88	95	1.3	20"x14"	1"	1"
VVR16HH	1401-1750	290	16"Ø	0.39	22	<20	5.0	3	62.5	88	95	1.4	24"x14"	1"	1"
VVR24x16HH	1751-2600	550	24"x16"	0.39	28	21	6.0	3	91.3	87	89	2.2	38"x14"	1"	1"

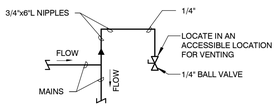
1. MAX. ALLOWANCE AIRBORNE SOUND LEVEL (NC) BASED ON 1.5" INLET STATIC PRESSURE. AHRI 885-2008.
2. VVR REHEAT CAPACITIES BASED ON 50% MAX. AIRFLOW, HIGH HEAT BOXES, VVR##HH CAPACITIES BASED ON 100% MAX AIRFLOW. MINIMUM AIRFLOW AT DEADBAND 20% OF MAXIMUM COOLING AIRFLOW UNLESS INDICATED OTHERWISE.
3. COIL SELECTION BASED ON 120°F EWT AND 55°F EAT.
4. ALL BOXES HAVE 2-WAY VALVE CONTROL UNLESS NOTED OTHERWISE.
5. LOW PRESSURE DUCT SIZE UNLESS NOTED OTHERWISE.
6. MIN. AIRFLOW IS THE LOWEST CONTROL POINT REQUIRED OF BOX CONTROLLER FOR STABLE OPERATION DURING DEADBAND.
7. LEAVING AIR TEMPERATURE LISTED BASED ON 2-ROW COIL UNLESS INDICATED OTHERWISE. FOLLOW SEQUENCES FOR MAXIMUM DISCHARGE AIR TEMPERATURE.



REHEAT COIL PIPING
NOT TO SCALE



HORIZONTAL PROJECTION UNIT HEATER PIPING
NOT TO SCALE



MANUAL AIR VENT PIPING DETAIL
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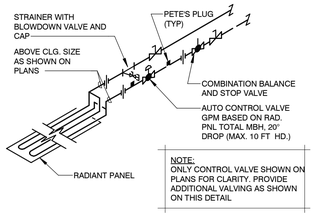
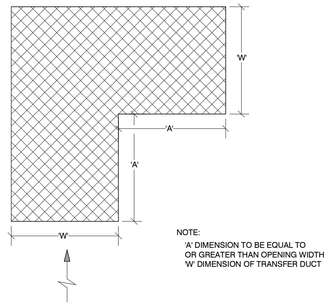


HYDRONIC RADIANT PANEL PIPING
SCALE: N.T.S.



LINED RETURN AIR TRANSFER DUCT DETAIL
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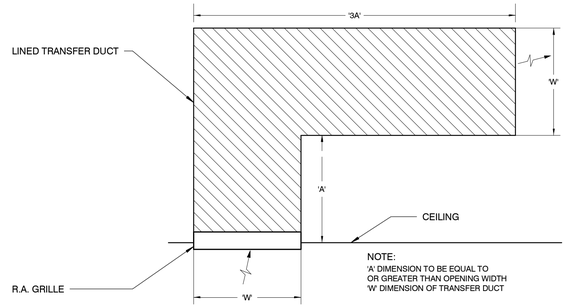

LINED TRANSFER AIR DUCT ON RETURN AIR GRILLE DETAIL
NOT TO SCALE:

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HAWA engineers
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PERMIT SET
DATE PRINTED
23 JUNE 2023
PROJECT NUMBER
202291.00

DRAWN BY: HAWA | CHECKED BY: HAWA

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HAWA PROJECT No: 22124
DESIGNED BY: J.J. PORTER, P.E.
DRAWN BY: TSK
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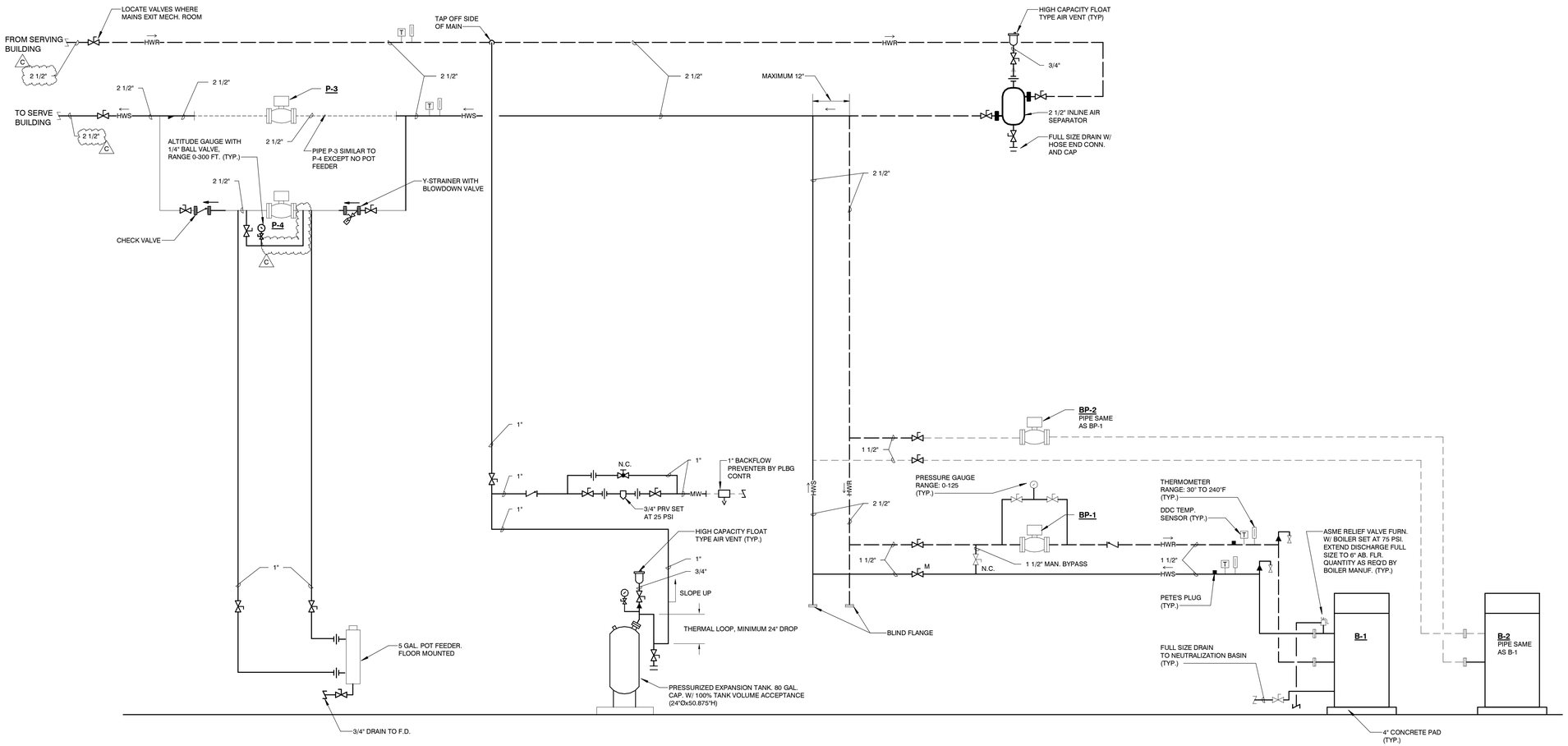
MECHANICAL SCHEDULES, DETAILS

M801



HEATING WATER PIPING SCHEMATIC

NOT TO SCALE

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EDGE PLANNING LANDSCAPE ARCHITECTURE URBAN DESIGN

Jezerinac Geers Structural Engineering

MARKER

GLOBAL IMPACT STEM ACADEMY

GISA - UPPER CAMPUS

PROJECT ADDRESS

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