

PLUMBING LEGEND

PIPING

SYMBOL	ABBREVIATION	DESCRIPTION	SYMBOL	ABBREVIATION	DESCRIPTION
FIRE PROTECTION PIPING:					
	F	FIRE SPRINKLER SUPPLY			PIPING UP
PLUMBING PIPING:					
	CM	POTABLE COLD WATER			PIPING DOWN
	HM	POTABLE HOT WATER			SLOPE OF PIPE IN DECIMALS OF FEET
	HR	POTABLE HOT WATER RETURN			CAPPED PIPE
	TM	POTABLE TEMPERED HOT WATER			PIPE REDUCING FITTINGS: CONCENTRIC, ECCENTRIC
	NP	NON-POTABLE COLD WATER			DIRECTION OF FLOW
	W	SANITARY WASTE		COTG, FCO	CLEANOUT TO GRADE, FLOOR CLEANOUT
	PM	PUMPED WASTE		WCO	WALL CLEANOUT
	V	VENT		FD	FLOOR DRAIN
	D	DRAIN		DV	DRAIN VALVE
HYDRONIC PIPING (REFERENCE ONLY):					
	HS	HEATING WATER SUPPLY PIPING		HB	HOSE BIBB
	HR	HEATING WATER RETURN PIPING			UNION
FUEL PIPING:					
	G	NATURAL GAS (#=SUPPLY PRESSURE)			FLEXIBLE PIPE CONNECTION
		THERMOMETER		P	PUMP
		PRESSURE GAUGE			WYE STRAINER
		TEST PLUG			WATER HAMMER ARRESTOR
		FLOW METER (POOL)		BV	BALL VALVE
		WATER FLOW SWITCH (AFS)		BFV	BUTTERFLY VALVE
		SENSOR WELL		CV	CHECK VALVE
		METER, SELF-CONTAINED		GV	GATE VALVE
		REDUCED PRESSURE BACKFLOW PREVENTER		PRV	PRESSURE REGULATING VALVE
		DOUBLE CHECK BACKFLOW PREVENTER		FMS	FLOW MEASURING STATION
				PV	ECCENTRIC PLUG VALVE, HOT WATER REGULATOR VALVE
				RV	RELIEF VALVE
				TPS	TEMPERATURE/PRESSURE SAFETY VALVE
				ES	EMERGENCY SHOWER/EYEWASH STATION
				VTR	VENT THROUGH ROOF

GENERAL

SYMBOL	ABBREVIATION	DESCRIPTION
	(E)	EXISTING
	Ø OR dia	DIAMETER
		NEW TO EXISTING POINT OF CONNECTION
		NOTE REFERENCE MARKER
	PLAN OR DETAIL NUMBER, SHEET NUMBER	PLAN OR DETAIL REFERENCE MARKER
	SECTION LETTER, SHEET NUMBER	SECTION REFERENCE MARKER
	EQUIPMENT TYPE, EQUIPMENT NUMBER	EQUIPMENT MARKER
		ROOM NUMBER
		EXISTING SHOWN LIGHT
		NEW WORK SHOWN BOLD
		EXISTING TO BE REMOVED

GENERAL NOTES

- THE (E) ADJACENT RECREATION CENTER WILL REMAIN IN OPERATION DURING CONSTRUCTION. COORDINATE ALL SHUTDOWNS AND CONSTRUCTION ACTIVITY WITH FACILITIES STAFF.
- SIZE AND LOCATION OF ALL EXISTING PIPING AND OTHER MECHANICAL EQUIPMENT IS APPROXIMATE. CONTRACTOR SHALL SITE VERIFY THE EXACT LOCATION OF EXISTING AND CONSTRUCT ALL WORK FROM FIELD DIMENSIONS. CONTRACTOR SHALL MAKE ALL ADJUSTMENTS NECESSARY TO ACCOMMODATE MINOR DEVIATIONS AT NO COST TO OWNER.
- FINE (LIGHT) LINE WORK INDICATES EXISTING PIPING AND OTHER MECHANICAL EQUIPMENT. BOLD (HEAVY) LINE WORK INDICATES NEW PIPING AND OTHER MECHANICAL EQUIPMENT.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE CUTTING AND PATCHING TO ALLOW THE INSTALLATION OF MATERIALS AND EQUIPMENT AS SPECIFIED AND SHOWN ON DRAWINGS.

ABBREVIATIONS

ACH	AIR CHANGES PER HOUR	FT	FEET	NC	NOISE CRITERIA
AFF	ABOVE FINISHED FLOOR	FT WC	FEET WATER COLUMN	NC	NORMALLY CLOSED
AFS	AUTOMATIC FIRE SPRINKLER	FUT	FUTURE	NIC	NOT IN CONTRACT
AL	ALUMINUM	GPH	GALLONS PER HOUR	NO	NORMALLY OPEN
ALT	ALTERNATE	GPM	GALLONS PER MINUTE	NPLV	NON-STANDARD PART LOAD VALUE
APD	AIR PRESSURE DROP	GYP BD	GYPSPUM WALL BOARD	NFSH	NET POSITIVE SUCTION HEAD
BAS	BUILDING AUTOMATION SYSTEM	HP	HORSEPOWER	OF/CI	OWNER FURNISHED/ CONTRACTOR INSTALLED
BHP	BRAKE HORSEPOWER	HSPF	HEATING SEASONAL PERFORMANCE FACTOR	PD	PRESSURE DROP
BOD	BOTTOM OF DUCT	HVAC	HEATING, VENTILATING, & AIR CONDITIONING	PH	PHASE
BTUH	BRITISH THERMAL UNITS PER HOUR	HZ	HERTZ (CYCLES PER SECOND)	PPH	POUNDS PER HOUR
CFH	CUBIC FEET PER HOUR	IAQ	INDOOR AIR QUALITY	PSI	POUNDS PER SQUARE INCH
CFM	CUBIC FEET PER MINUTE	IN	INCHES	PSIG	POUNDS PER SQUARE INCH GAUGE
CMU	CONCRETE MASONRY UNIT	INVERT	INVERT ELEVATION	REQD	REQUIRED
CONC	CONCRETE	IN WC	INCHES WATER COLUMN	RF	RETURN FAN
CONT	CONTINUATION	INPLV	INTEGRATED PART LOAD VALUE	RH	RELATIVE HUMIDITY
DB	DECIBELS ACOUSTIC	IW	INDIRECT WASTE	RPM	REVOLUTIONS PER MINUTE
DBa	DECIBELS ACOUSTIC	LAT	LEAVING AIR TEMPERATURE	SEER	SEASONAL ENERGY EFFICIENCY RATIO
DN	DOWN	LBS	POUNDS	SF	SUPPLY FAN
DP	DIFFERENTIAL PRESSURE	LWT	LEAVING WATER TEMPERATURE	SS	STAINLESS STEEL
EAT	ENTERING AIR TEMPERATURE	Ma	MILLIAMPERE	STL	STEEL
EER	ENERGY EFFICIENCY RATIO	MAX	MAXIMUM	TSP	TOTAL STATIC PRESSURE
EFF	EFFICIENCY	MBH	THOUSAND BTUs PER HOUR	TYP	TYPICAL
ESP	EXTERNAL STATIC PRESSURE	MCA	MINIMUM CIRCUIT AMPS	VFD	VARIABLE FREQUENCY DRIVE
EWT	ENTERING WATER TEMPERATURE	MFG	MANUFACTURER	WB	WET BULB
FLA	FULL LOAD AMPS	MIN	MINIMUM	WC	WATER COLUMN
FPM	FEET PER MINUTE	MOP	MAX. OVERCURRENT PROTECTION	WG	WATER GAUGE

PLUMBING SCHEDULE

TAG No.	FIXTURE	PIPE CONNECTIONS (IN)					REMARKS
		W	IW (INDIRECT)	V	CW	HW	
WC-1	WATER CLOSET	4"	-	2"	1-1/4"	-	WALL HUNG
WC-2	WATER CLOSET	4"	-	2"	1-1/4"	-	WALL HUNG, ADA
U-1	URINAL	2"	-	1-1/2"	1"	-	
L-1	LAVATORY	2"	-	1-1/2"	1/2"	1/2"	COUNTER MOUNT
S-1	SINK	2"	-	1-1/2"	1/2"	-	WATER CHEMISTRY SINK, SEE POOL EQUIPMENT DRAWINGS & SPECIFICATIONS
S-2	SINK	2"	-	1-1/2"	1/2"	1/2"	
SH-1	SHOWER	-	-	-	1/2"	1/2"	
SH-2	SHOWER	-	-	-	1/2"	1/2"	ADA
SH-3	SHOWER	-	-	-	1/2"	1/2"	
SH-4	SHOWER	-	-	-	1/2"	1/2"	ADA
HB-1	HOSE BIBB	-	-	-	3/4"	-	FROST-PROOF
HB-2	HOSE BIBB	-	-	-	3/4"	-	
HB-3	HOSE BIBB	-	-	-	3/4"	-	
FD-1	FLOOR DRAIN	(1)	-	-	-	-	
FD-2	FLOOR DRAIN	(1)	-	-	-	-	
FD-3	FLOOR DRAIN	(1)	-	-	-	-	
FS-1	FLOOR SINK	(1)	-	-	-	-	
TD-1	TRENCH DRAIN	(1)	-	-	-	-	
TD-2	TRENCH DRAIN	(1)	-	-	-	-	
ES-1	COMBINATION EMERGENCY SHOWER / EYEWASH	-	-	-	1-1/4"	-	

(1) REFER TO FLOOR PLANS FOR WASTE CONNECTION SIZES.

PLUMBING DESIGN CRITERIA

WATER SUPPLY	
TEST DATE, LOCATION, AGENCY:	7/13/2012, SE 2ND & CAPE ST, CITY OF NEWPORT FIRE DEPARTMENT
STATIC WATER PRESSURE (psi)	54 FIRE HYDRANT FLOW CALCULATION, FROM FIREHYDRANT.ORG HYDRANT FLOW CALCULATOR.
RESIDUAL WATER PRESSURE (psi)	40
FLOW AT 20 PSI	1916
WATER SUPPLY FIXTURE UNITS PER OPSC	196
FIXTURE FLOW (GPM)	88
PROCESS WATER FLOW (GPM)	104
TOTAL WATER DEMAND (GPM)	192
PRESSURE LOSSES IN MAIN TO BUILDING (psi)	3
BUILDING WORKING PRESSURE (psi)	47

OPSC APPENDIX A CALCULATIONS

AREA OF SERVICE	Mech Rm	Main Level
ELEVATION OF HIGHEST FIXTURE ABOVE WATER LINE (FT.)	12	24
ELEVATION PRESSURE LOSS (psi)	5.2	10.4
MINIMUM WORKING PSI REQUIRED AT REMOTE FIXTURE	30	30
PRESSURE AVAILABLE FOR FRICTION LOSS (psi)	11.8	6.6
REMOTE FIXTURE DEVELOPED LENGTH, FT. (ACTUALx1.5)	75	540
AVAILABLE PRESSURE LOSS, PSI PER 100' OF PIPE	15.7	1.2
DESIGN PRESSURE DROP, PSI PER 100' OF PIPE	4	1

WASTE & VENT

QUANTITY OF WASTE OUTLETS FOR THE BUILDING	1
SUM OF VENT CROSS-SECTIONAL AREA (SQ. IN.)	51.1
WASTE OUTFALL CROSS-SECTIONAL AREA (SQ. IN.)	50.3
BACKWASH WASTE FLOW (GPM)	800
TOTAL DRAINAGE FIXTURE UNITS	150
PLUMBING WASTE FLOW (GPM)	144
TOTAL FACILITY WASTE	944

WASTE OUTFALL LOCATION(S):

1. NEAR GRIDLINES S-B

GAS CALCULATIONS

FIXTURE	No. OF FIXTURES	INPUT (BTU/HR)	TOTAL (BTU/HR)	REMARKS
NEW EQUIPMENT:				
BOILERS	2	2,600,000	5,200,000	
DWH-1	1	499,900	499,900	
FUTURE CAPACITY			569,990	10% OF NEW EQUIPMENT LOADS
TOTAL DEMAND (BTU)			6,269,890	
TOTAL DEMAND (CFH)			6,270	

PUMP SCHEDULE (P)

TAG No.	MANUFACTURER & MODEL No.	SERVICE	TYPE	FLOW (GPM)	TOTAL HEAD (FT)	MIN EFF (%)	BHP	NPSH (FT)	MOTOR				MOTOR CONTROL (1)		REMARKS
									VOLTS	PHASE	RPM	HP	STARTER	MANUAL MOTOR	
DWP-1	BELL & GOSSETT NBF-9U	DOMESTIC HOT WATER	CIRCULATOR	3	7	-	-	-	115	1	2800	1/20	X	-	

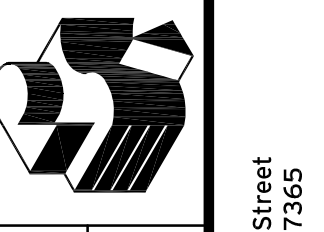
(1) MOTOR CONTROL FURNISHED BY DIV. 22

EXPANSION TANK SCHEDULE (ET)

TAG No.	MANUFACTURER & MODEL No.	SERVICE	TANK SIZE DIA x LENGTH (IN)	TANK VOLUME (GAL)	ACCEPTANCE VOLUME (GAL)	MAX OPERATING WEIGHT (LBS)	REMARKS
DET-1	BELL & GOSSETT PTA-30V	DOMESTIC WATER	16-1/4" x 19-1/8"	14	9	200	

DOMESTIC WATER HEATER SCHEDULE (DWH)

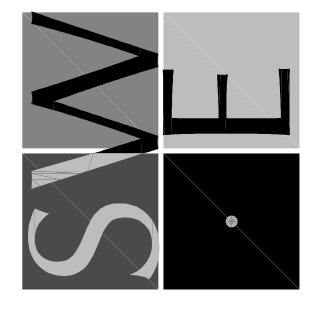
TAG No.	MANUFACTURER & MODEL No.	STORAGE CAPACITY (GAL)	HEATING CAPACITY			NATURAL GAS CONNECTION			ELECTRICAL CONNECTION			REMARKS
			FLOW (GPH)	EWT (°F)	LWT (°F)	MAX INPUT (BTU)	MAX OUTPUT (BTU)	MAX PRESS (IN WC)	VOLT	PH	FLA	
DWH-1	A.O. SMITH - BTH 500	119	759	55	130	499,900	474,905	14	120	1	5	



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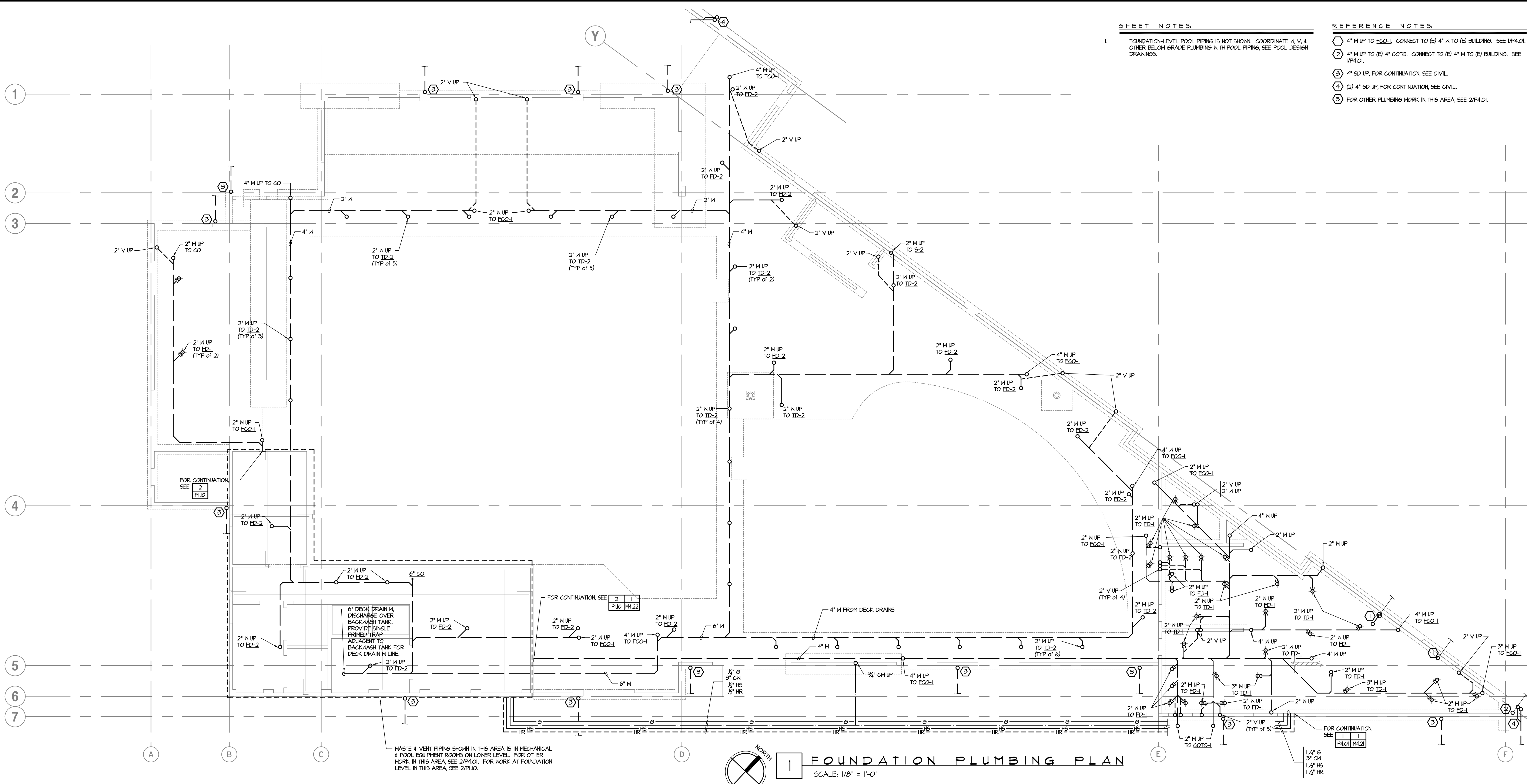
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PLUMBING LEGEND & SCHEDULES

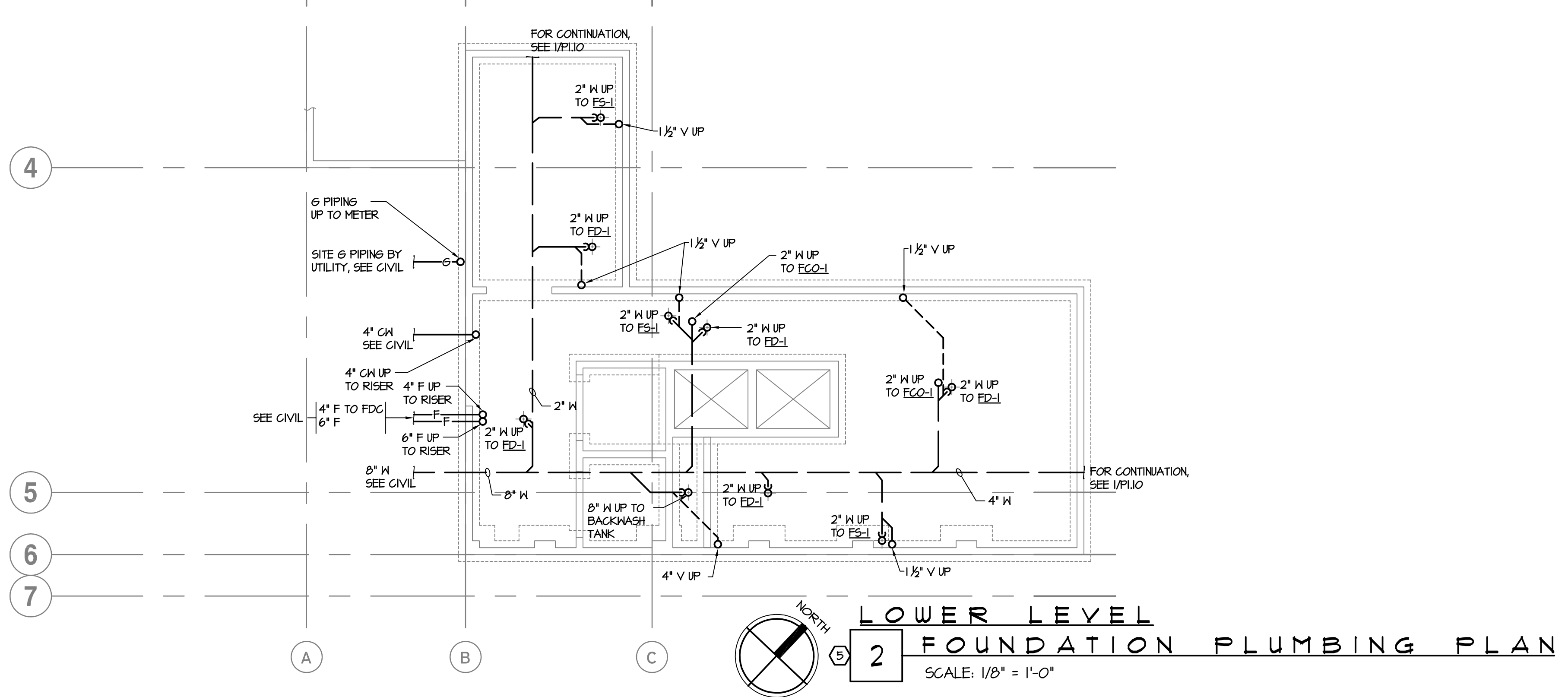
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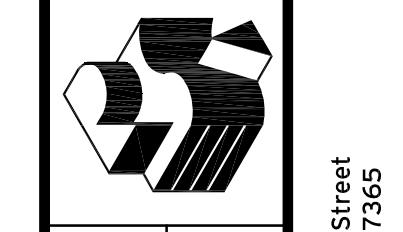
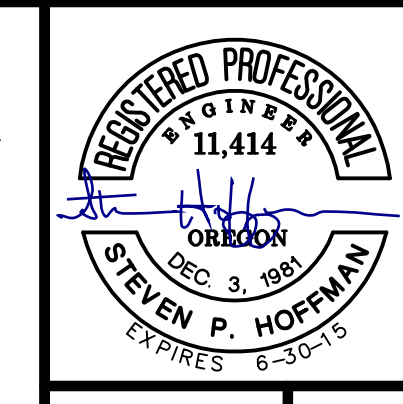
1 FOUNDATION PLUMBING PLAN
SCALE: 1/8" = 1'-0"



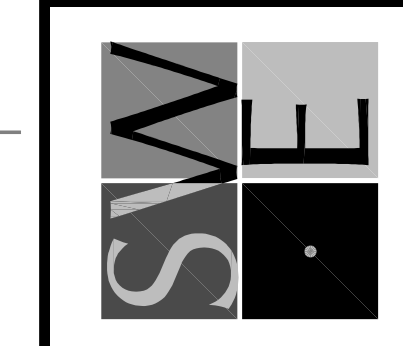
2 LOWER LEVEL FOUNDATION PLUMBING PLAN
SCALE: 1/8" = 1'-0"

SHEET NOTES:
1. FOUNDATION-LEVEL POOL PIPING IS NOT SHOWN. COORDINATE W, V, & OTHER BELOW GRADE PLUMBING WITH POOL PIPING, SEE POOL DESIGN DRAWINGS.

REFERENCE NOTES:
 ① 4" H UP TO EGQ-1. CONNECT TO (E) 4" H TO (E) BUILDING. SEE UP4.01.
 ② 4" H UP TO (E) 4" COG. CONNECT TO (E) 4" H TO (E) BUILDING. SEE UP4.01.
 ③ 4" SD UP, FOR CONTINUATION, SEE CIVIL.
 ④ (2) 4" SD UP, FOR CONTINUATION, SEE CIVIL.
 ⑤ FOR OTHER PLUMBING WORK IN THIS AREA, SEE 2/PL4.01.



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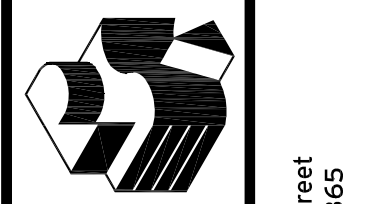
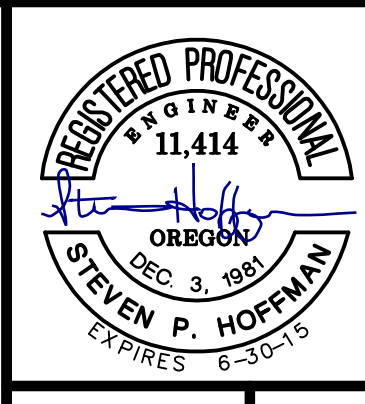
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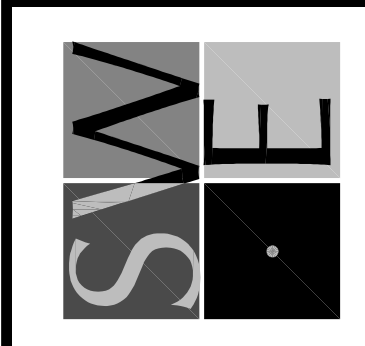
FOUNDATION PLUMBING PLANS

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- REFERENCE NOTES:
- DEMOLISH (E) 4" COTG IN THIS LOCATION & PROVIDE 4" EQG-1. CONNECT TO (E) H PIPING INTO (E) BUILDING.
 - REMOVE (E) 4" COTG IN THIS LOCATION & REINSTALL AFTER GRADING IN THIS AREA IS COMPLETE, CONNECT TO (E) H PIPING INTO (E) BUILDING.
 - PROVIDE SINGLE PENETRATION CONCENTRIC VENT THROUGH ROOF FOR DOMESTIC WATER HEATER COMBUSTION AIR AND VENT. PROVIDE GAS VENT THROUGH ROOF FOR DOMESTIC WATER HEATER NATURAL GAS PRESSURE REGULATOR.



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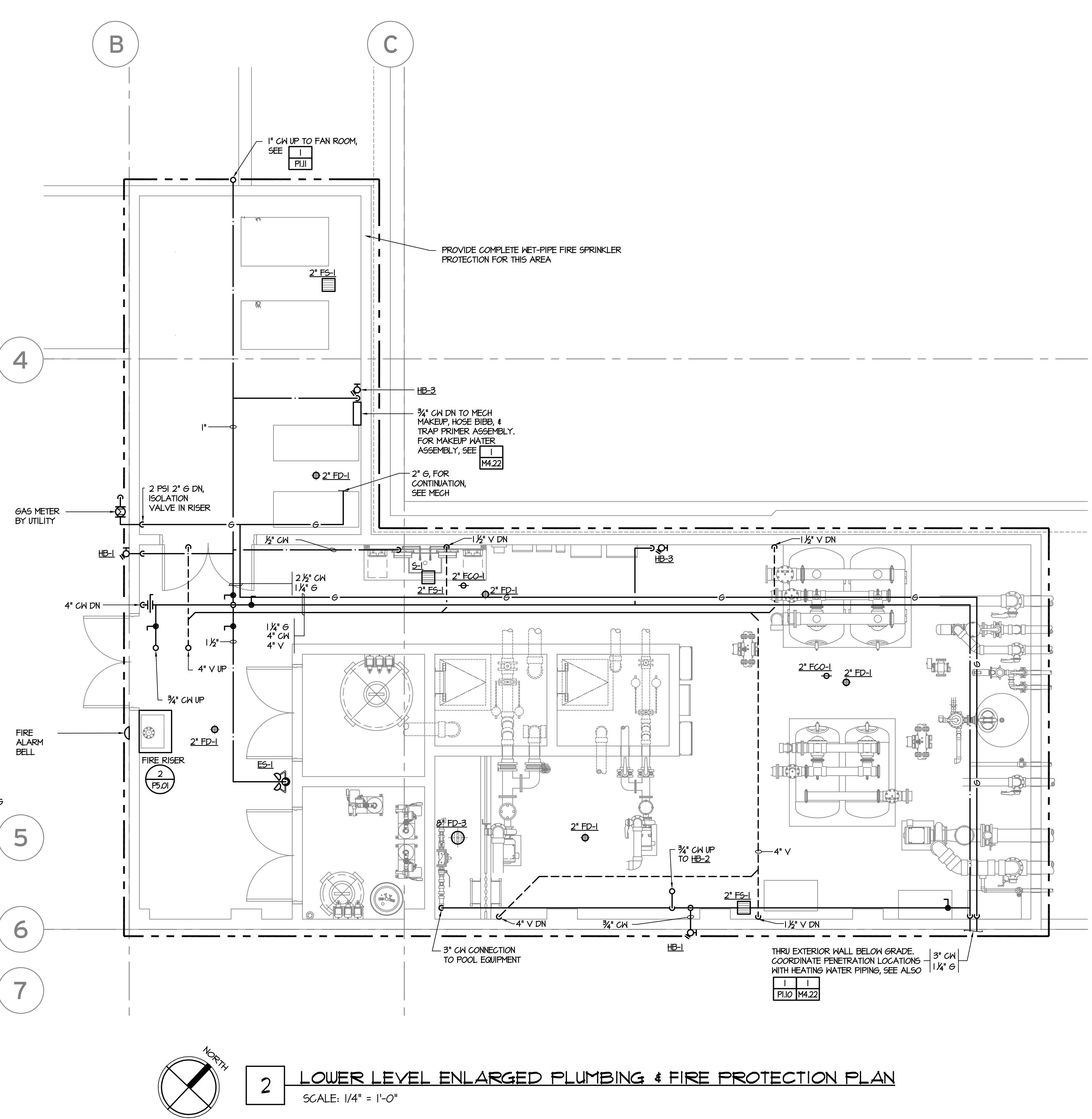
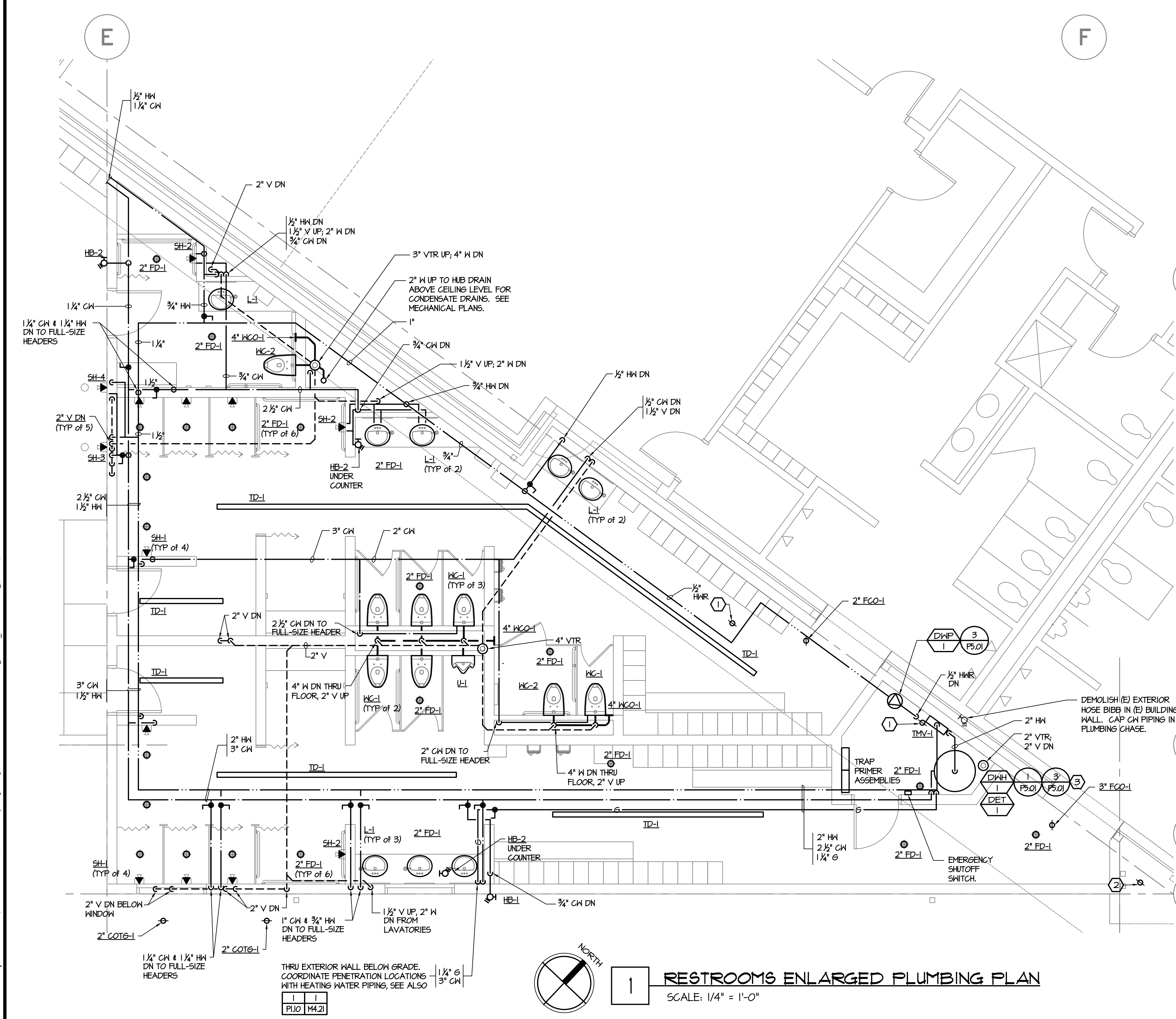
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PLUMBING & FIRE PROTECTION ENLARGED PLANS

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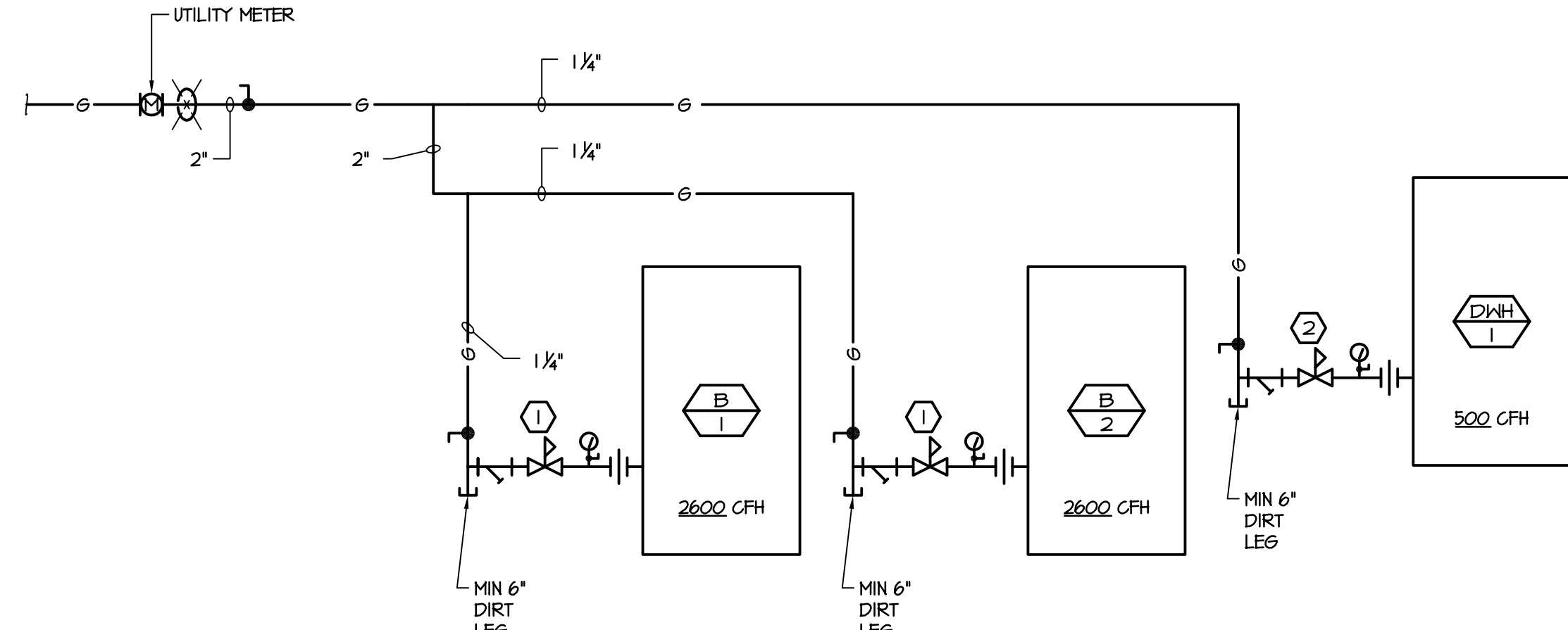
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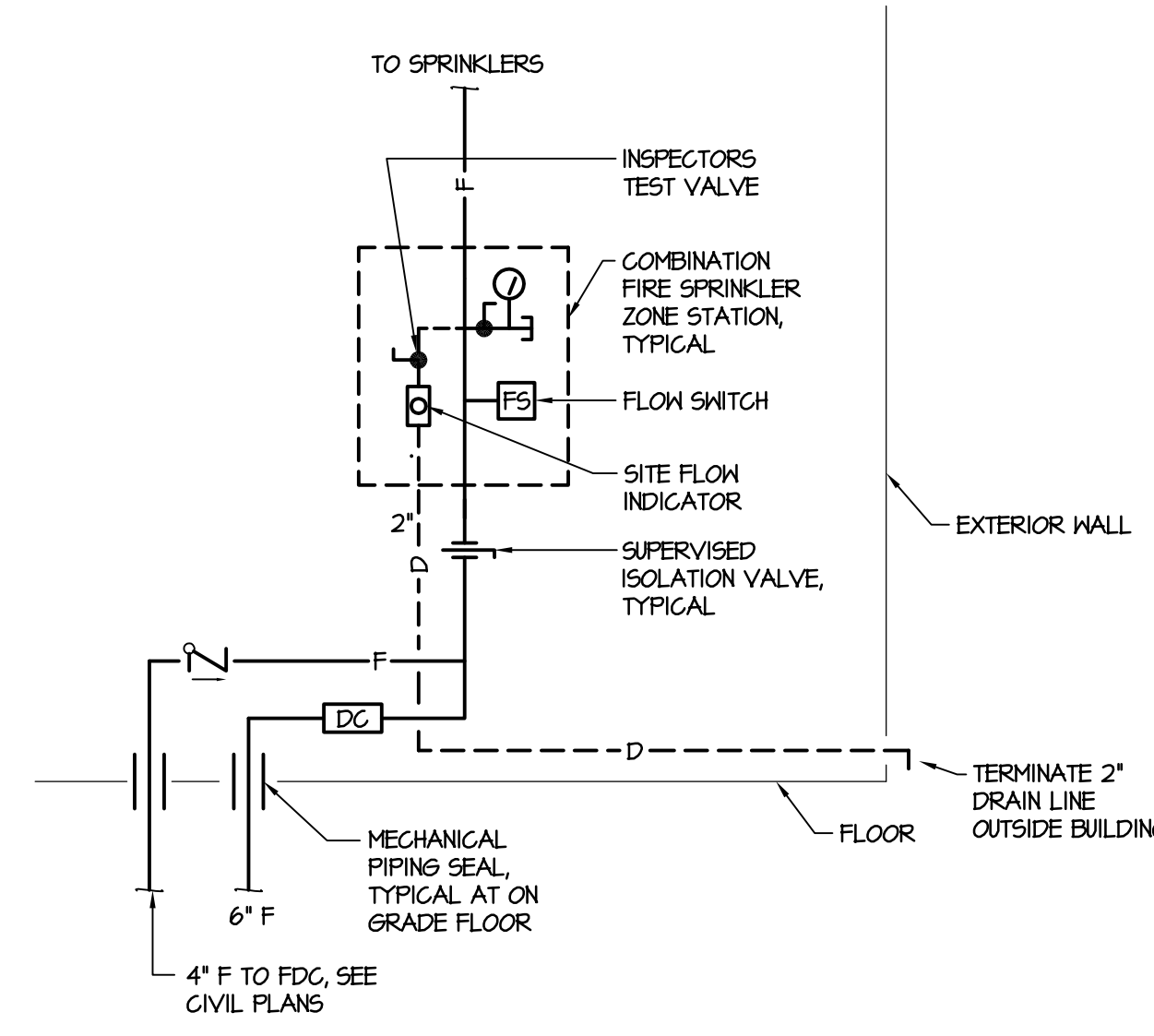


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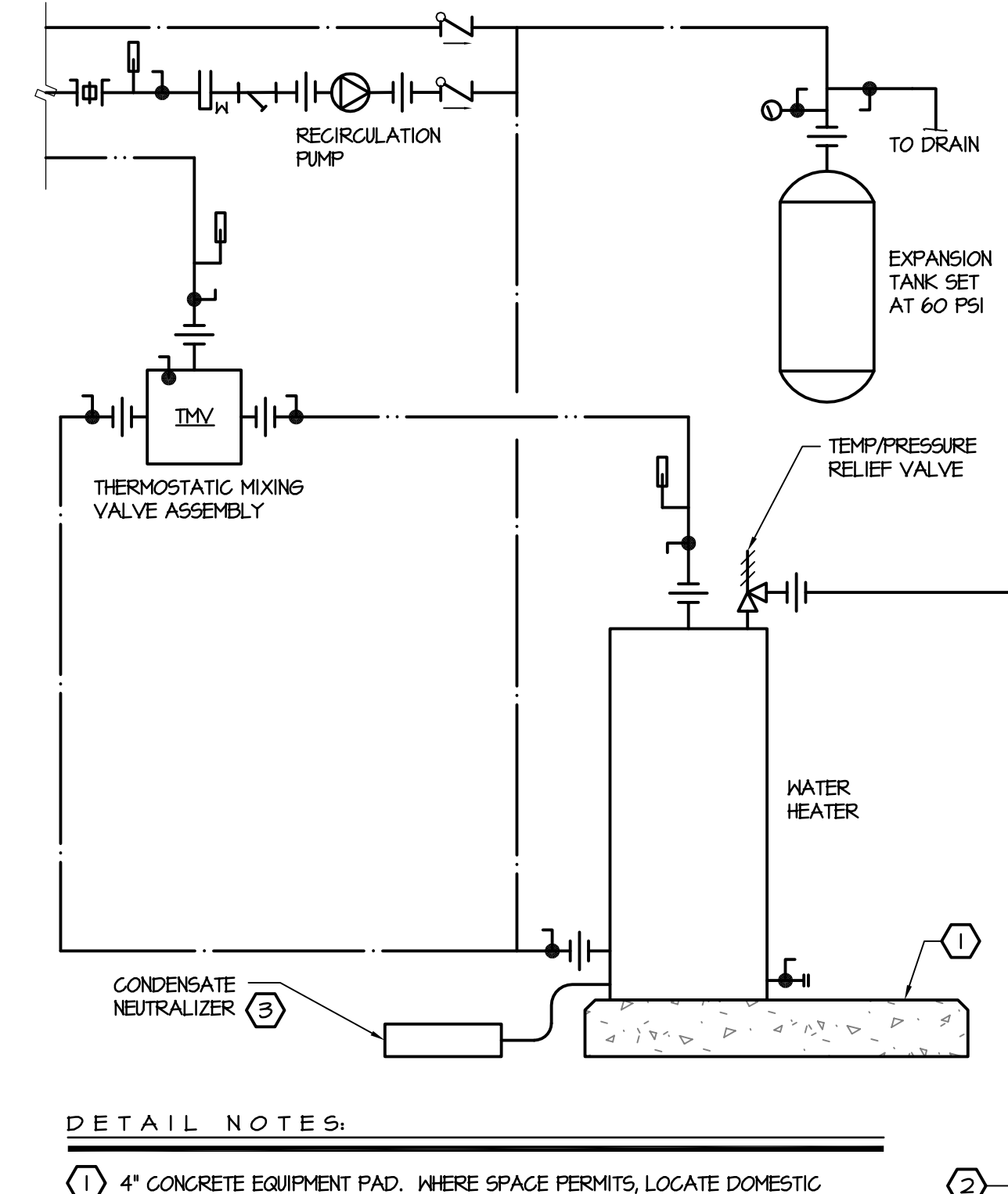
- ① VENT TO OUTDOORS THROUGH MECHANICAL ROOM SIDEWALL, ADJACENT TO BOILER COMBUSTION AIR INTAKE. TERMINATE WITH SCREENED, DOWNWARD FACING OPENING. SIZE VENT PER GAS REGULATOR MFG'S RECOMMENDATIONS.
- ② VENT TO OUTDOORS THROUGH ROOF. TERMINATE WITH SCREENED, DOWNWARD FACING OPENING. SIZE VENT PER GAS REGULATOR MFG'S RECOMMENDATIONS.



① NATURAL GAS PIPING DIAGRAM
NOT TO SCALE

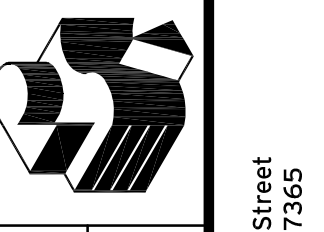


② AFS RISER DIAGRAM
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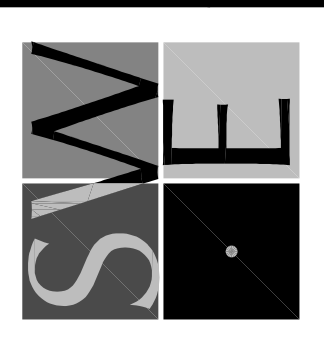


- DETAIL NOTES:**
- ① 4" CONCRETE EQUIPMENT PAD, WHERE SPACE PERMITS, LOCATE DOMESTIC WATER EXPANSION TANK ON EQUIPMENT PAD ADJACENT TO WATER HEATER.
 - ② TERMINATE TEMP/PRESSURE RELIEF DISCHARGE OVER NEARBY FLOOR DRAIN.
 - ③ DISCHARGE TO NEARBY FLOOR DRAIN.

③ DOMESTIC HOT WATER SCHEMATIC
NOT TO SCALE



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PLUMBING DETAILS & DIAGRAMS

MECHANICAL LEGEND

PIPING

SYMBOL	ABBREV.	DESCRIPTION
HS	HS	HEATING WATER SUPPLY
HR	HR	HEATING WATER RETURN
PIPING UP		PIPING UP
PIPING DOWN		PIPING DOWN
CAPPED PIPE		CAPPED PIPE
DIRECTION OF FLOW		DIRECTION OF FLOW
UNION		UNION
P	P	PUMP
WTE STRAINER		WTE STRAINER
BV	BV	BALL VALVE
BFV	BFV	BUTTERFLY VALVE
CHV	CHV	CHECK VALVE
GV	GV	GATE VALVE
PRV	PRV	PRESSURE REGULATING VALVE
AV	AV	AUTOMATIC CONTROL VALVE: 2-WAY
AV	AV	AUTOMATIC CONTROL VALVE: 3-WAY
RV	RV	RELIEF VALVE
SRV	SRV	SAFETY RELIEF VALVE (HYDRONIC)

DUCTWORK

DOUBLE-LINE SYMBOL	SINGLE-LINE SYMBOL	DESCRIPTION
1 1/2"	SA	RECTANGULAR SUPPLY AIR DUCT UP
1 1/2"	RA	RECTANGULAR RETURN AIR UP
1 1/2"	EA	RECTANGULAR EXHAUST AIR UP
1 1/2"	OSA	RECTANGULAR OUTSIDE AIR UP
1 1/2"		RECTANGULAR SUPPLY AIR DUCT DN
1 1/2"		RECTANGULAR RETURN AIR DN
1 1/2"		RECTANGULAR EXHAUST AIR or OUTSIDE AIR DN
1 1/2"		ROUND DUCTWORK UP
1 1/2"		ROUND DUCTWORK DOWN
1 1/2"		TURN VANE ELBOW
1 1/2"		STANDARD RADIUS ELBOW
1 1/2"		FLEXIBLE DUCT CONNECTION
1 1/2"		DUCT SIZE: WIDTH x DEPTH
1 1/2"		DIFFUSER TYPE
1 1/2"		SIZE - BLOM PATTERN (IF NOT 4-WAY)
1 1/2"		AIR VOLUME IN CUBIC FEET per MINUTE (CFM)
1 1/2"		OPPOSED BLADE DAMPER REQUIRED
1 1/2"		GRILLE TYPE
1 1/2"		SIZE
1 1/2"		AIR VOLUME IN CUBIC FEET per MINUTE (CFM)
1 1/2"		OPPOSED BLADE DAMPER REQUIRED
1 1/2"		GRILLE TYPE
1 1/2"		SIZE
1 1/2"		AIR VOLUME IN CUBIC FEET per MINUTE (CFM)
1 1/2"		DIFFUSER OR GRILLE TYPE
1 1/2"		SIZE
1 1/2"		AIR VOLUME IN CUBIC FEET per MINUTE (CFM)
1 1/2"		CONCENTRIC TRANSITION
1 1/2"		ECCENTRIC TRANSITION

CONTROLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
PROCESS PIPING SIGNAL		AUTOMATIC DAMPER	
ELECTRIC SIGNAL		FLOW SWITCH	
SPACE SENSOR UNIT		BAS INPUT/OUTPUT POINT	
SPACE HUMIDITY SENSOR		Ai= ANALOG INPUT	
SPACE CARBON DIOXIDE SENSOR		Ao= ANALOG OUTPUT	
SPACE CARBON MONOXIDE SENSOR		C= COMMUNICATION	
EMERGENCY STOP SWITCH		DH= DIGITAL INPUT	
TRANSMITTER		DO= DIGITAL OUTPUT	
CO2+ CARBON DIOXIDE		FUNCTION DESIGNATION	
DIFFERENTIAL PRESSURE		5/5= START/STOP	
DIFFERENTIAL PRESSURE			
RELAY		EQUIPMENT CONTROL PANEL	
ELECTRIC CURRENT		BCP= BOILER CONTROL PANEL	
DIFFERENTIAL PRESSURE		CP= CONTROL PANEL	
FREEZE PROTECTION		VFD= VARIABLE FREQUENCY DRIVE	
MANUAL		FAP= FIRE ALARM PANEL	
SENSOR		CCP= CHILLER CONTROL PANEL	
F= FLOW		(W/EQUIPMENT INDICATED UNDERLINED)	
P= PRESSURE			
T= TEMPERATURE			
CO2+ CARBON DIOXIDE			
ACTIVATOR - ELECTRIC			

GENERAL

SYMBOL	ABBREVIATION	DESCRIPTION
2	2	PLAN OR DETAIL NUMBER
M-22	M-50	PLAN OR DETAIL REFERENCE MARKER
200		ROOM NUMBER

ABBREVIATIONS

ACH	AIR CHANGES PER HOUR	IN WC	INCHES WATER COLUMN
AF	ABOVE FINISHED FLOOR	IPV	INTEGRATED PART LOAD VALUE
AFS	AUTOMATIC FIRE SPRINKLER	IW	INDIRECT WASTE
AL	ALUMINUM	LAT	LEAVING AIR TEMPERATURE
ALT	ALTERNATE	LBS	POUNDS
APD	AIR PRESSURE DROP	LWT	LEAVING WATER TEMPERATURE
BAS	BUILDING AUTOMATION SYSTEM	Ma	MILLIAMPERE
BHP	BRAKE HORSEPOWER	MAX	MAXIMUM
BOD	BOTTOM OF DUCT	MBH	THOUSAND BTUS per HOUR
BTUH	BRITISH THERMAL UNITS PER HOUR	MCA	MINIMUM CIRCUIT AMPS
CFH	CUBIC FEET per HOUR	MFR	MANUFACTURER
CFM	CUBIC FEET per MINUTE	MIN	MINIMUM
CMU	CONCRETE MASONRY UNIT	MOP	MAX. OVERCURRENT PROTECTION
CONC	CONCRETE	NC	NOISE CRITERIA
CONT	CONTINUATION	NC	NORMALLY CLOSED
DB	DECIBELS ACOUSTIC	NO	NORMALLY OPEN
DN	DOWN	NPLV	NON-STANDARD PART LOAD VALUE
DP	DIFFERENTIAL PRESSURE	NPSH	NET POSITIVE SUCTION HEAD
EAT	ENTERING AIR TEMPERATURE	OCFI	OWNER FURNISHED/ CONTRACTOR INSTALLED
EER	ENERGY EFFICIENCY RATIO	PD	PRESSURE DROP
EFF	EFFICIENCY	PH	PHASE
ESP	EXTERNAL STATIC PRESSURE	PPH	POUNDS per HOUR
EWT	ENTERING WATER TEMPERATURE	PSI	POUNDS per SQUARE INCH
FLA	FULL LOAD AMPS	PSIG	POUNDS per SQUARE INCH GAUGE
FPM	FEET per MINUTE	REQ'D	REQUIRED
FT	FEET	RF	RETURN FAN
FT WC	FEET WATER COLUMN	RH	RELATIVE HUMIDITY
FUT	FUTURE	RPM	REVOLUTIONS per MINUTE
GPH	GALLONS per HOUR	SEER	SEASONAL ENERGY EFFICIENCY RATIO
GPM	GALLONS per MINUTE	SF	SUPPLY FAN
GYP BD	GYPSON WALL BOARD	SS	STAINLESS STEEL
HP	HORSEPOWER	STL	STEEL
HSPF	HEATING SEASONAL PERFORMANCE FACTOR	TSP	TOTAL STATIC PRESSURE
HVAC	HEATING, VENTILATING, & AIR CONDITIONING	TYP	TYPICAL
HZ	HERTZ (CYCLES per SECOND)	VFD	VARIABLE FREQUENCY DRIVE
IAQ	INDOOR AIR QUALITY	WB	WET BULB
IE	INVERT ELEVATION	WC	WATER COLUMN
IN	INCHES	WG	WATER GAUGE

EXPANSION TANK SCHEDULE (ET)

TAG No.	MANUFACTURER & MODEL No.	SERVICE	TANK SIZE DIA x LENGTH (IN)	TANK VOLUME (GAL)	ACCEPTANCE VOLUME (GAL)	MAX OPERATING WEIGHT (LBS)	REMARKS
ET-1	BELL AND GOSSETT B-85LA	HEATING WATER	16" x 35	22	11	135	PRECHARGED TO 20 PSI

AIR COOLED CONDENSER (ACC)

TAG No.	MANUFACTURER & MODEL No.	TYPE	ASSOCIATED INDOOR UNIT(S)	AMBIENT DESIGN (°F)	CAPACITY COOL (MBH)	EFFICIENCY COOL (SEER)	ELECTRICAL VOLTS	PHASE	(1) MOP	(2) MOP	UNIT WEIGHT (LBS)	REMARKS
ACC-1	RZR36VJU	SCROLL	ACU-1	95	36	14	208	1	27	30	290	

(1) MAXIMUM CIRCUIT AMPACITY
(2) MAXIMUM OVERCURRENT PROTECTION

UNIT HEATER SCHEDULE (UH)

TAG No.	MANUFACTURER & MODEL No.	AIRFLOW (CFM)	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	FLOW (GPM)	MAX PD (FT)	SOUND LEVEL (SONES)	MOTOR (HP)	(VOLTS)	PH	REMARKS
UH-1	STERLING HS-60	900	60	81	140	100	1	0.5	1/20	115	1		PHENOLIC COATING
UH-2	STERLING HS-72	1100	60	80	140	100	1.25	0.25	1/20	115	1		PHENOLIC COATING
UH-3	STERLING HS-60	900	60	81	140	100	1	0.25	1/20	115	1		PHENOLIC COATING
UH-4	STERLING HS-144	2200	60	81	140	100	2.5	0.5	1/3	115	1		PHENOLIC COATING

HOT WATER COIL SCHEDULE (HC)

TAG No.	SIZE LENGTH x HEIGHT	AIRFLOW (CFM)	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	FLOW (GPM)	MAX PD (INCHES)	MAX PD (FEET)	CONTROL VALVE	RUNOUT SIZE (INCHES)	REMARKS
HC-1	21x21	1400	57	90	140	100	2.7	0.22	5.6	2-WAY	3/4	
HC-2	21x21	1400	57	90	140	100	2.7	0.22	5.6	2-WAY	3/4	

PUMP SCHEDULE (P)

TAG No.	MANUFACTURER & MODEL No.	SERVICE	TYPE	FLOW (GPM)	TOTAL HEAD (FT)	MIN EFF (%)	BHP	NPSH (FT)	MOTOR (VOLTS)	PHASE	RPM	HP	MOTOR CONTROL (1)	REMARKS
P-1	B&G 2.5AC E-1510	HEATING WATER	BASE MOUNTED	165	30	78	1.63	5.0	460	3	1800	2	X	
P-2	B&G 2.5AC E-1510	HEATING WATER	BASE MOUNTED	165	30	78	1.63	5.0	460	3	1800	2	X	
P-3	B&G 2AAB SERIES e-90	HEATING WATER	IN-LINE	120	20	70	0.87	12.0	460	3	1800	1		X
P-4	B&G 2AAB SERIES e-90	HEATING WATER	IN-LINE	120	20	70	0.87	12.0	460	3	1800	1		X
P-5	MARLOW SERIES S30	LAP POOL HX	BASE MOUNTED	55	15	62	0.34	8.0	460	3	1150	0.5	X	
P-6	MARLOW SERIES S30	ACTIVITY POOL HX	BASE MOUNTED	30	15	46	0.25	2.5	460	3	1150	0.5	X	
P-7	MARLOW SERIES S30	SPA HX	BASE MOUNTED	25	15	43	0.2	2.5	460	3	1150	0.5	X	

(1) MOTOR CONTROL FURNISHED BY DIV. 23

HEAT RECOVERY UNIT SCHEDULE

GENERAL TAG No.	TYPE	MANUFACTURER & MODEL #	UNIT WEIGHT (LBS)
HRU-1	FLAT PLATE	XETEX PXHR-24-42-BP	3,000
SUPPLY FAN			
AIRFLOW (CFM)	2,800		
RPM	1,537		
FAN HP	3.00		
FAN BHP	2.29		
ESP (INCHES WC)	1.00		
TSP (INCHES WC)	2.50		
EXHAUST FAN			
AIRFLOW (CFM)	2,800		
RPM	1,537		
FAN HP	3.00		
FAN BHP	2.29		
ESP (INCHES WC)	0.75		
TSP (INCHES WC)	2.50		
WINTER CONDITIONS			
SUPPLY	EAT DB (°F)	28.0	
	EAT WB (°F)	25.0	
EXHAUST	LAT DB (°F)	57.2	
	LAT WB (°F)	41.8	
SUPPLY	EAT DB (°F)	75.0	
	EAT WB (°F)	65.3	
EXHAUST	LAT DB (°F)	52.9	
	LAT WB (°F)	52.9	
SUPPLY	EAT DB (°F)	80.0	
	EAT WB (°F)	68.0	
EXHAUST	LAT DB (°F)	77.3	
	LAT WB (°F)	67.1	
SUPPLY	EAT DB (°F)	75.0	
	EAT WB (°F)	65.3	
EXHAUST	LAT DB (°F)	77.7	
	LAT WB (°F)	64.7	
ELECTRICAL			
MCA	10.8		
MOP	15.6		
VOLTAGE	480		
PHASE	3		

REMARKS

AIR HANDLING UNIT (AHU)

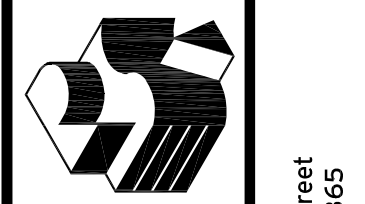
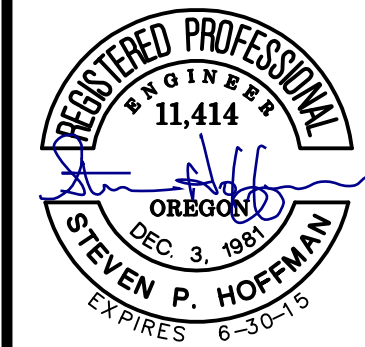
GENERAL TAG No.	MANUFACTURER	AHU-1
MANUFACTURER	UNITECH	
MODEL NUMBER	0019-14-00-001	
UNIT TYPE	CUSTOM	
UNIT WEIGHT (LBS)	19,000	
SUPPLY EXT STATIC PRESS. (IN WC)	2.5	
RETURN EXT STATIC PRESS. (IN WC)	1.4	
MINIMUM OSA FLOW RATE (CFM)	12,400	
SUPPLY FAN		
TYPE	PLENUM	
ARFLOW (CFM)	27,000	
STATIC PRESSURE (IN WC) (1)	4	
RPM	1,560	
BLADE TYPE	BACKWARD INCLINED	
WHEEL DIAMETER (INCHES)	24.5	
FAN HORSEPOWER (BHP)	6.2	
MOTOR HORSEPOWER (HP)	10	
MOTOR CONTROL (STARTER / VFD) (2)	VFD	
VOLTAGE	480	
PHASE	3	
MINIMUM CIRCUIT AMPACITY	59.5	
MAX OVERCURRENT PROTECTION	70	
RETURN FAN		
TYPE	PLENUM	
ARFLOW (CFM)	27,000	
STATIC PRESS. (IN WC) (1)	3	
RPM	1,435	
BLADE TYPE	BACKWARD INCLINED	
WHEEL DIAMETER (INCHES)	24.5	
FAN HORSEPOWER (BHP)	4.76	
MOTOR HORSEPOWER (HP)	10	
MOTOR CONTROL (STARTER / VFD) (2)	VFD	
VOLTAGE	480	
PHASE	3	
MINIMUM CIRCUIT AMPACITY	59.5	
MAX OVERCURRENT PROTECTION	70	
HEATING COIL		
COIL ARFLOW RATE (CFM)	27,000	
ENTERING AIR TEMP (°F)	64.0	
LEAVING AIR TEMP (°F)	95.0	
MAX AIRPRESSURE DROP (IN WC) (3)	0.13	
ENTERING WATER TEMP (°F)	140.0	
LEAVING WATER TEMP (°F)	100.0	
WATER FLOW RATE (GPM)	45.5	
MAX WATER PRESSURE DROP (FEET)	8	
HEAT RECOVERY DEVICE		
GENERAL		
SUPPLY AIRFLOW (CFM)	27,000	
SUPPLY PRESSURE DROP (IN W.C.)	0.75	
EXHAUST AIRFLOW (CFM)	27,000	
EXHAUST PRESSURE DROP (IN W.C.)	1.05	
WINTER		
SUPPLY - EAT DB (°F)	28.0	
SUPPLY - LAT DB (°F)	64.0	
EXHAUST - EAT DB (°F)	60.5	
EXHAUST - LAT DB (°F)	82.0	
AIR FILTERS		
TYPE	FLAT	
THICKNESS (INCHES)	2.0	
EFFICIENCY (MERV)	8.0	
MAXIMUM FACE VELOCITY (FPM)	500	
CHANGE-OUT PRESS. DROP (IN WC)	0.5	
RETURN FILTER		
FILTER TYPE	FLAT	
FILTER THICKNESS (INCHES)	2.0	
EFFICIENCY (MERV)	8.0	
MAXIMUM FACE VELOCITY (FPM)	500	
CHANGE-OUT PRESS. DROP (IN WC)	0.5	
COMMENTS		
(1) PRESSURE SHOWN ARE BASIS OF DESIGN AND ARE FOR REFERENCE. UNIT SHALL MEET MINIMUM EXTERNAL STATIC PRESSURE USING FILTER CHANGE-OUT PRESSURE DROP.		
(2) MOTOR CONTROLS FURNISHED BY DIV. 23.		
(3) PRESSURE DROP AT RATED AIR HANDLER FLOW RATE.		
(4) AIRFLOW RATES ARE LISTED FOR UNIT SELECTION. BALANCE SUPPLY & RETURN AIRFLOW RATES SHOWN ON PLAN.		

EXHAUST FAN SCHEDULE (EF)

TAG No.	MANUFACTURER & MODEL No.	TYPE	AIRFLOW (CFM)	TSP (IN)	SPEED (RPM)	POWER (BHP)	SOUND LEVEL (SONES)	VOLTS	PHASE	HP	RELAY	
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SHEET NOTES:

1. ALL SUPPLY DIFFUSERS AND GRILLES TO HAVE OPPOSED BLADE DAMPERS UNLESS OTHERWISE NOTED.
2. PROVIDE EXTRACTORS AT ALL TAKEOFFS WITH OBD'S.
3. ALL ATTACHMENTS, SUPPORTS AND FASTENERS USED IN THE NATATORIUM TO BE GALVANIZED OR STAINLESS STEEL.

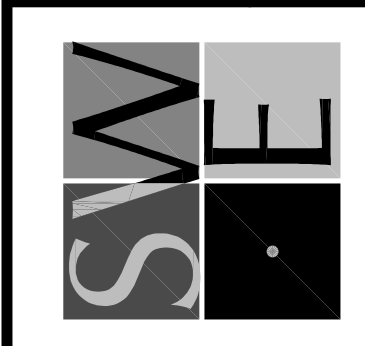


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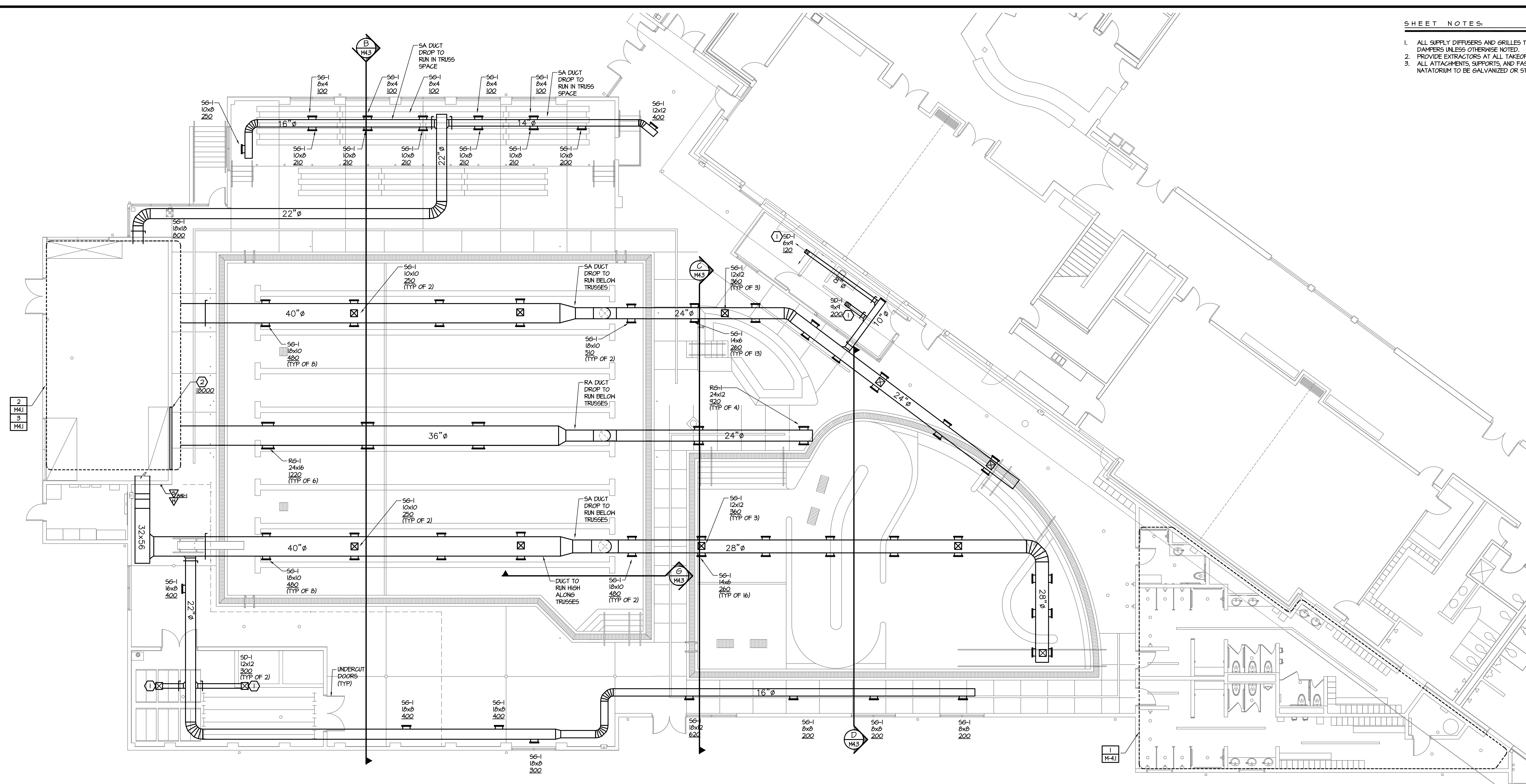
AIR DISTRIBUTION

TSB
SPH

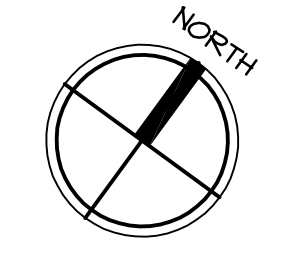
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M1.1

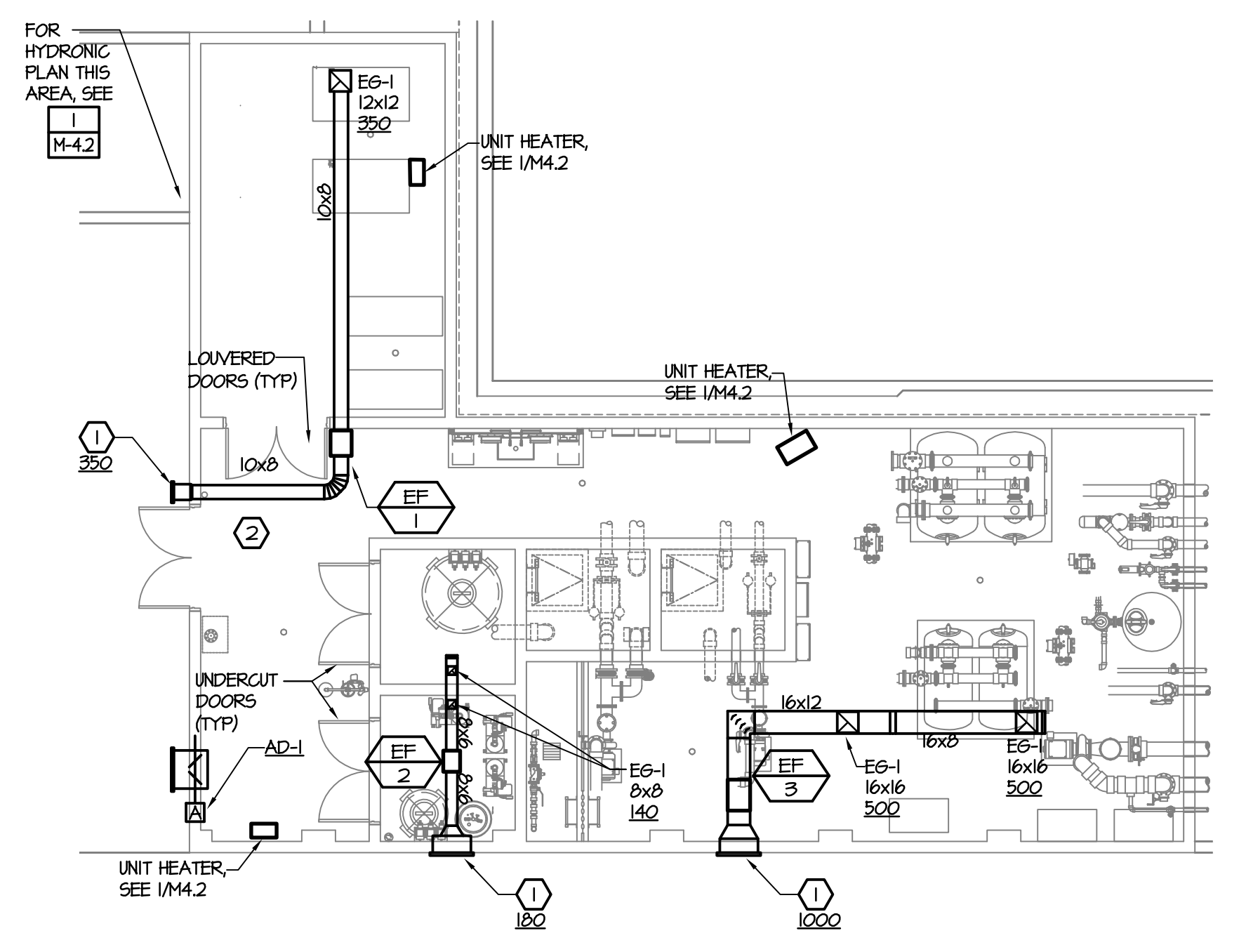


1 AIR DISTRIBUTION
SCALE: 1/8" = 1'-0"

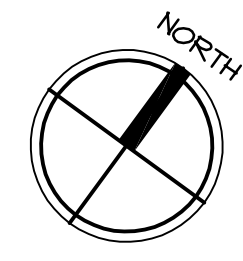


REFERENCE NOTES:

- 1 NO OPPOSED BLADE DAMPER
- 2 SEE ARCHITECTURAL FOR LOUVER SIZE AND LOCATION. BALANCE TO CFM SHOWN.



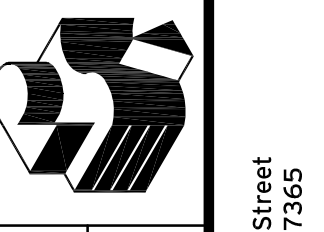
2 BASEMENT AIR DISTRIBUTION
SCALE: 1/8" = 1'-0"



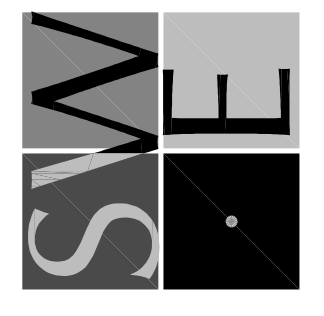
REFERENCE NOTES:

- 1 SEE ARCHITECTURAL FOR LOUVER SIZE AND LOCATION.
- 2 ALL ATTACHMENTS, SUPPORTS, AND FASTENERS USED IN POOL MECHANICAL SPACES TO BE GALVANIZED OR STAINLESS STEEL.

- DUCTWORK TO BE HIGH IN SPACE.
- SUPPLY DIFFUSERS TO BE 4" AFF. IN EXPOSED AREAS.
- RUN-OUT PIPE SIZING TO EQUIPMENT TO BE 3/4" UNLESS OTHERWISE SPECIFIED.
- COORDINATE DIFFUSER AND GRILLE SIZES WITH ARCHITECT.
- PROVIDE EXTRACTORS AT ALL TAKEOFFS WITH CED'S.



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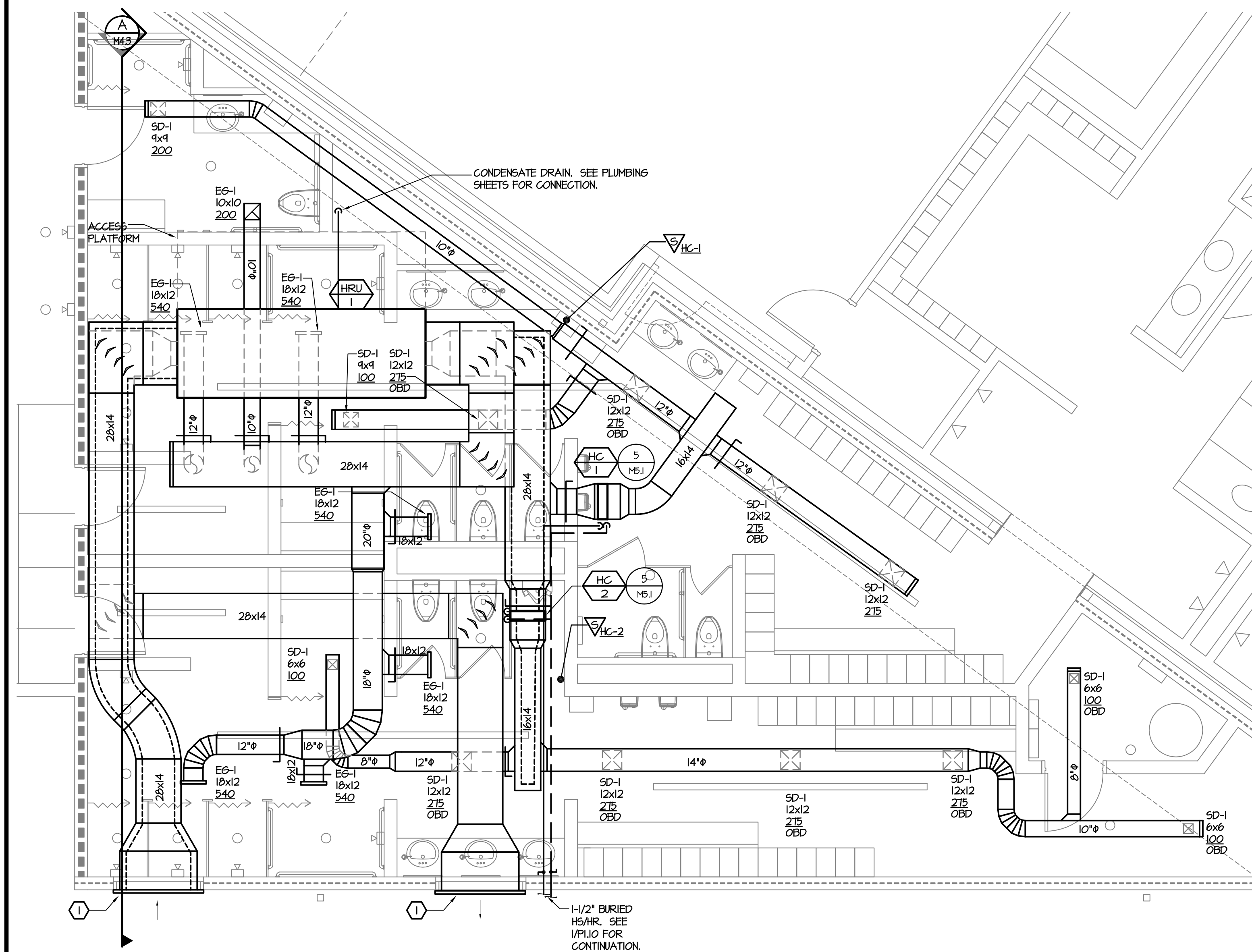


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ENLARGED PLANS

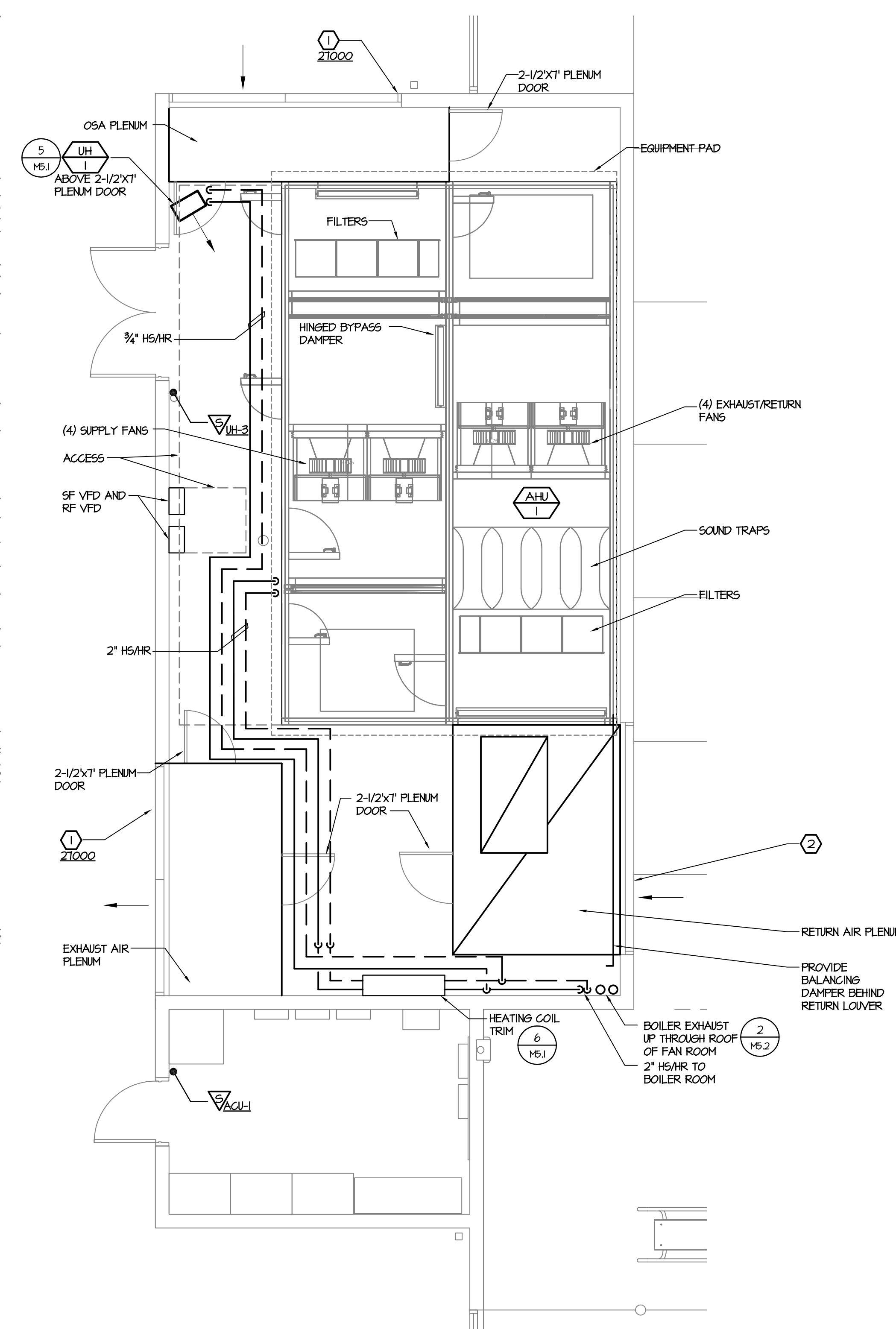
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M4.1



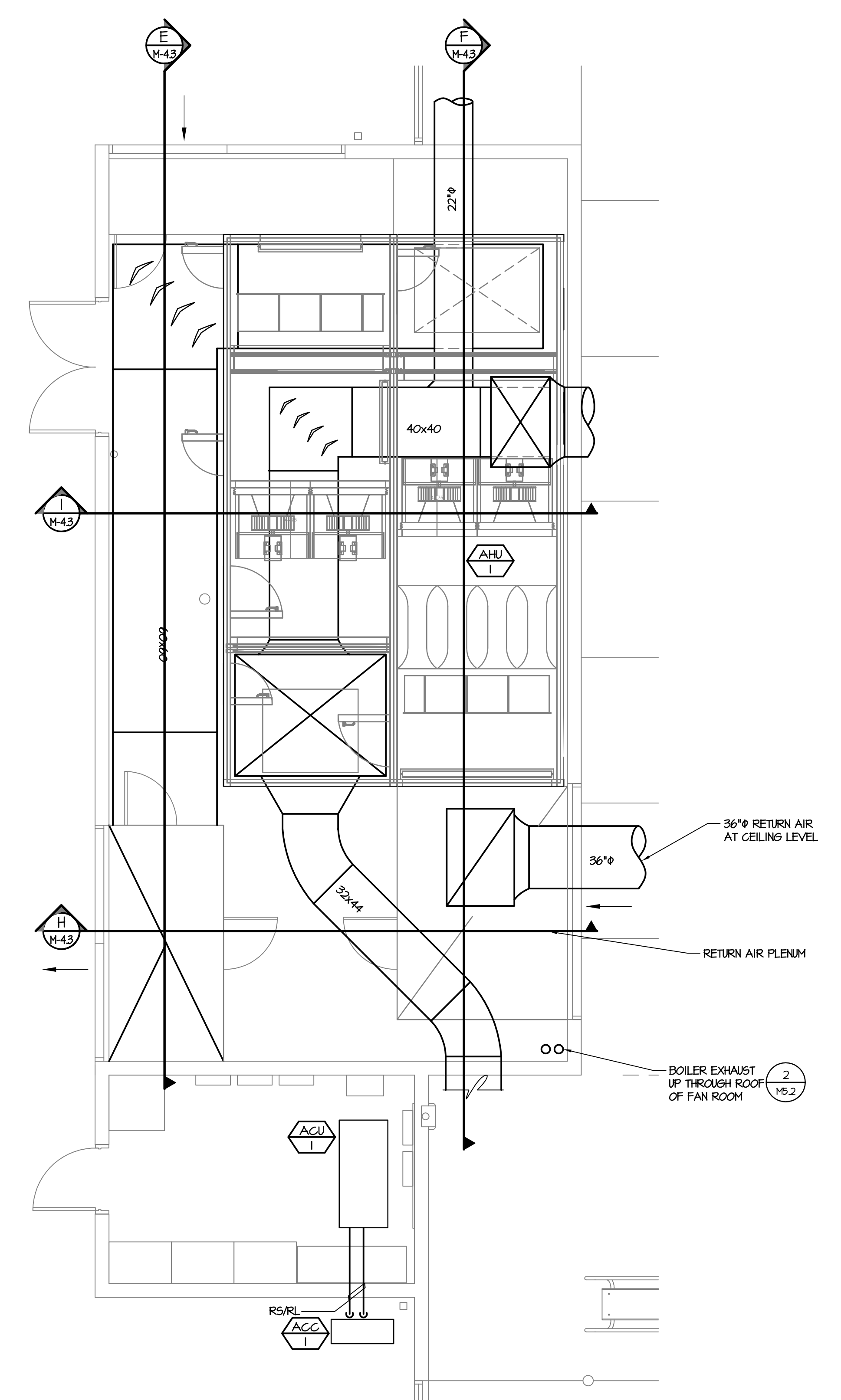
1 AIR DISTRIBUTION ENLARGED PLAN
 SCALE: 1/4" = 1'-0"

REFERENCE NOTES 1/M4.1:
 ① SEE ARCHITECTURAL FOR LOUVER SIZE AND LOCATION.



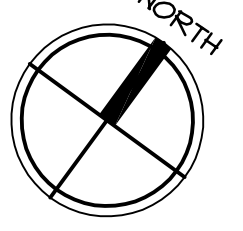
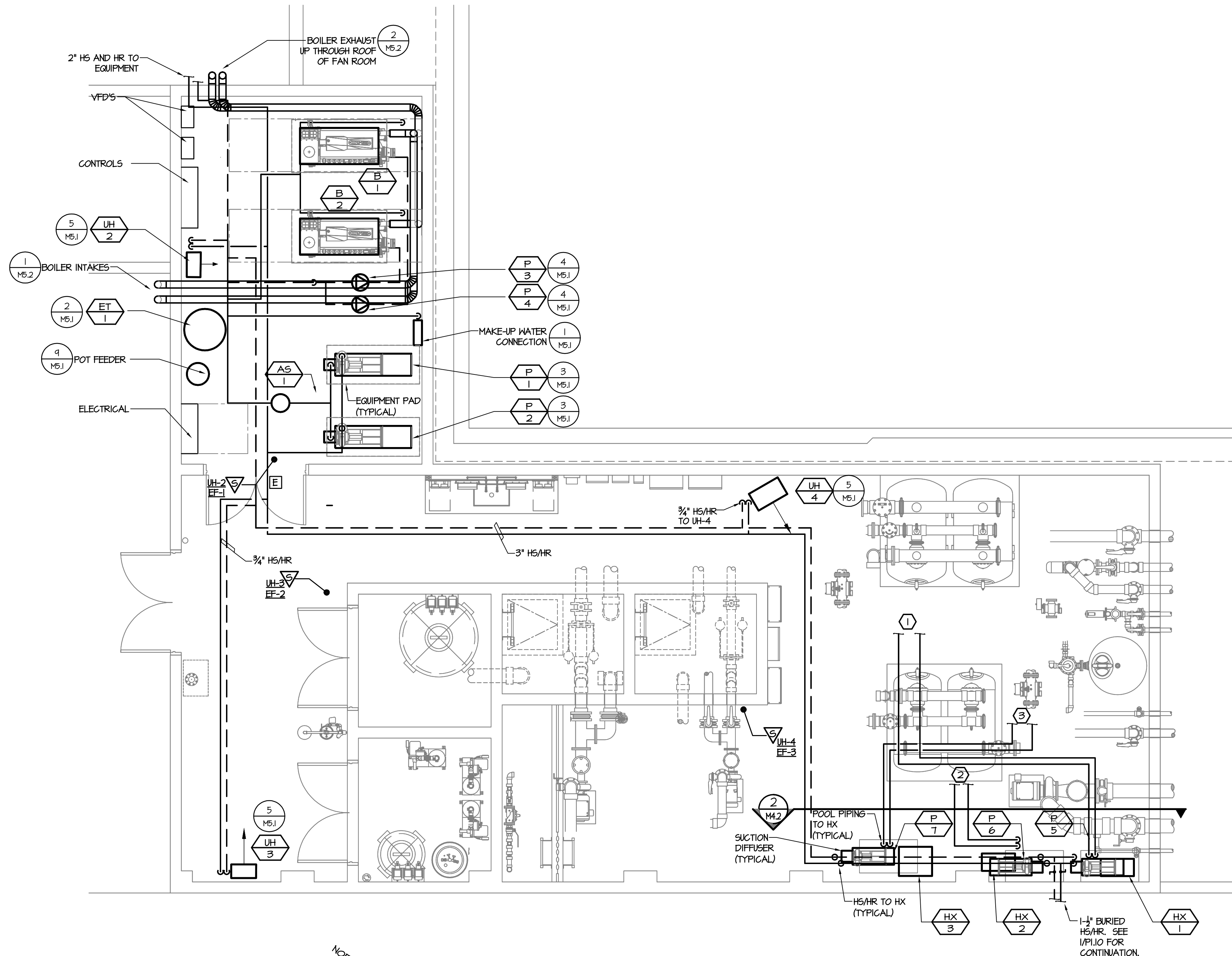
2 AIR DISTRIBUTION ENLARGED PLAN-LOWER
 SCALE: 1/4" = 1'-0"

REFERENCE NOTES 2/M4.1:
 ① SEE ARCHITECTURAL FOR LOUVER SIZE AND LOCATION.
 ② SEE ARCHITECTURAL FOR LOUVER SIZE AND LOCATION. BALANCE TO CFM SHOWN ON SHEET (M4.1).



3 AIR DISTRIBUTION ENLARGED PLAN-UPPER
 SCALE: 1/4" = 1'-0"

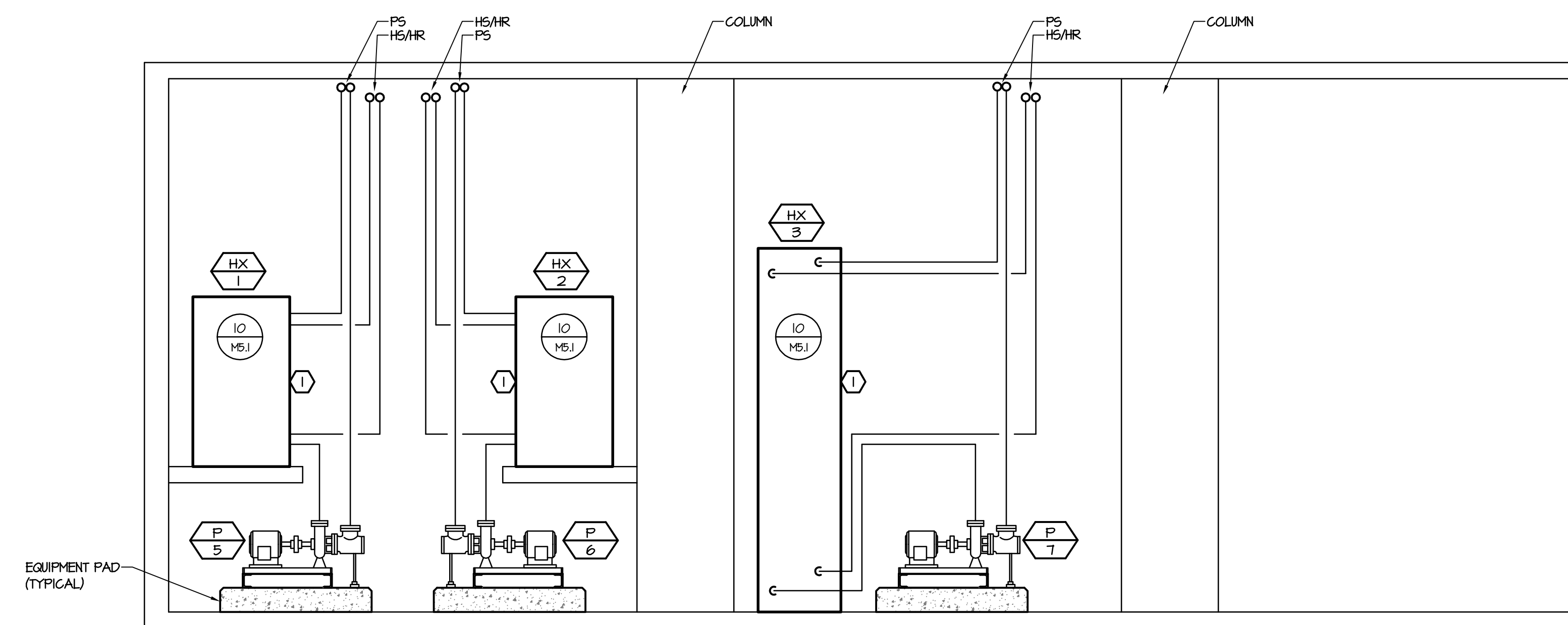
REFERENCE NOTES 3/M4.1:
 ① SEE ARCHITECTURAL FOR LOUVER SIZE AND LOCATION. EXHAUST FAN DUCTWORK AND GRILLES TO BE SAME ELEVATION AS LOUVER.
 ② SEE ARCHITECTURAL FOR LOUVER SIZE AND LOCATION.



1 HYDRONIC ENLARGED PLAN
SCALE: 1/4" = 1'-0"

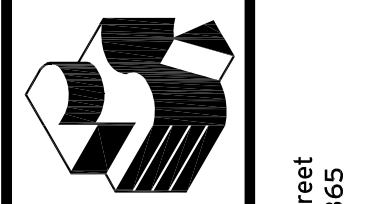
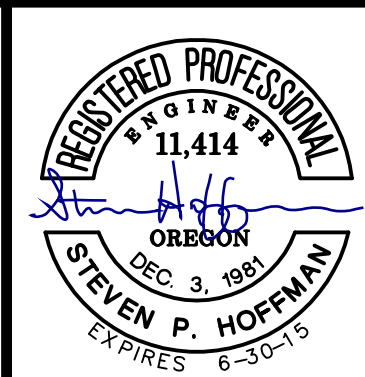
- REFERENCE NOTES 1/M4.1.
- ① LAP POOL PIPING CONNECTION. SEE 5MR-3 AND MR-1 FOR DETAIL AND LAYOUT.
 - ② ACTIVITY POOL PIPING CONNECTION. SEE 5MR-3 AND MR-1 FOR DETAIL AND LAYOUT.
 - ③ SPA PIPING CONNECTION. SEE 5MR-3 AND MR-1 FOR DETAIL AND LAYOUT.

SHEET NOTES:
1. ALL ATTACHMENTS, SUPPORTS, AND FASTENERS USED IN POOL MECHANICAL SPACES TO BE GALVANIZED OR STAINLESS STEEL.

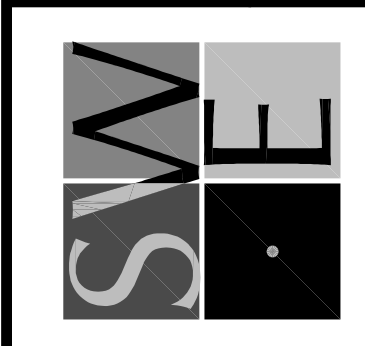


HEAT EXCHANGER AND PUMP
SCALE: 1/2" = 1'-0"

- REFERENCE NOTES 2/M4.2.
- ① VERIFY INLET/OUTLET ORIENTATION WITH HEAT EXCHANGER MANUFACTURER.



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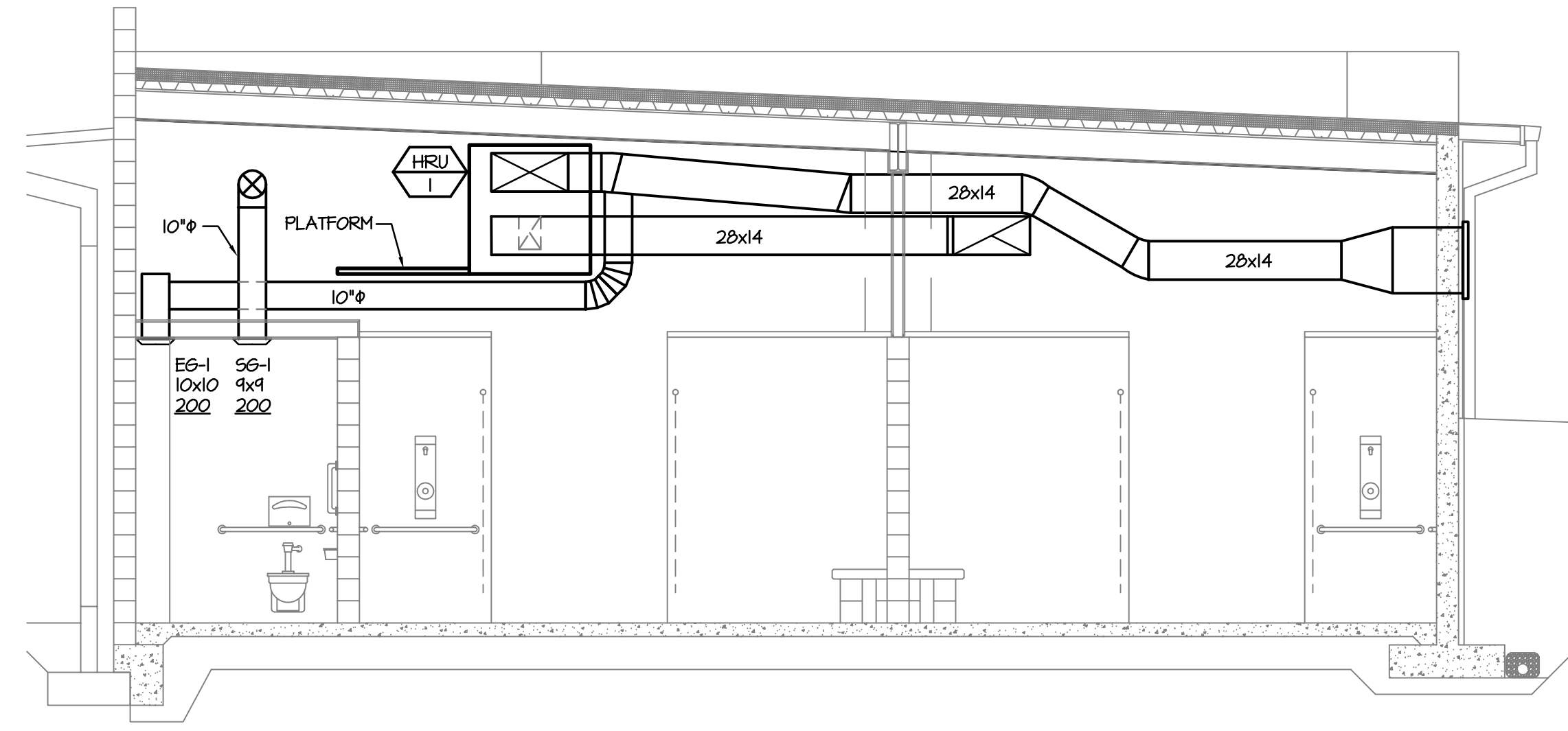
ENLARGED PLANS
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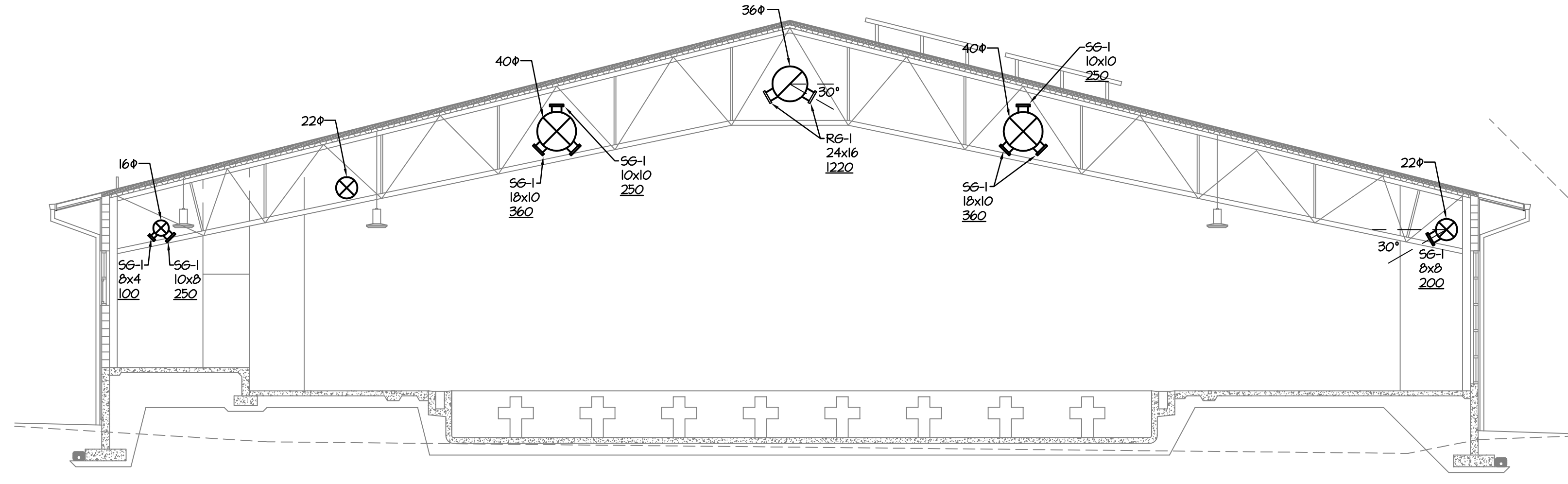
M4.2

SHEET NOTES:

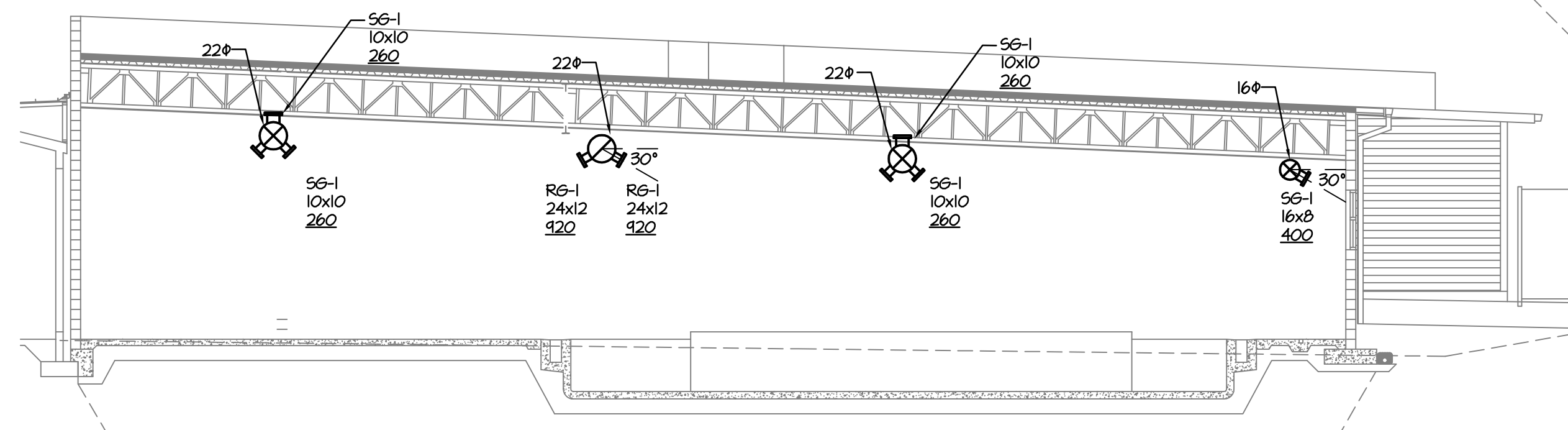
- 1. ANGLED GRILLES TO BE 45° FROM HORIZONTAL UNLESS OTHERWISE NOTED.



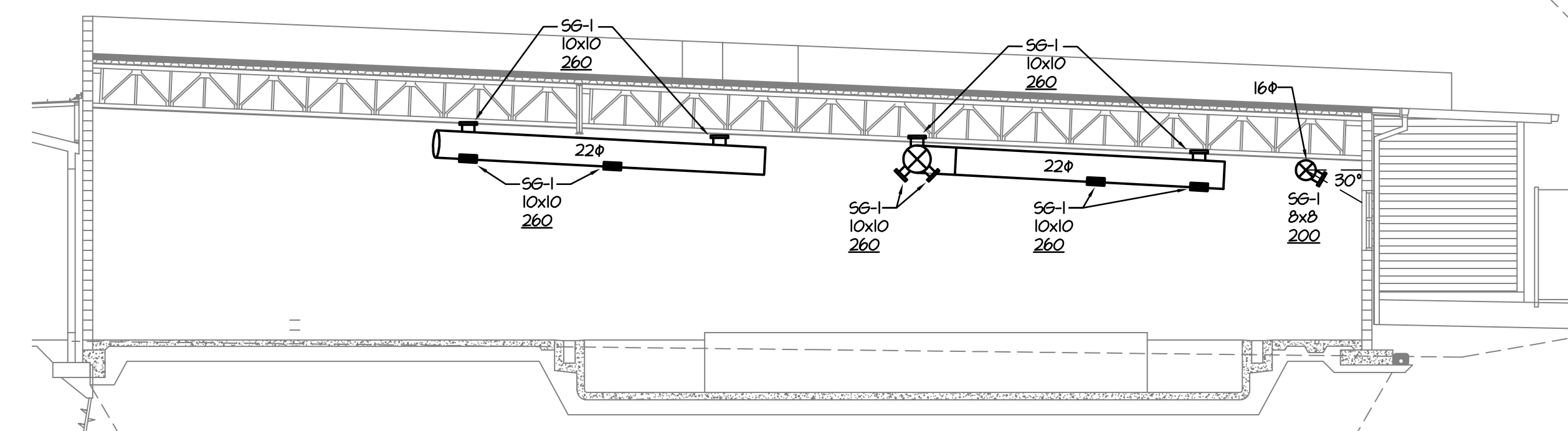
A LOCKER ROOM
SCALE: 1/4" = 1'-0"



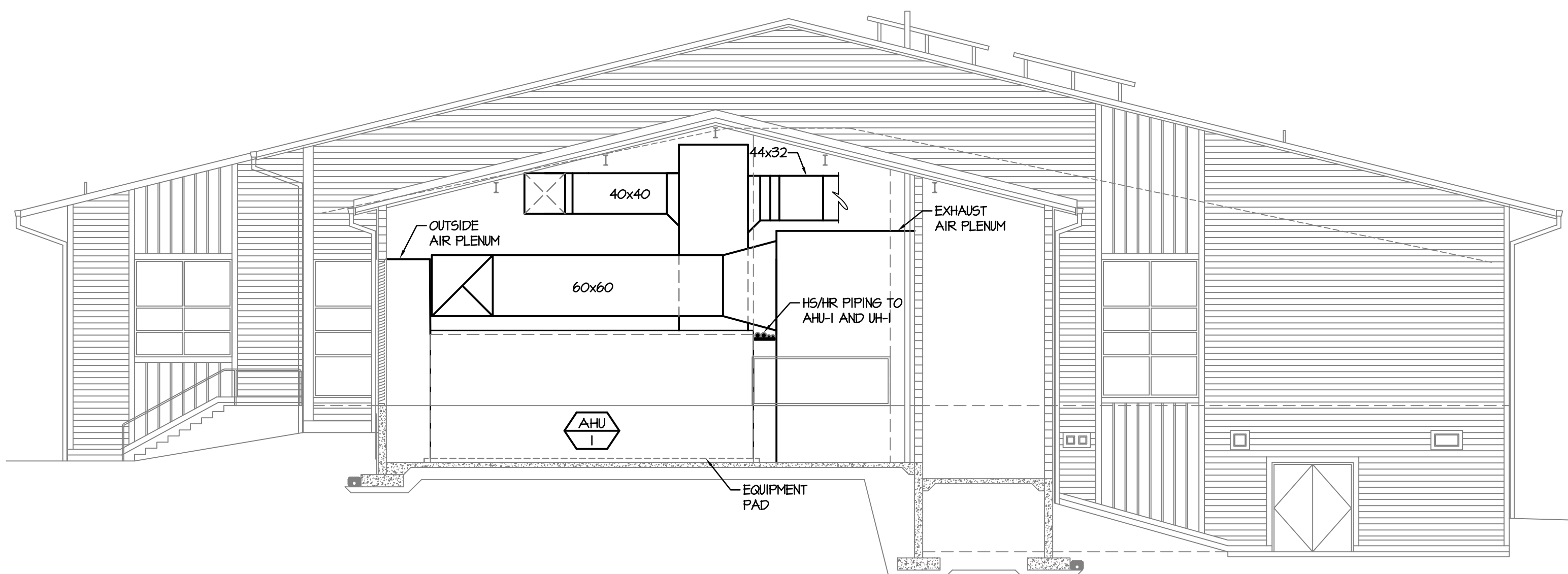
B NATATORIUM
SCALE: 1/8" = 1'-0"



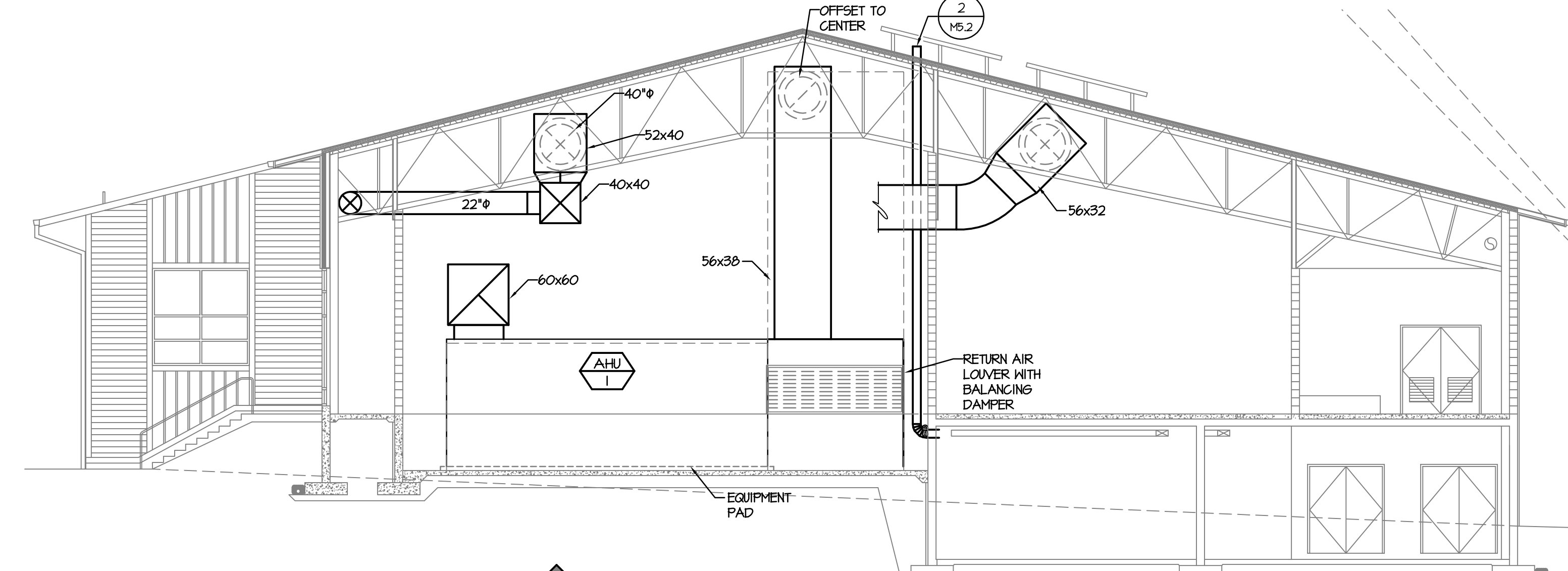
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SCALE: 1/8" = 1'-0"



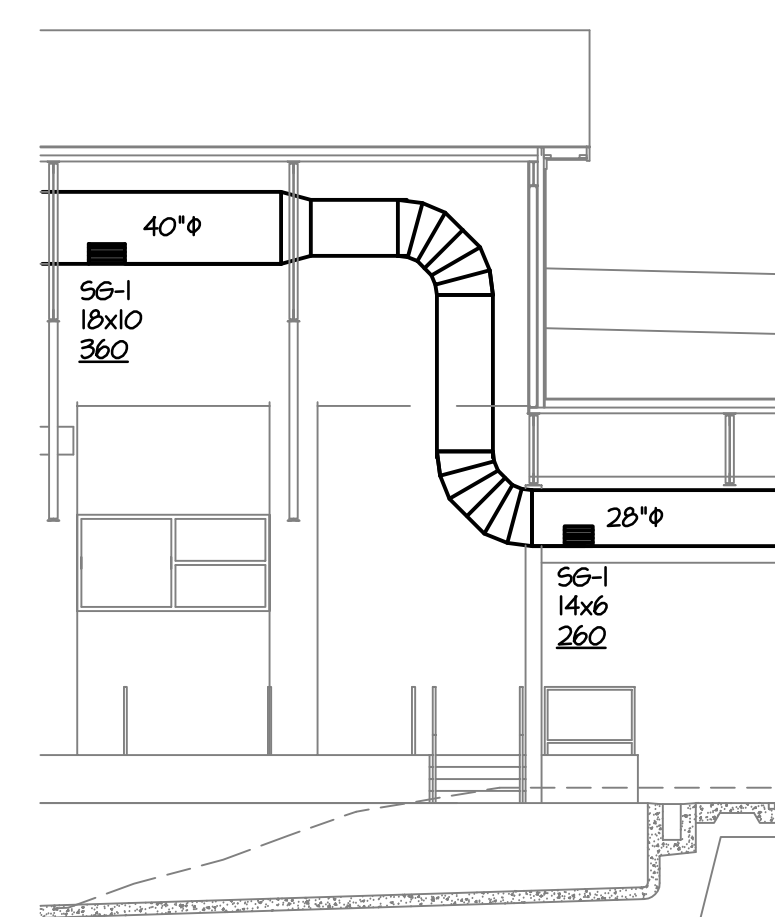
D NATATORIUM
SCALE: 1/8" = 1'-0"



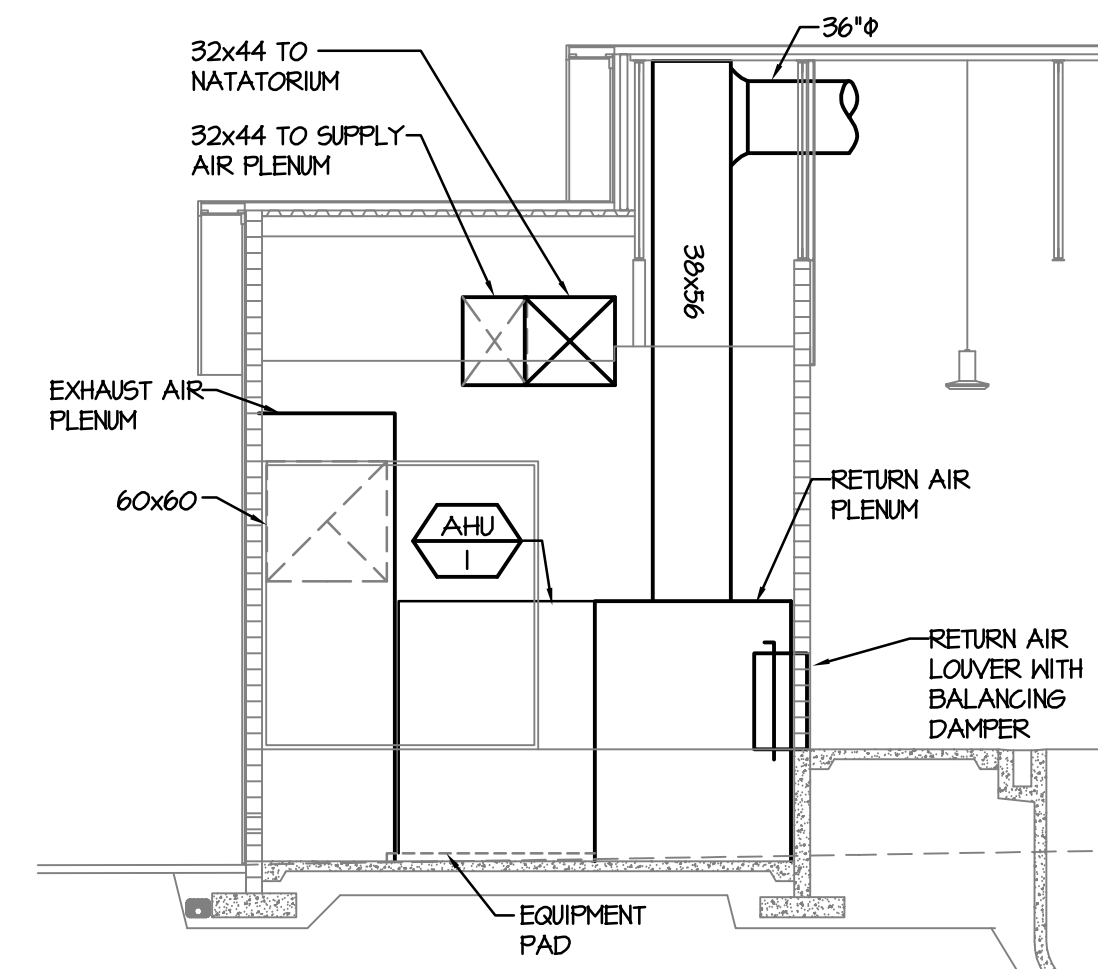
E MECHANICAL ROOM
SCALE: 1/8" = 1'-0"



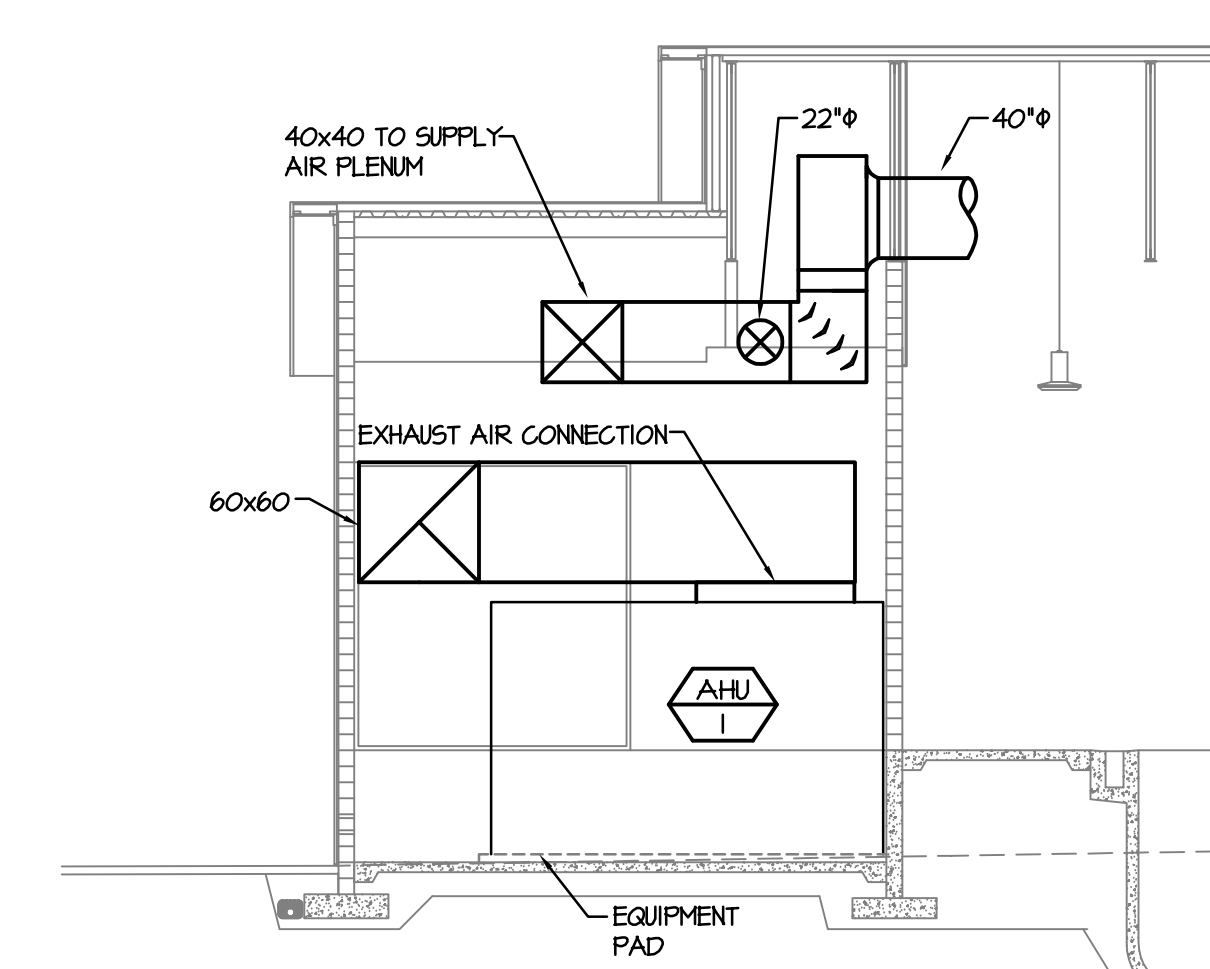
F MECHANICAL ROOM
SCALE: 1/8" = 1'-0"



G NATATORIUM
SCALE: 1/8" = 1'-0"



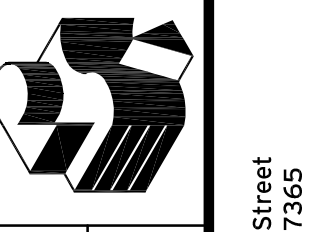
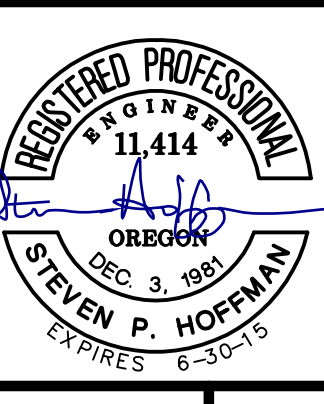
H MECHANICAL ROOM
SCALE: 1/8" = 1'-0"



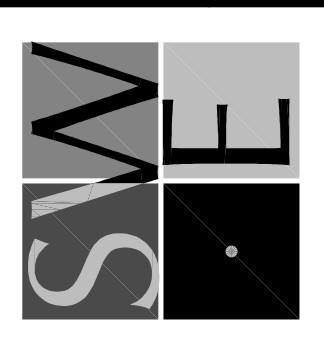
I MECHANICAL ROOM
SCALE: 1/8" = 1'-0"

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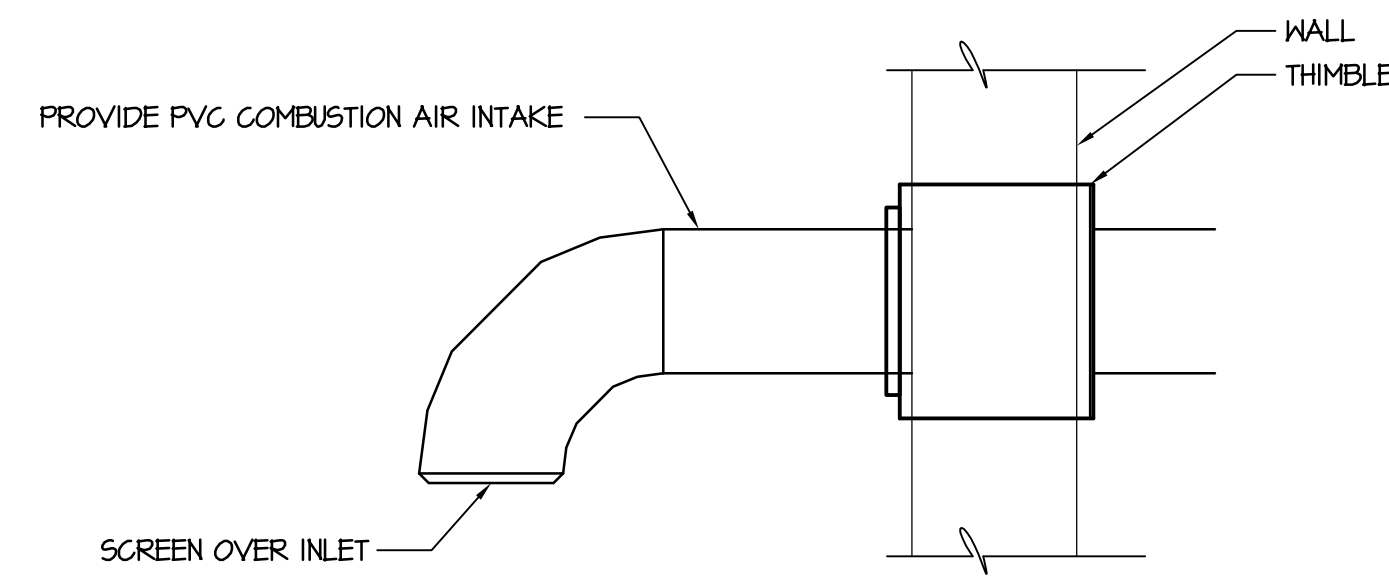
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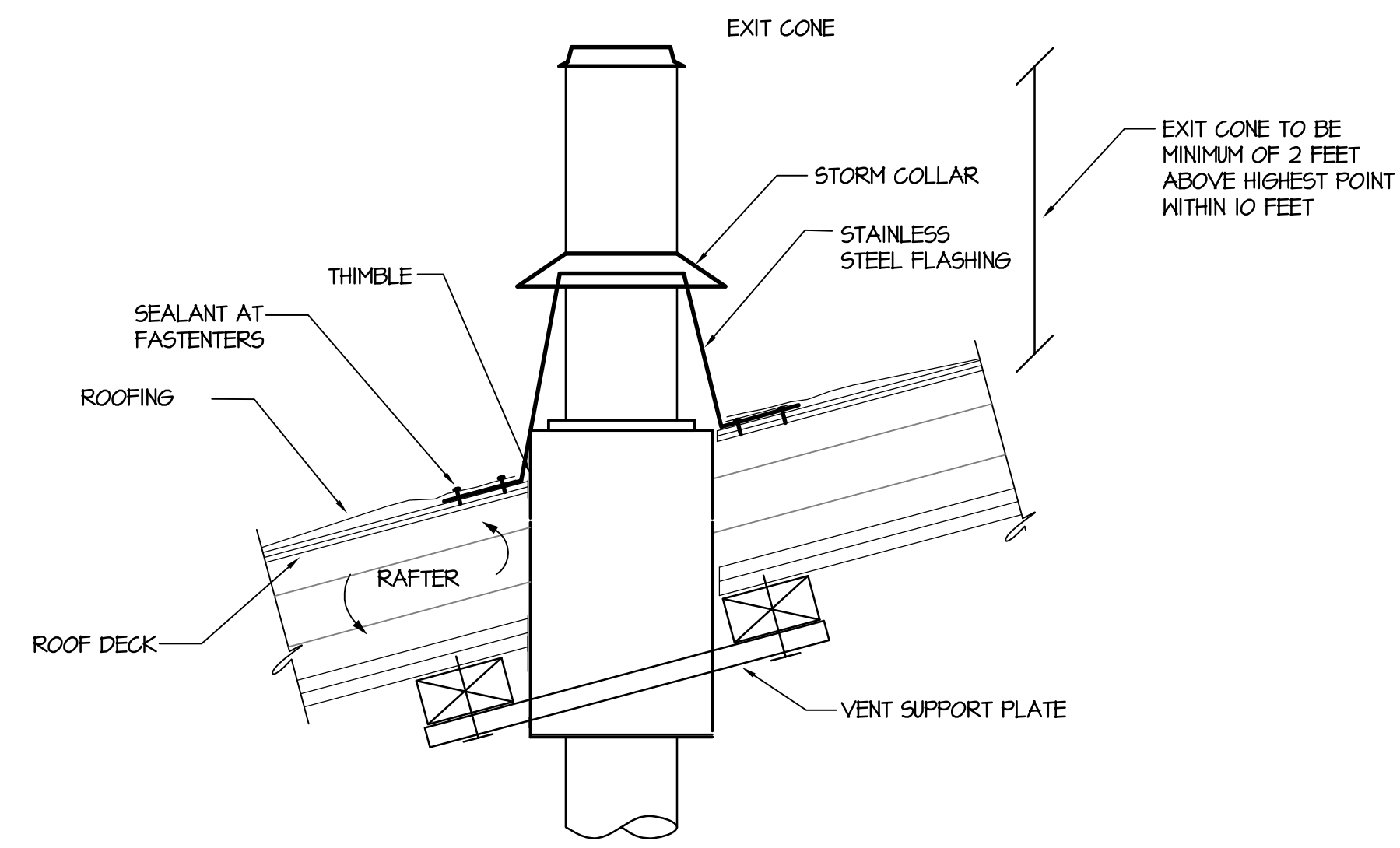
SECTIONS

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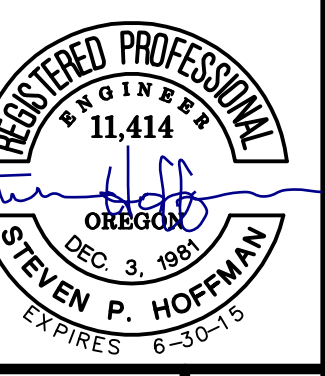
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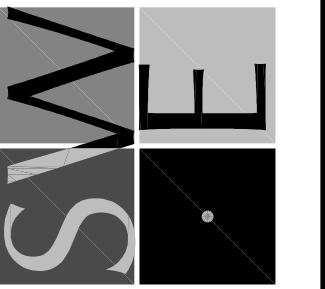
1 BOILER COMBUSTION AIR INTAKE
NOT TO SCALE



2 BOILER FLUE ROOF PENETRATION
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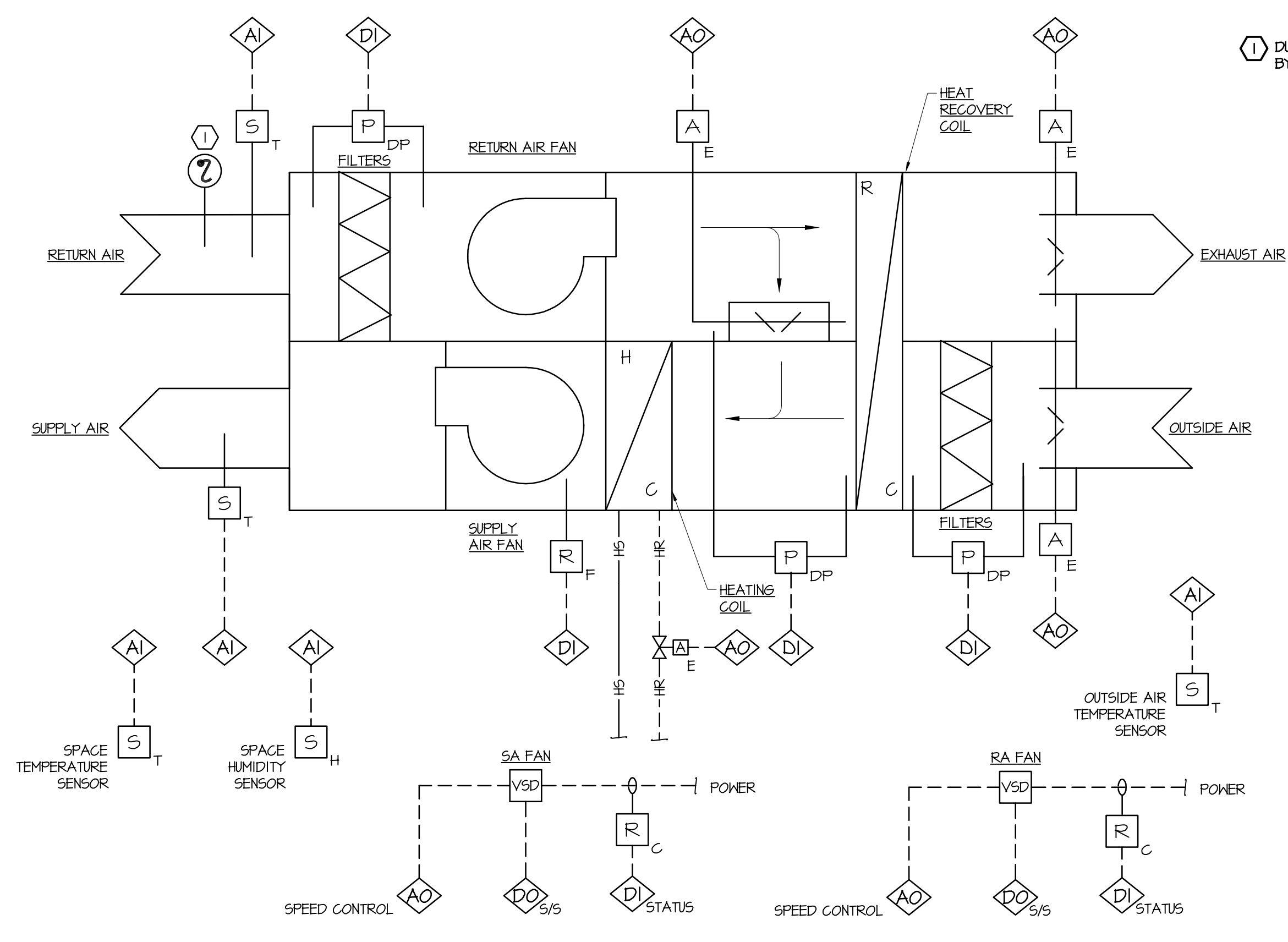


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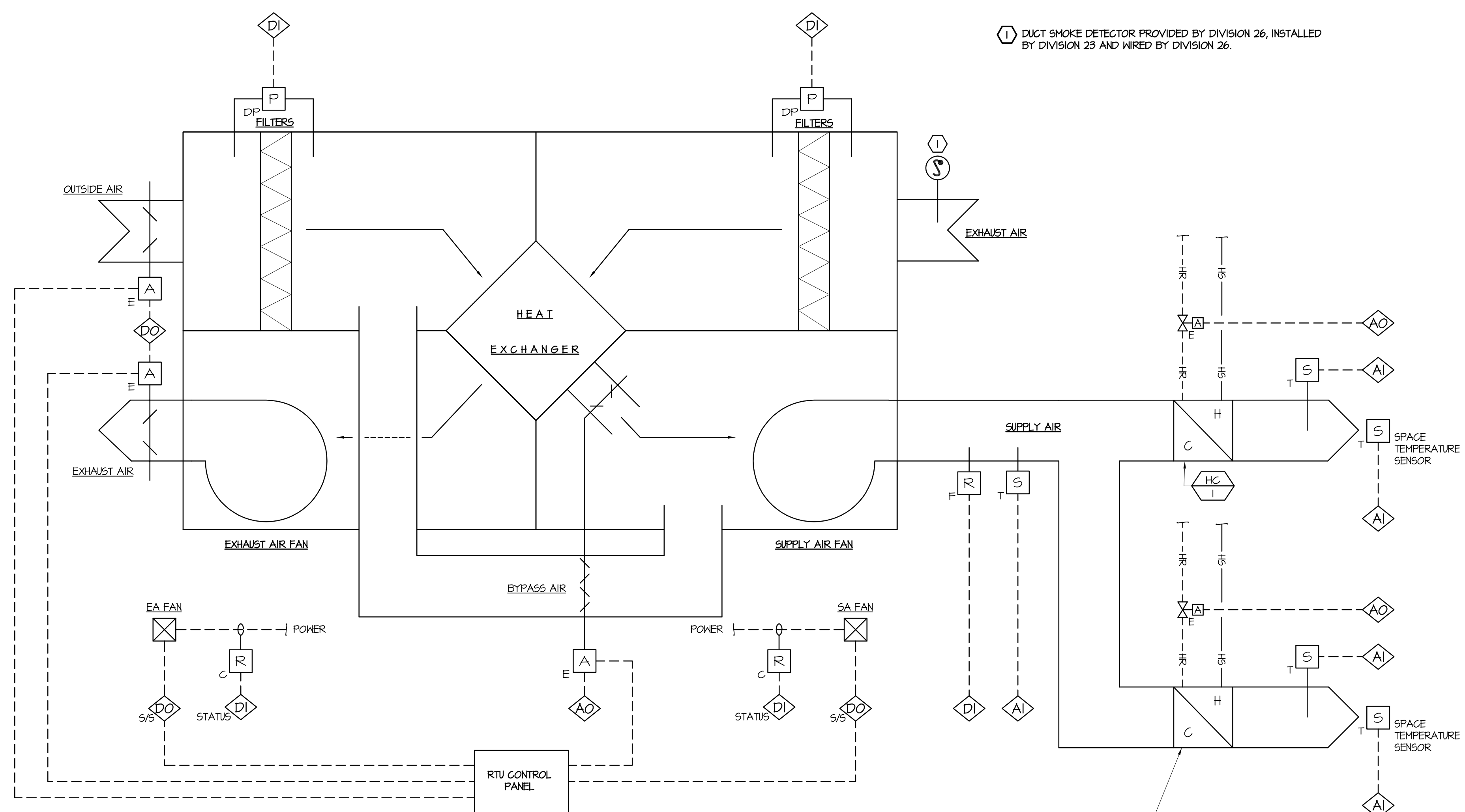
MECHANICAL DETAILS

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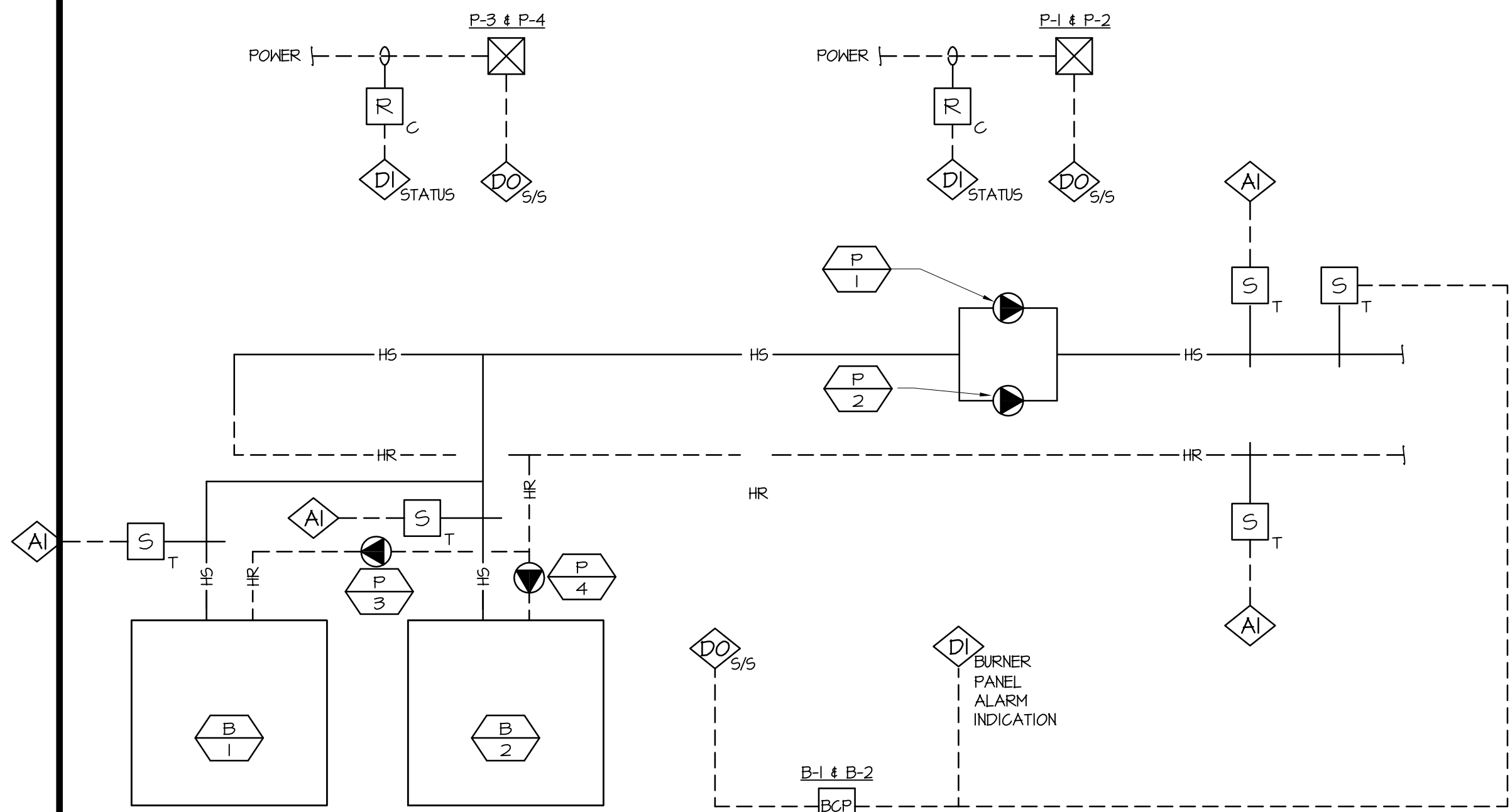
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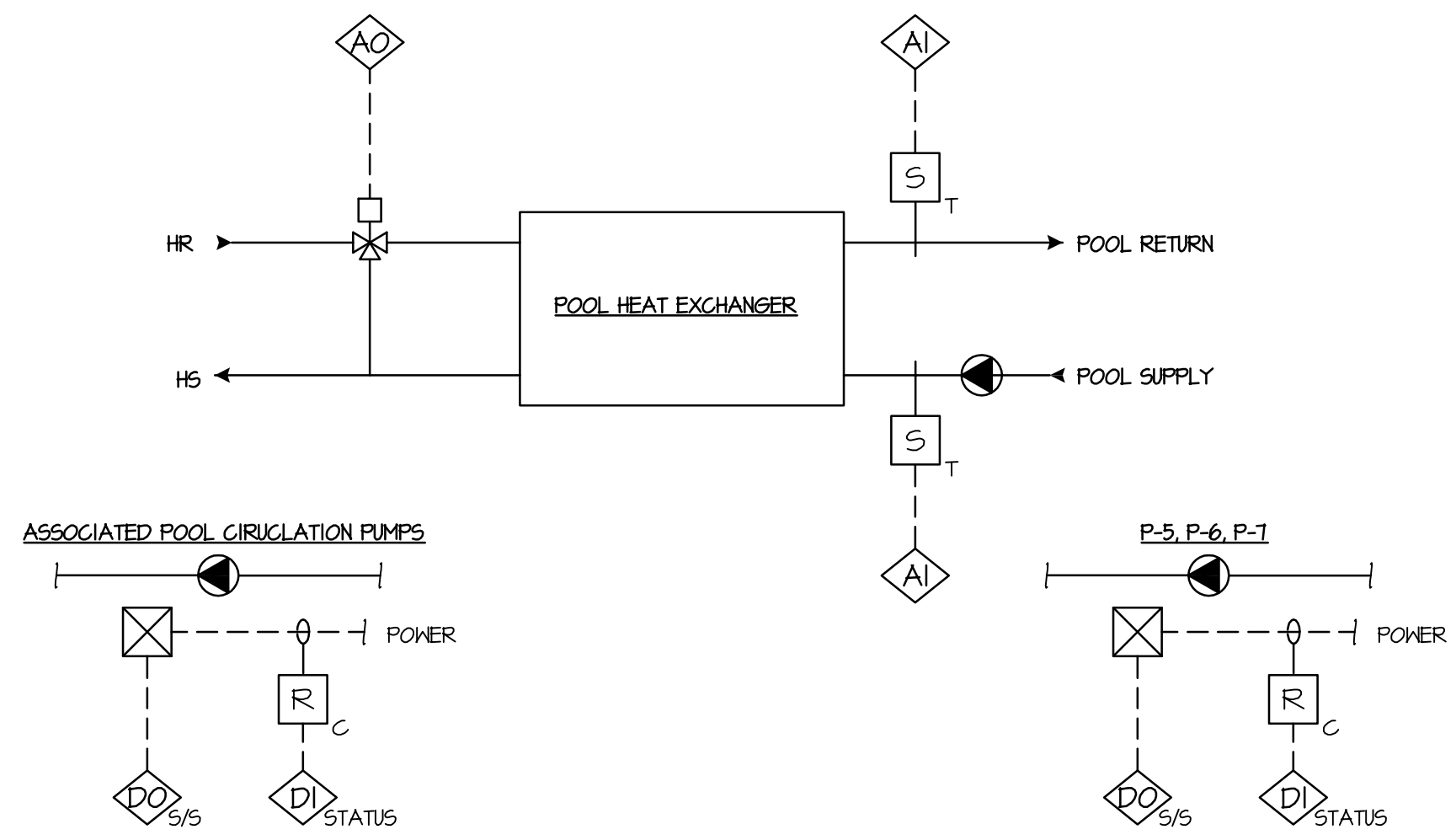
1 AHU-1 CONTROL SCHEMATIC
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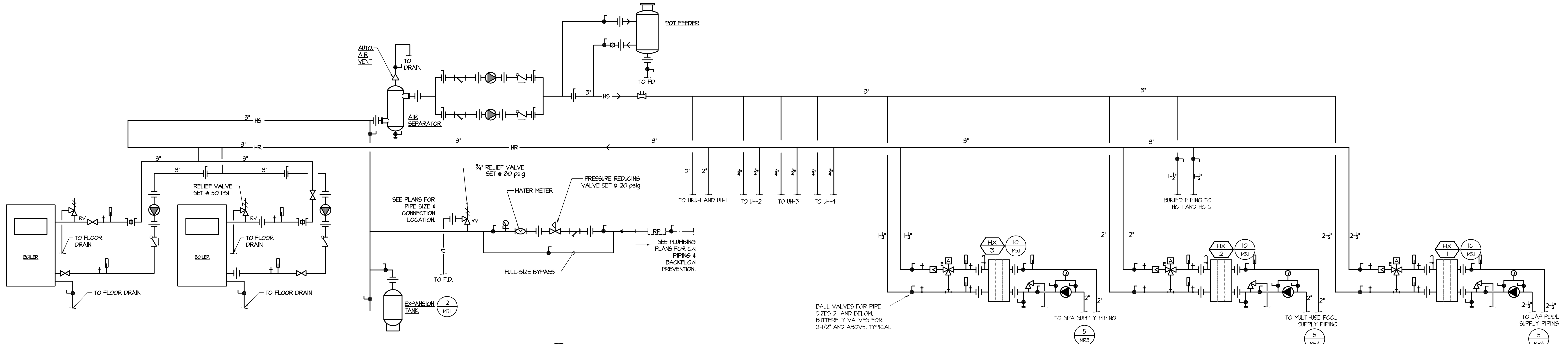
2 HRU-1 CONTROL SCHEMATIC
NOT TO SCALE



3 BOILERS B-1 & B-2 & PUMPS P-1 & P-2 CONTROL SCHEMATIC
NOT TO SCALE



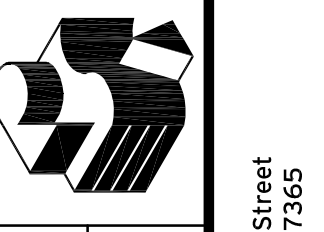
4 POOL EQUIPMENT SCHEMATIC
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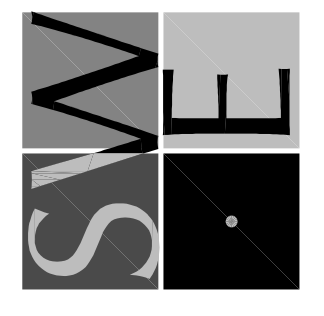
5 HEATING WATER SYSTEM SCHEMATIC
NOT TO SCALE

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MECHANICAL DIAGRAMS

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M6.1

SYMBOLS AND ABBREVIATIONS LEGEND

POWER

NEW CONCEALED RACEWAY AND WIRE. NUMBER OF SLASHES INDICATES NUMBER OF CONDUCTORS IF MORE THAN TWO. SIZE OTHER THAN #12 AS NOTED. (APPLIES TO ALL WIRING SYMBOLS)

UNDERGROUND OR UNDERFLOOR RACEWAY

EXISTING CONCEALED RACEWAY AND WIRE.

HOMERUN

OVERHEAD POWER LINE

SIGNAL WIRING: F = FIRE ALARM, I = INTERCOM, G = LOW VOLTAGE CONTROL, T = TELEPHONE, D = DATA, TV = TELEVISION, P = CLOCK PROGRAM, PG = PHOTO CONTROL

CONDUIT UP

CONDUIT DOWN

PANELBOARD

FLEXIBLE CONNECTION

SWITCH: "1" = CIRCUITS CONTROLLED, "K" = KEY SWITCH, "P" = PILOT LIGHT, "2" = DOUBLE POLE, "3" = THREE-WAY, "M" = AUTOMATIC WALL SWITCH, "D" = DIMMING SWITCH, "TS" = DIGITAL TIMER SWITCH

JUNCTION BOX

DUPLEX RECEPTACLE - "HP" = HEATHERPROOF, "GF" = GROUND FAULT INTERRUPTER TYPE, "M" = MOUNTING HEIGHT, "Q" = CIRCUIT, "150" = WITH ISOLATED GROUND, "SPS" = WITH SURGE SUPPRESSION, "TP" = TAMPER PROOF COVER, "L" = LOCKING, "H" = HOSPITAL GRADE

DOUBLE DUPLEX (QUAD) RECEPTACLE

SPECIAL RECEPTACLE

COMBINATION PHONEDATA PORT 2V/2D = 2 VOICE & 2 DATA PORTS ACTIVE

TELEPHONE TERMINAL BOARD (TTB)

FUSE DISCONNECT, "S" = SWITCH RATING "P" = NUMBER OF POLES "T" = FUSE SIZE

COMBINATION MOTOR STARTER/DISCONNECT SWITCH

DISCONNECT SWITCH

MOTOR STARTER

MANUAL MOTOR STARTER WITH THERMAL OVERLOAD PROTECTION & LOCKABLE OFF COVER

MOTOR

GENERATOR

RELAY

PUSH BUTTON
D=DOOR, G=GARAGE DOOR, P=PANIC

PV ARRAY

INVERTER

GROUND

TRANSFORMER

FUSE

CURRENT TRANSFORMER

CONTACT

GROUND FAULT INTERRUPT CIRCUIT BREAKER

CIRCUIT BREAKER

SWITCH

UTILITY METER

ELECTRICAL EQUIPMENT AS INDICATED ON DRAWINGS

CCV CAMERA

AUTOMATIC TRANSFER SWITCH

SPLICE

STUB

RESISTANCE HEATER

CEILING FAN

LIGHT FIXTURES

AI FIXTURE IDENTIFIER. FIXTURE TYPE "AI" SEE LIGHTING FIXTURE SCHEDULE.

SURFACE MOUNT FLUORESCENT - DRAWN TO SCALE WHERE POSSIBLE

RECESSED FLUORESCENT

RECESSED FLUORESCENT - SHADING INDICATES EMERGENCY BATTERY BALLAST (APPLIES TO ALL LUMINAIRES)

FLUORESCENT STRIP

FLUORESCENT LUMINAIRE IN 4', 8', & 12' LENGTHS, MOUNTED END-TO-END WHERE SHOWN

PENDANT-MOUNTED FIXTURE

UNDERCABINET FLUORESCENT

WALL-MOUNTED FLUORESCENT FIXTURES

HALL MOUNT FIXTURE

RECESSED HALL FIXTURE

RECESSED HALL WASH FIXTURE

SURFACE/PENDANT DOWNLIGHT

RECESSED DOWNLIGHT

UNIVERSAL MOUNT EXIT LIGHT, SHADED SIDE INDICATES FACE OR FACES.

LIGHT LEVEL SENSOR, PHOTO CELL

CEILING MOUNTED MOTION SENSOR COMPLETE SYSTEM WITH POWER PACK.

POLE MOUNTED LUMINAIRE

POST TOP LIGHT

EMERGENCY LIGHTING RELAY

NET NICHE LUMINAIRE

FLUSH INGRADE LUMINAIRE

FIRE ALARM

FIRE ALARM SYSTEM MANUAL PULL STATION W/ COVER

FIRE ALARM SYSTEM BELL

FIRE ALARM SYSTEM HORN W/ STROBE LIGHT, MOUNT @ 80' A.F.F.

FIRE ALARM SYSTEM ANNUNCIATOR

FIRE ALARM MAGNETIC DOOR HOLDER

FIRE ALARM STROBE

FIRE ALARM CHIME

FIRE ALARM FLOW SWITCH

FIRE ALARM TAMPER SWITCH

FIRE ALARM SYSTEM SMOKE DETECTOR
D = DUCT DETECTOR, R = RELAY BASE

COMBINATION FIXED TEMPERATURE AND RATE OF RISE DETECTOR

FIRE/SMOKE DAMPER

SMOKE DAMPER

FIRE DAMPER

RADIO TRANSMITTER PANEL

FIRE ALARM CONTROL PANEL

FIRE SUPPRESSION SYSTEM CONTROL PANEL

FIRE ALARM PANEL

SPRINKLER TAMPER SWITCH

SPRINKLER FLOW SWITCH

LOW AIR SWITCH

FIRE-ACTION HEAT DETECTOR

MANUAL DISCHARGE STATION

ABBREVIATIONS

AFF ABOVE FINISHED FLOOR

BLDG BLDG

C CONDUIT

GL GANDELA

GKT CIRCUIT

(D) DEMOLISH

DIM 0-10V DIMMING

DSP DIGITAL SIGNAL PROCESSOR

(E) EXISTING

ELEG ELECTRICAL

EMERG EMERGENCY

FAM FIRE ALARM MASTER

GF1 GROUND FAULT INTERRUPTER

GND GROUND

HVAC

IDF LOW VOLTAGE

L.V. MAIN DISTRIBUTION FRAME

MECH MECHANICAL

(N) NEW

PNL PANEL

PRS SWITCHBOARD

SKED TELEPHONE TERMINAL BOARD

TVSS TRANSIENT VOLTAGE SURGE SUPPRESSION

TYP TYPICAL

WG WIREGUARD

HP HEATHERPROOF

GENERAL

EF EQUIPMENT IDENTIFIER, EXHAUST FAN I SHOWN

1 SHEET REFERENCE NOTE

2 E-21 PLAN OR DETAIL NUMBER SHEET NUMBER

2 E-50 ROOM NUMBER

123 EXISTING WORK SHOWN LIGHT

NEW WORK SHOWN BOLD

EXISTING TO BE REMOVED

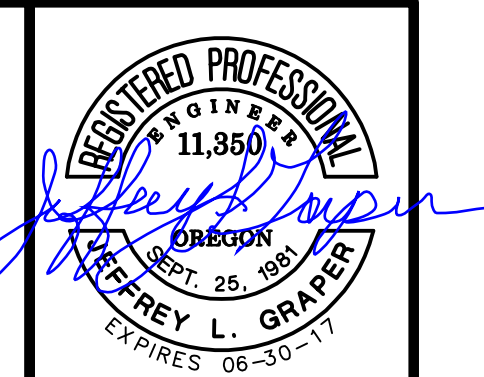
LIGHTING CONTROL PANEL "LCP"		ENCLOSURE			
R	I	C	DESCRIPTION	CONTROL	ZONE
1	TH	-1	ACTIVITY POOL	ON 5: OFF 5: TIME CLOCK	3
2	TH	-1	MENSWOMENS DRESSING	ON 5: OFF 5: TIME CLOCK	3
3	TH	-1	LIFE GUARD OFFICES	ON 5: OFF 5: TIME CLOCK	3
4	TH	-3	SPECTATORS	ON 5: OFF 5: TIME CLOCK	3
5	TH	-3	LAP POOL	ON 5: OFF 5: TIME CLOCK	3
6	TH	-5	CONNECTING COORIDOR GL	ON 5: OFF 5: TIME CLOCK	3
7	TH	-5	CONNECTING COORIDOR WW	ON 5: OFF 5: TIME CLOCK	3
8	TH	-1	NATATORIUM ENTRY	ON 5: OFF 5: TIME CLOCK	3
9			SPACE		
10			SPACE		
11			SPACE		
12			SPACE		
BARRIER BETWEEN NORMAL AND EMERGENCY POWER					
13	INV	-1	MENSWOMENS DRESSING	ON 5: OFF 5: TIME CLOCK	3,4
14	INV	-1	ACTIVITY POOL	ON 5: OFF 5: TIME CLOCK	3,4
15	INV	-2	LAP POOL	ON 5: OFF 5: TIME CLOCK	3,4
16	INV	-2	EXTERIOR	ON TIME CLOCK OFF TIME CLOCK	2,3
17	INV	-4	MECH	ON 5: OFF 3: TIME CLOCK	3,4
18			SPACE		
19			SPACE		
20			SPACE		
21			SPACE		
22			SPACE		
23			SPACE		
24			SPACE		

NOTES:
1. NOT USED
2. ON AT SUNSET OFF AT SUNRISE OR AS DIRECTED BY OWNER
3. COORDINATE TIME CLOCK SCHEDULE WITH OWNER
4. UPON LOSS OF NORMAL POWER FORCE LUMINAIRES ON

GENERAL NOTES:

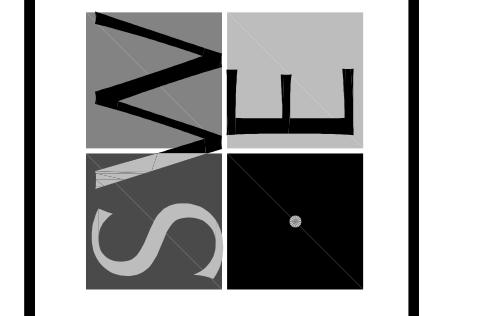
- THE FACILITY WILL REMAIN IN OPERATION DURING CONSTRUCTION. COORDINATE ALL SHUTDOWNS AND CONSTRUCTION ACTIVITY WITH FACILITIES STAFF.
- SIZE AND LOCATION OF ALL EXISTING ELECTRICAL EQUIPMENT IS APPROXIMATE. CONTRACTOR SHALL SITE VERIFY THE EXACT LOCATION OF EXISTING AND CONSTRUCT ALL WORK FROM FIELD DIMENSIONS. CONTRACTOR SHALL MAKE ADJUSTMENTS NECESSARY TO ACCOMMODATE MINOR DEVIATIONS AT NO COST TO OWNER.
- LIGHT LINE WORK INDICATES EXISTING ELECTRICAL CIRCUITRY AND OTHER ELECTRICAL EQUIPMENT. DASHED LINE WORK INDICATES ELECTRICAL DEVICES AND EQUIPMENT TO BE REMOVED.
- WHERE EXISTING EQUIPMENT IS REMOVED AND NOT REPLACED IN THE SAME LOCATION, PATCH AND PAINT SURFACES TO MATCH ORIGINAL CONDITION.
- REMOVE ALL ABANDONED RACEWAY AND WIRING.
- RECONNECT ALL CIRCUITRY TO REMAINING DEVICES AND EQUIPMENT.

LUMINAIRE SCHEDULE				
TYPE	DESCRIPTION	EXAMPLE MANUFACTURER	LAMP	NOTES
'A'	LED HIGH BAY RATED FOR OPERATION AT 45°C	HOLOPHANE VANTAGE VL22L-4K-AS-WU OR APPROVED	22,000 LM LED 4000 CCT	MOUNTING: BOTTOM OF LUMINAIRE EVEN WITH BOTTOM OF TRUSSES UNLESS OTHERWISE NOTED HOUSING: CAST ALUMINUM WITH LOW COPPER CONTENT LENS/REFL: PRISMATIC ACRYLIC VOLTAGE: 277V BALLAST: ELECTRONIC MISC: NO EXPOSED METAL PARTS, PROVIDE CORROSION RESISTANT SAFETY CABLE, IP66 RATED
'A1'	LED HIGH BAY RATED FOR OPERATION AT 45°C	HOLOPHANE VANTAGE VL18L-4K-AS-WU OR APPROVED	18,000 LM LED 4000 CCT	MOUNTING: BOTTOM OF LUMINAIRE EVEN WITH BOTTOM OF TRUSSES UNLESS OTHERWISE NOTED HOUSING: CAST ALUMINUM WITH LOW COPPER CONTENT LENS/REFL: PRISMATIC ACRYLIC VOLTAGE: 277V BALLAST: ELECTRONIC MISC: NO EXPOSED METAL PARTS, PROVIDE CORROSION RESISTANT SAFETY CABLE, IP66 RATED
'B'	1" SURFACE MOUNTED LOW PROFILE SQUARE	KENALL MILLENNIUM SQUARE MS1CL-PP-MH-18L40K-1-SCC -DV-NAT OR APPROVED	1000 LM LED 4000 CCT	MOUNTING: SURFACE, REFER TO DRAWINGS HOUSING: MARINE GRADE CAST ALUMINUM LENS/REFL: UV-STABILIZED HIGH IMPACT RESISTANT POLYCARBONATE VOLTAGE: 277V BALLAST: ELECTRONIC MISC: FULLY GASKETED, IP64 RATED
'B1'	4" SURFACE MOUNTED LOW PROFILE SQUARE	LIGHTOLIER SLIMSURFACE S4S30K1 OR APPROVED	650 LM LED 3000 CCT	MOUNTING: SURFACE HOUSING: ONE PIECE PLASTIC LENS/REFL: HIGH TRANSMITTANCE ACRYLIC VOLTAGE: 277V BALLAST: ELECTRONIC MISC: FULLY GASKETED, UL LISTED WET LOCATIONS.
'C'	PENDANT MOUNTED LINEAR LED LUMINAIRE	KENALL MILLENNIUM STRETCH MLH45-49-R-MH-PP-45L40K -1-DV-NAT-PM PRIM5 ALX1 SERIES OR APPROVED	4500 LM LED 4000 CCT	MOUNTING: PENDANT, 18" AFF. COORDINATE WITH ARCHITECT HOUSING: MARINE GRADE ALUMINUM LENS/REFL: UV-STABILIZED HIGH IMPACT RESISTANT POLYCARBONATE VOLTAGE: 277V BALLAST: IP64 RATED MISC:
'C1'	WALL MOUNTED LINEAR LED LUMINAIRE	KENALL MILLENNIUM STRETCH MLH45-49-R-MH-PP-45L40K -1-DV-NAT PRIM5 ALX1 SERIES OR APPROVED	4500 LM LED 4000 CCT	MOUNTING: WALL, 18" AFF. COORDINATE WITH ARCHITECT HOUSING: MARINE GRADE ALUMINUM LENS/REFL: UV-STABILIZED HIGH IMPACT RESISTANT POLYCARBONATE VOLTAGE: 277V BALLAST: IP64 RATED MISC:
'F'	WET LOCATION STRIP	HOLOPHANE EV14-34LED-ZTT-51SL OR APPROVED	2475 LM LED 4100 CCT	MOUNTING: CHAIN HUNG OR SURFACE HOUSING: POLYCARBONATE LENS/REFL: POLYCARBONATE VOLTAGE: 277V BALLAST: ELECTRONIC MISC: UL LISTED FOR WET LOCATIONS
'F1'	WET LOCATION STRIP	HOLOPHANE EV14-34LED-ZTT-51SL-BSLT22 OR APPROVED	2475 LM LED 4100 CCT	MOUNTING: CHAIN HUNG OR SURFACE HOUSING: POLYCARBONATE LENS/REFL: POLYCARBONATE VOLTAGE: 277V BALLAST: ELECTRONIC MISC: UL LISTED FOR WET LOCATIONS PROVIDE BODINE EMERGENCY BATTERY PACK
'G'	ROUND CYLINDER	PORTFOLIO L5R6A-10-D010TE-P-ERC6A-10-0-40-6LMO-H OR APPROVED	1000 LM LED 4000 CCT TO (LMW)	MOUNTING: SURFACE HOUSING: ALUMINUM LENS/REFL: SEMI-SPECULAR CLEAR VOLTAGE: 277V BALLAST: ELECTRONIC MISC: UL LISTED FOR DAMP LOCATIONS
'H'	SURFACE WALL MOUNT	INSIGHT MC12-B-T-D-CES-16-REM-CC-LV 40-6LMO-H OR APPROVED	BLUE LED 54 (LMW) 7 DEGREES	MOUNTING: SURFACE, CLOSE END HOUSING: ALUMINUM LENS/REFL: 1 DEGREE VOLTAGE: 277V BALLAST: ELECTRONIC MISC: FLAT WHITE FINISHED
'W'	WALL MOUNTED LED ADJUSTIBLE SITE LUMINAIRE	BESA 645TLED-SLV OR APPROVED	3880 LM LED 4000 CCT 6T (LMW)	MOUNTING: WALL, 18" AFF. COORDINATE WITH ARCHITECT HOUSING: MARINE GRADE CAST ALUMINUM LENS/REFL: 1/4" TEMPERED CLEAR SAFETY GLASS VOLTAGE: 277V BALLAST: ELECTRONIC MISC: SILVER FINISH IP 66 RATED
'X'	WET LOCATION EXIT SIGN	LITHONIA LV-S-G-120/277-1M-4X FAIL-SAFE, CHLORIDE, OR APPROVED	GREEN LED	MOUNTING: UNIVERSAL MOUNT, REFER TO DRAWINGS FOR FACES & MOUNTING HOUSING: CAST ALUMINUM LENS/REFL: 0.130" UV-STABLE POLYCARBONATE VOLTAGE: 277V BALLAST: ELECTRONIC MISC: NEMA 4X RATED



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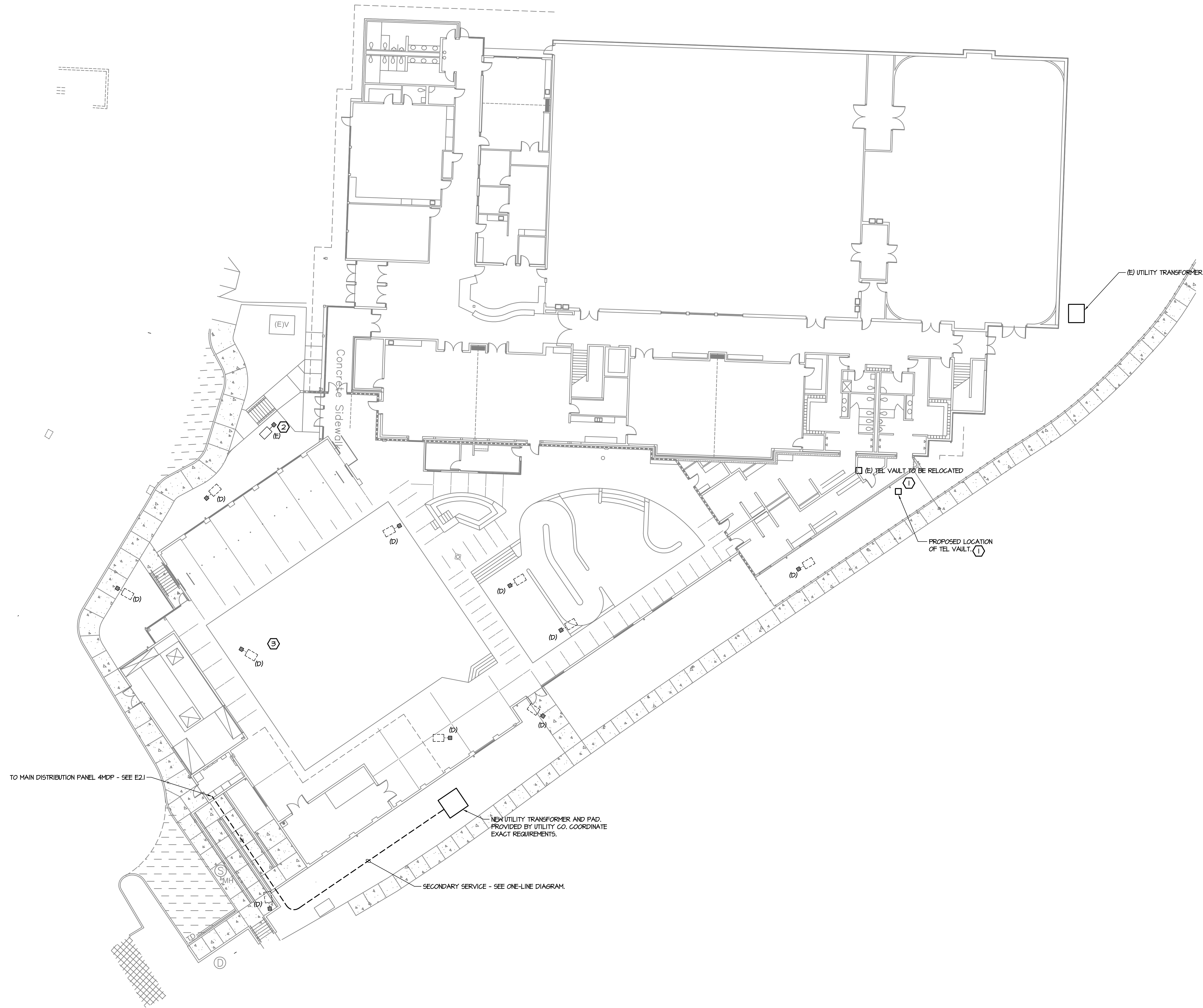
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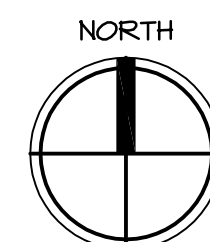
LEGEND, GENERAL NOTES, & LUMINAIRE SCHEDULES

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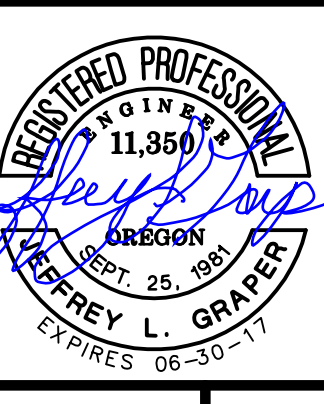
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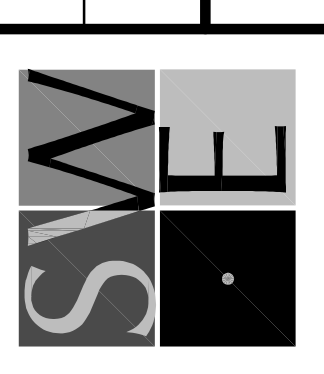
- REFERENCE NOTES:
- ① COORDINATE RELOCATION OF TELEPHONE EQUIPMENT WITH TELEPHONE SERVICE PROVIDER. COORDINATE NEW LOCATION WITH TELCO UTILITY.
 - ② RELOCATE (E) POLE AND LUMINAIRE TO CLEAR NEW CONSTRUCTION. EXTEND (E) CIRCUITRY AND RECONNECT.
 - ③ REMOVE EXISTING SITE LUMINAIRES IN CONFLICT WITH NEW CONSTRUCTION. RE ROUTE AND EXTEND CIRCUITRY TO POLES THAT REMAIN.



1 ELECTRICAL SITE PLAN
SCALE: 1/16" = 1'-0"



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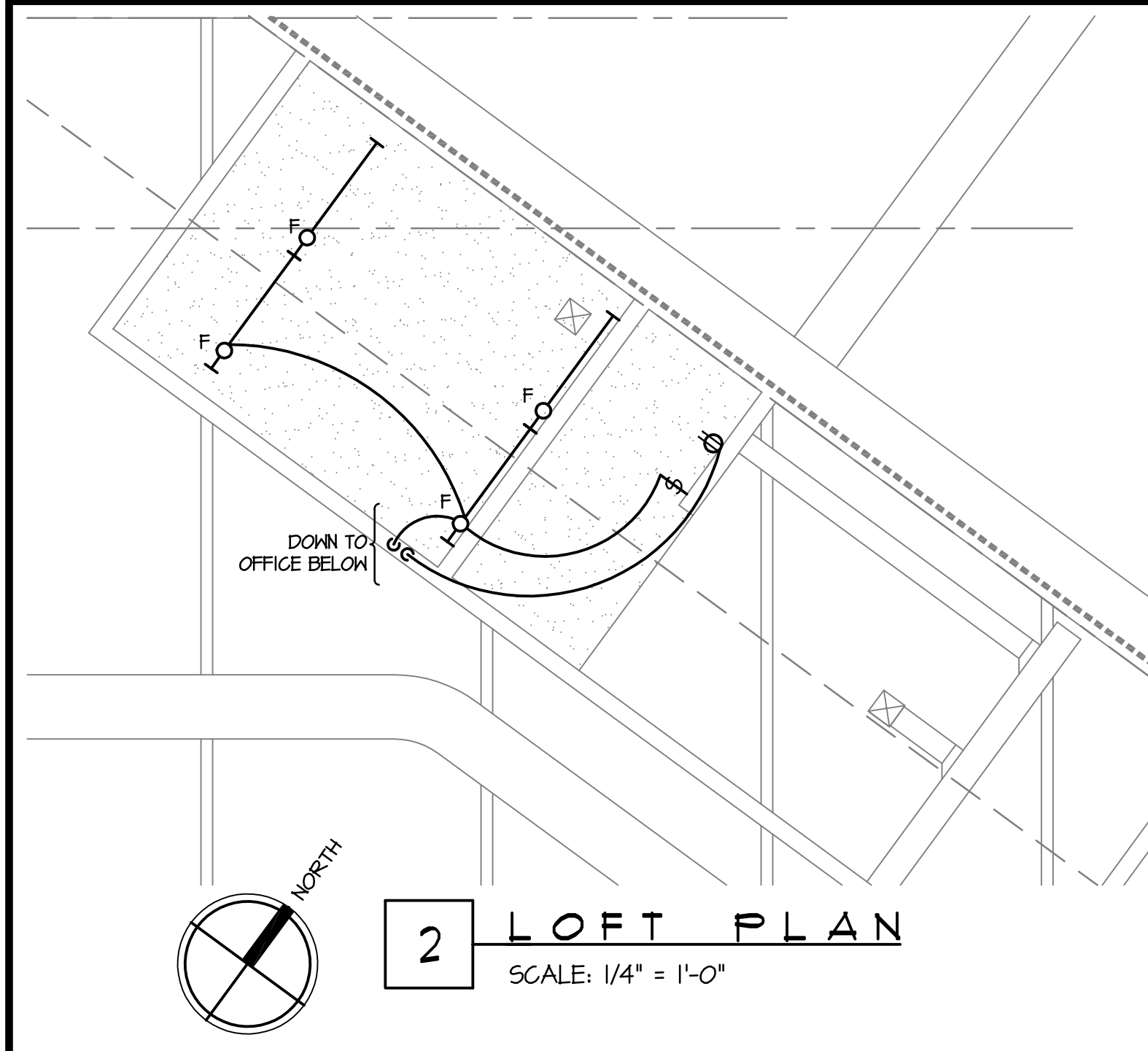
ELECTRICAL SITE PLAN

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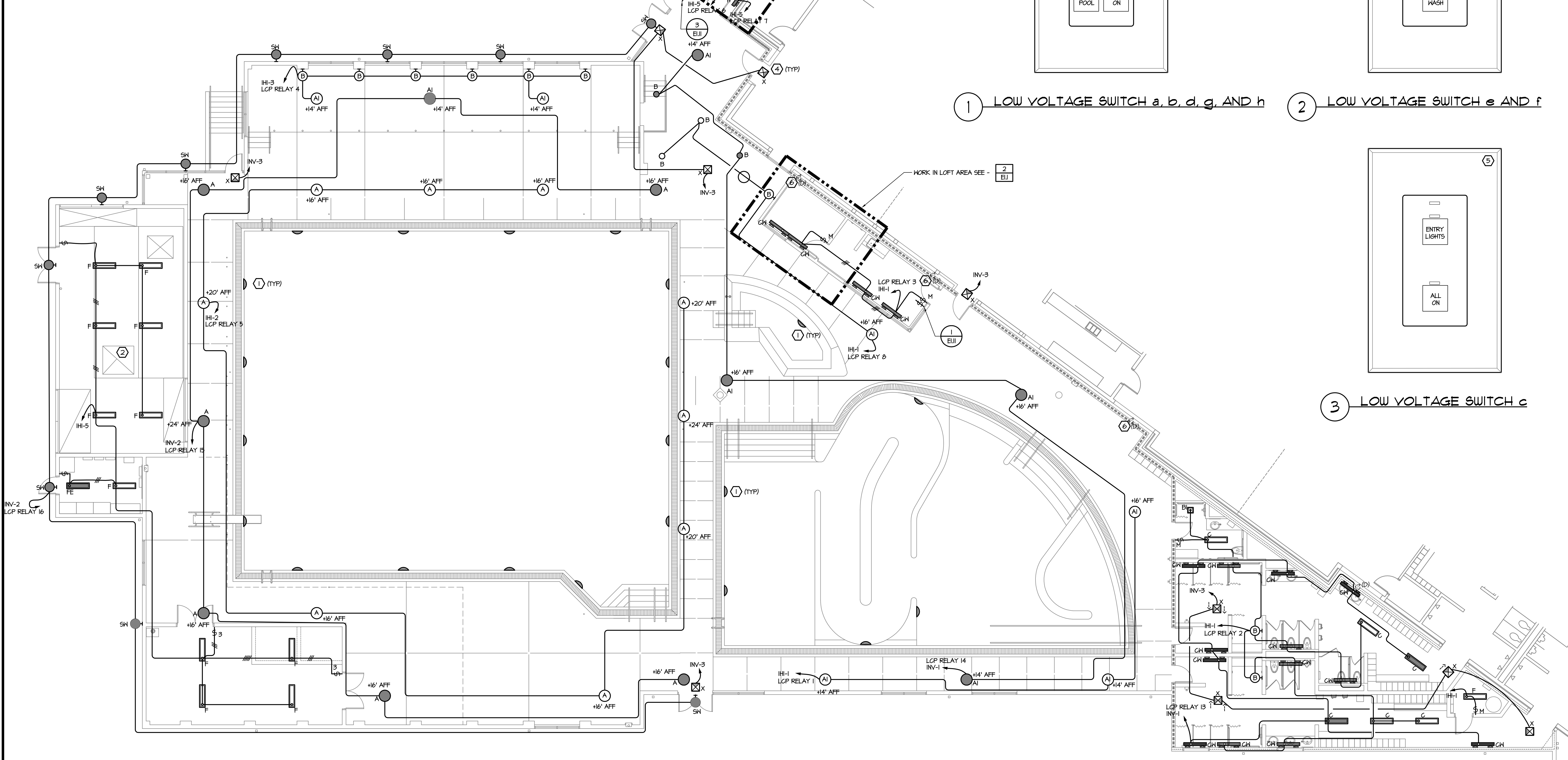
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Newport Aquatics Center

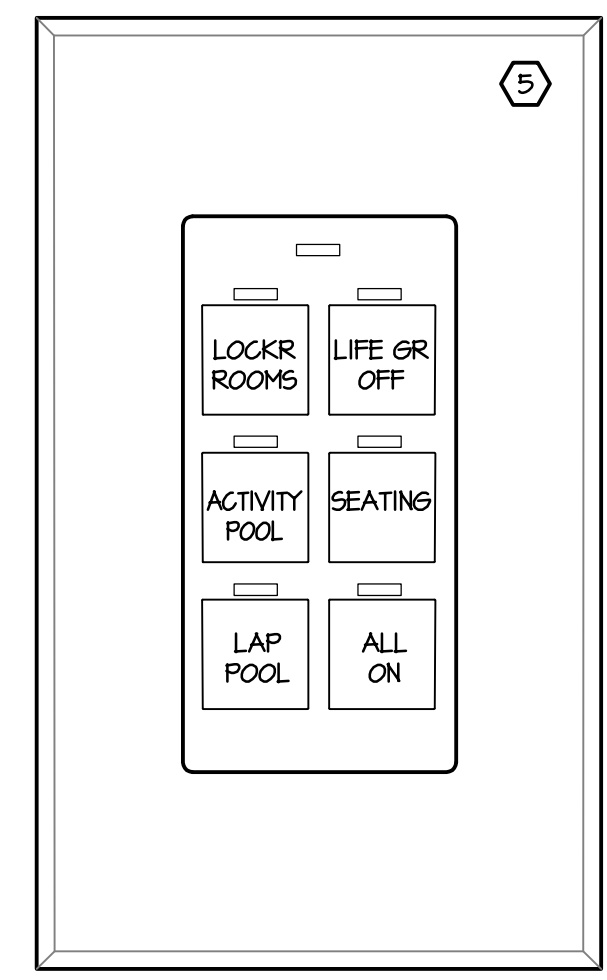


2 LOFT PLAN
SCALE: 1/4" = 1'-0"

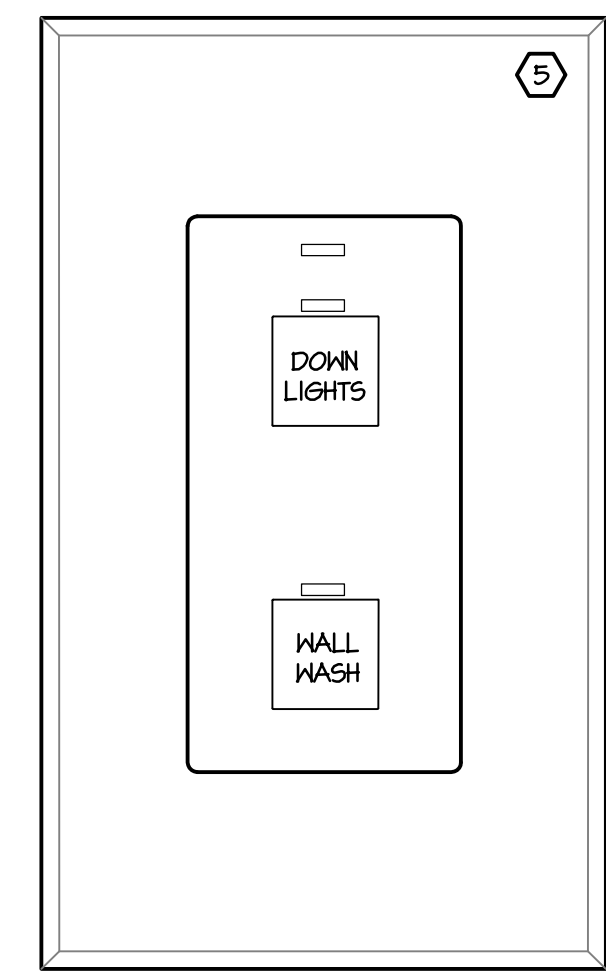


1 MAIN LEVEL LIGHTING PLAN
SCALE: 1/8" = 1'-0"

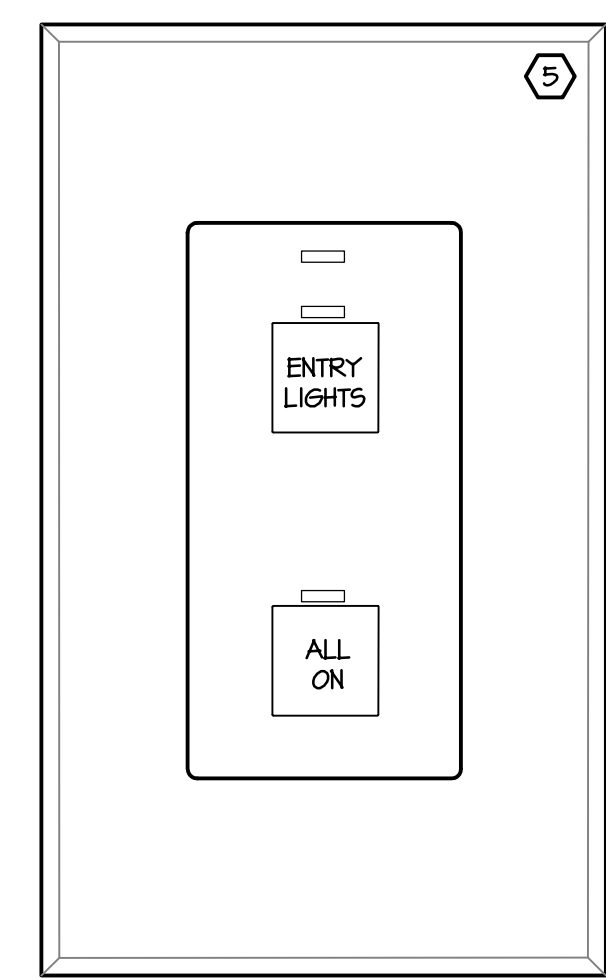
- SHEET NOTES:**
- ① UNDERWATER LIGHTING SYSTEM PROVIDED AND INSTALLED BY OTHER. PROVIDE CONNECTION AND CIRCUITING. REFER SHEET SP3
 - ② COORDINATE LOCATION OF LUMINAIRES WITH MECHANICAL EQUIPMENT AND DUCT WORK.
 - ③ DEMOLISH (E) IN-GRADE LUMINAIRES.
 - ④ CONNECT ALL EXIT SIGNS TO INVERTER CIRCUIT 3.
 - ⑤ DIGITAL LOW-VOLTAGE SWITCH WITH CUSTOM ENGRAVED SWITCH LABELS.
 - ⑥ REMOVE (E) WALL MOUNTED FIXTURES AND HIRING.
 - ⑦ PART OF ALTERNATE No. 1.



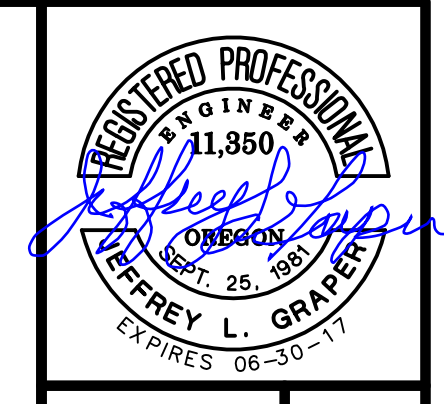
① LOW VOLTAGE SWITCH a, b, d, g, AND h



② LOW VOLTAGE SWITCH e AND f



③ LOW VOLTAGE SWITCH c



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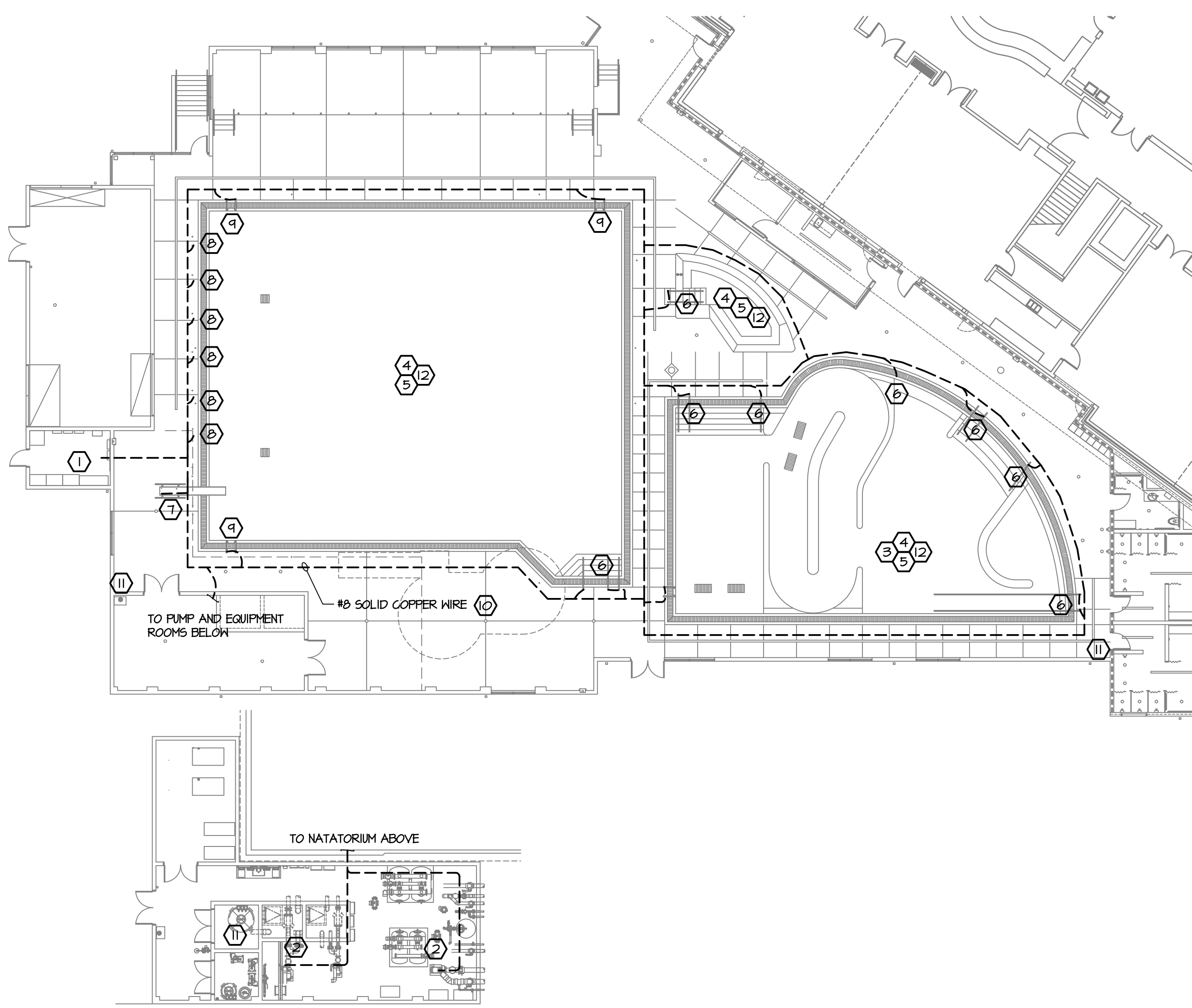
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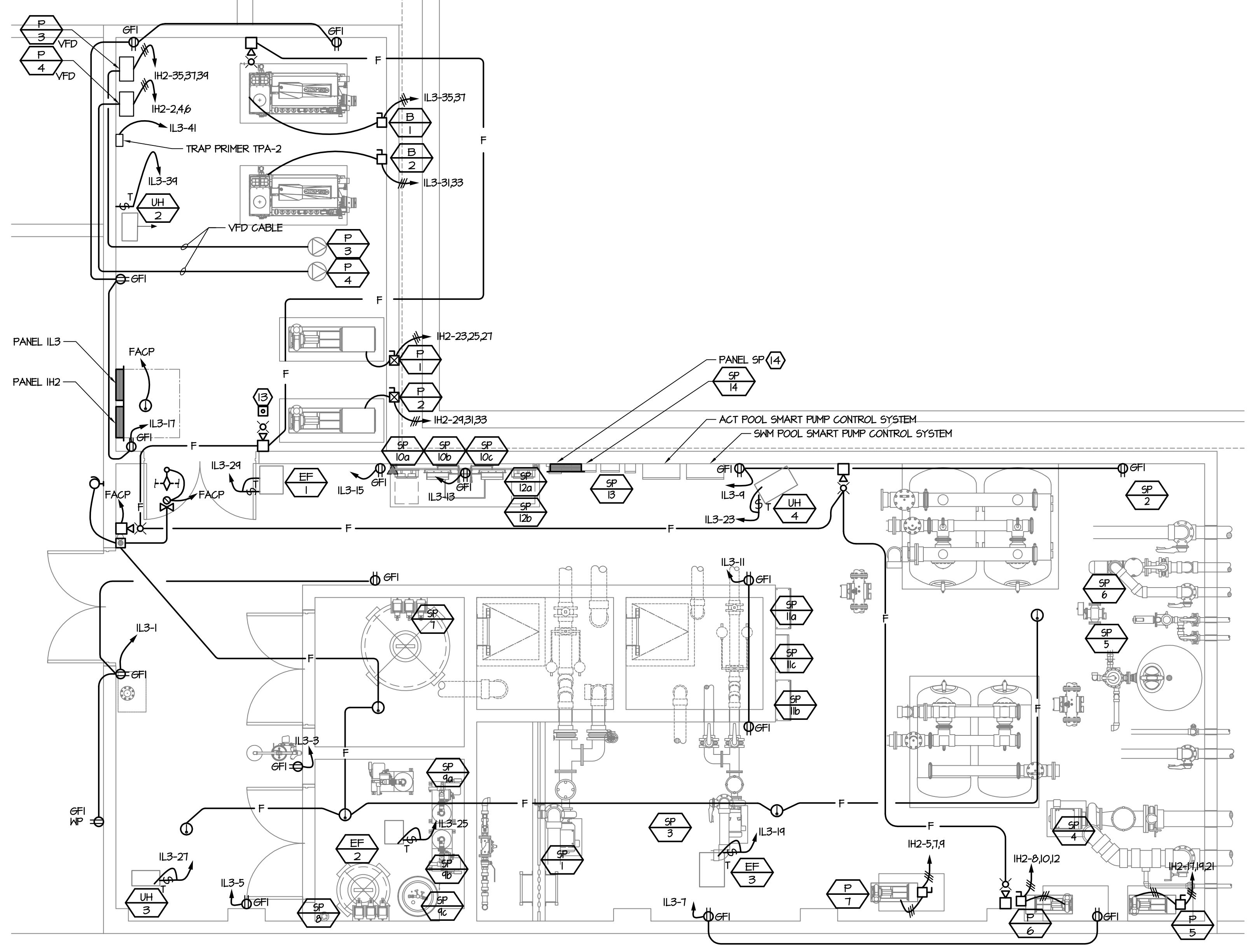
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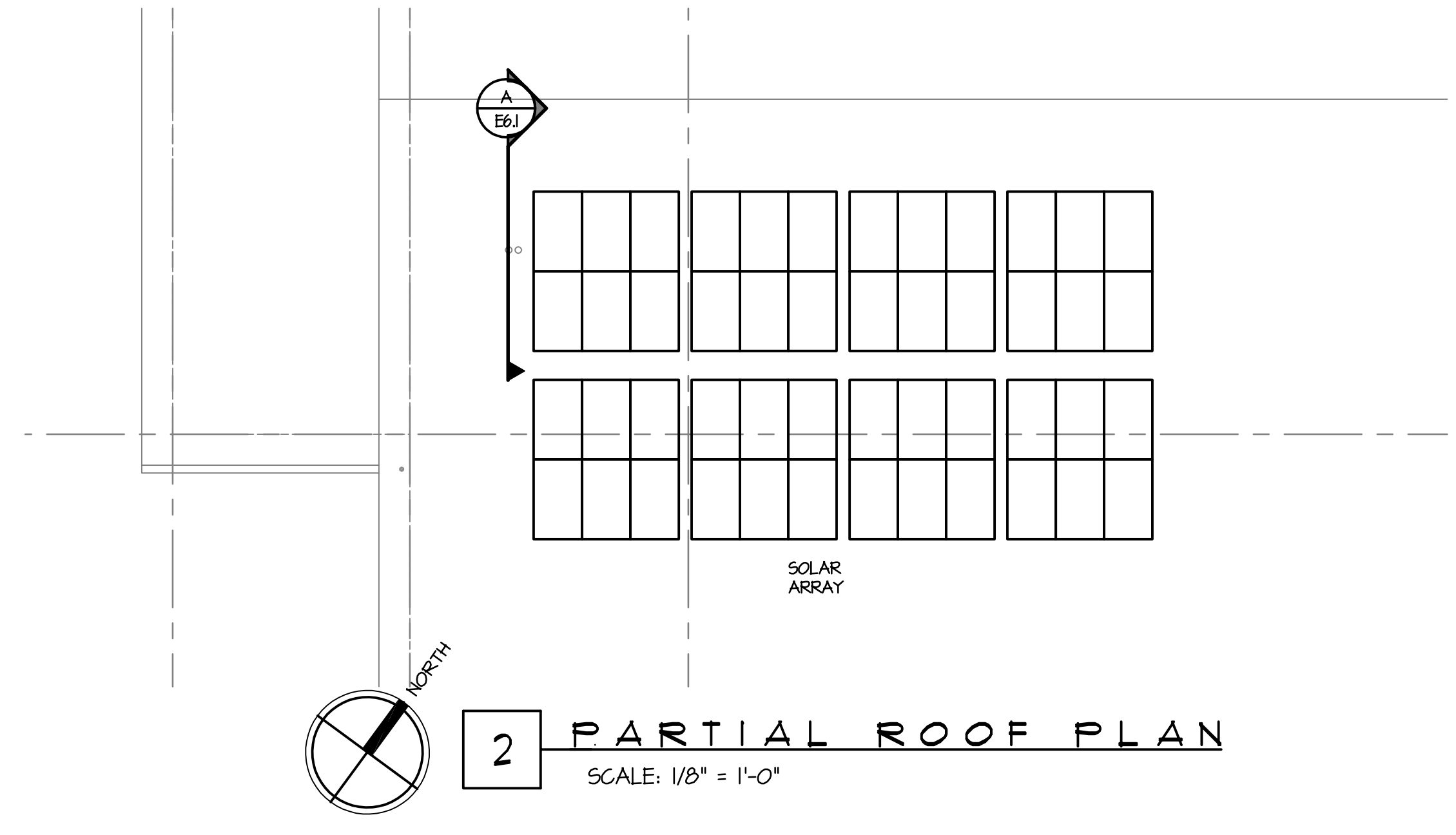
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1 BONDING GRID PLAN
SCALE: 1/16" = 1"



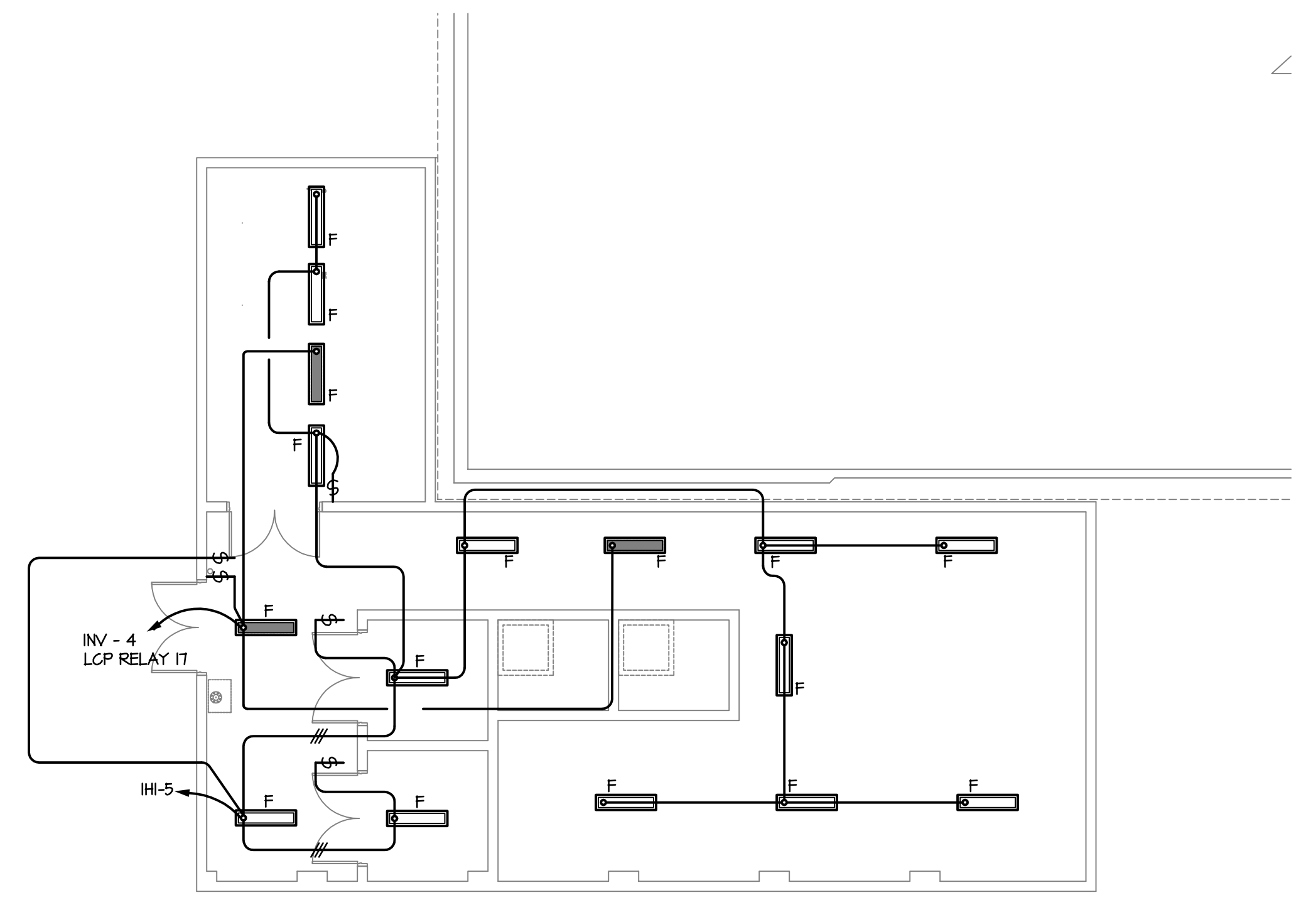
3 LOWER LEVEL ELECTRICAL PLAN
SCALE: 1/4" = 1"



POOL EQUIPMENT SCHEDULE (4)

TAG	DISCRIPTION	VOLTAGE	HP	MOP	MCA	FLA	KW	DISCONN	VFD -1	CIRCUIT -2	FEEDER	NOTES
SP-1	SWIMMING POOL CIRC PUMP	480/3	15						X	1H1-13,15,17	1" C. - 3 #6, 1 #10 GND	PROVIDE VFD CABLE SIZED PER VFD REQUIREMENTS
SP-2	SLIDE BOOSTER PUMP (FUTURE)	480/3	10					X		1H1-14,16,18	3/4" C. - PULL STRING	FUTURE
SP-3	ACTIVITY POOL CIRC PUMP	480/3	10						X	1H1-25,27,29	3/4" C. - 3 #10, 1 #10 GND	PROVIDE VFD CABLE SIZED PER VFD REQUIREMENTS
SP-4	ACTIVITY PL RVR BOOSTER PUMP	480/3	15					X		1H1-26,28,30	1" C. - 3 #6, 1 #10 GND	
SP-5	SPA CIRC PUMP	208/3	2					X		PANEL SP	3/4" C. - 3 #12, 1 #12 GND	
SP-6	SPA BOOSTER PUMP	480/3	5					X		1H1-35,37,39	3/4" C. - 3 #12, 1 #12 GND	
SP-7	CHLORINE FEED SYSTEM	120/1				9		X		PANEL SP	1/2" C. - 2 #12, 1 #12 GND	PROVIDE TELCO CONNECTION
SP-8	ACID FEED SYSTEM	120/1				9		X		PANEL SP	1/2" C. - 2 #12, 1 #12 GND	PROVIDE TELCO CONNECTION
SP-9a	SWM CO2 FEEDER	208/1				8.8		X		PANEL SP	1/2" C. - 2 #12, 1 #12 GND	PROVIDE TELCO CONNECTION
SP-9b	ACT CO2 FEEDER	208/1				8.8		X		PANEL SP	1/2" C. - 2 #12, 1 #12 GND	PROVIDE TELCO CONNECTION
SP-9c	SPA CO2 FEEDER	208/1				8.8		X		PANEL SP	1/2" C. - 2 #12, 1 #12 GND	PROVIDE TELCO CONNECTION
SP-10a	SWM CHEMISTRY CONTROLLER	120/1				10				PANEL SP	1/2" C. - 2 #12, 1 #12 GND	PROVIDE TELCO CONNECTION
SP-10b	ACT CHEMISTRY CONTROLLER	120/1				10				PANEL SP	1/2" C. - 2 #12, 1 #12 GND	PROVIDE TELCO CONNECTION
SP-10c	SPA CHEMISTRY CONTROLLER	120/1				10				PANEL SP	1/2" C. - 2 #12, 1 #12 GND	PROVIDE TELCO CONNECTION
SP-11a	SWM ULTRA VIOLET TRTMT SYS	208/1				28.8		X		PANEL SP	3/4" C. - 3 #10, 1 #10 GND	
SP-11b	ACT ULTRA VIOLET TRTMT SYS	208/1				29		X		PANEL SP	3/4" C. - 3 #10, 1 #10 GND	
SP-11c	SPA ULTRA VIOLET TRTMT SYS	208/1				14		X		PANEL SP	1/2" C. - 2 #12, 1 #12 GND	
SP-12a	FILL SYSTEM	120/1								PANEL SP	1/2" C. - 2 #12, 1 #12 GND	CONNECT SOLENOID TO CHEM CONTROLLERS
SP-12b	FILL SYSTEM	120/1								PANEL SP	1/2" C. - 2 #12, 1 #12 GND	CONNECT SOLENOID TO CHEM CONTROLLERS
SP-13	SPA FILL SYSTEM	120/1								PANEL SP	1/2" C. - 2 #12, 1 #12 GND	CONNECT SOLENOID
SP-14	WET-NICHE LIGHTING CNTL PNL											ROUTE WET NICHES CIRCUITS THRU PANEL

*1 = SUPPLIED BY OTHER
*2 = PANEL SP SPECIFIED BY POOL DESIGNER



4 LOWER LEVEL LIGHTING PLAN
SCALE: 1/4" = 1"

- REFERENCE NOTES:
- BOND MAIN SERVICE GROUND TO BONDING GRID.
 - BOND ALL PUMP MOTORS ASSOCIATED WITH EACH POOL WATER CIRCULATION SYSTEM TO BONDING GRID.
 - BOND METAL PARTS OF WATER PLAY EQUIPMENT TO BONDING GRID.
 - BOND ALL METAL PIPES WITHIN 5' OF POOL TO BONDING GRID.
 - BOND REINFORCING METAL OF EACH POOL SHELL TO BONDING GRID.
 - BOND ALL HAND RAIL ANCHORS TO BONDING GRID.
 - BOND ALL METAL PARTS OF DIVING BOARDS AND DIVING PLATFORMS TO BONDING GRID.
 - BOND ALL STARTING BLOCKS TO BONDING GRID.
 - BOND ALL LADDER ANCHORS TO BONDING GRID.
 - PROVIDE A COPPER CONDUCTOR GRID PER NEC 680.26.
 - BOND BUILDING STEEL TO BONDING GRID.
 - BOND ALL METAL PARTS OF ACCESSIBILITY LIFT TO BONDING GRID.
 - INSTALL BOILER EMERGENCY STOP SWITCH. COORDINATE WITH MECHANICAL.
 - PANEL AND EQUIPMENT SUPPLIED WITH POOL EQUIPMENT. SEE 2/MR2

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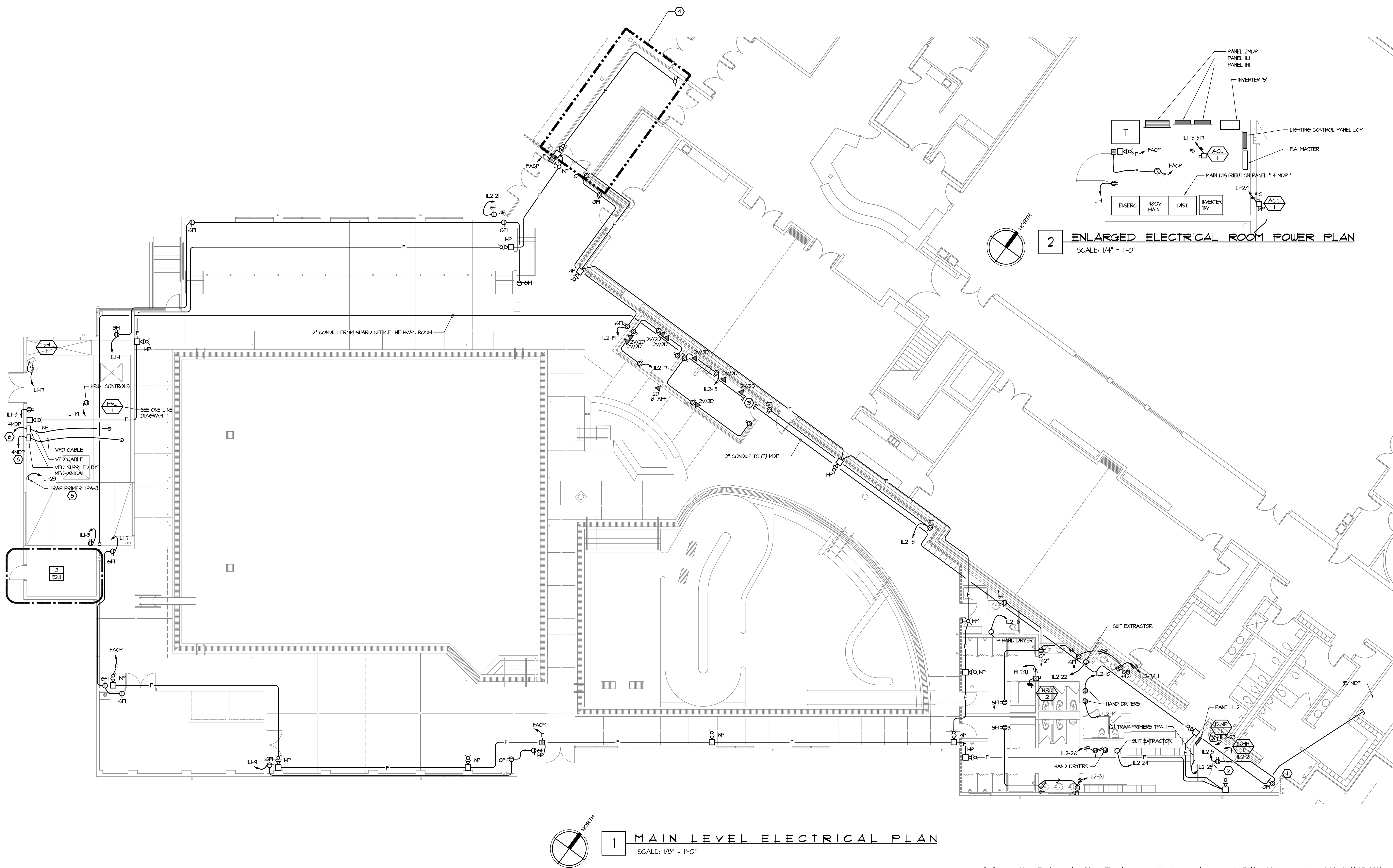
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LOWER LEVEL LIGHTING & ELECTRICAL PLANS

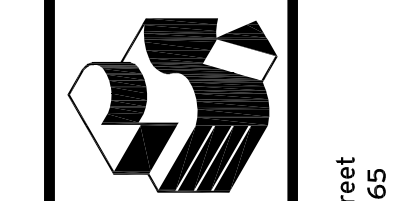
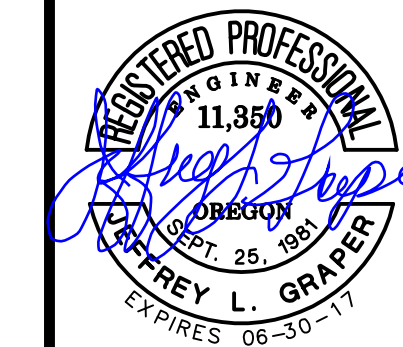
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Project: 1419

E1.2

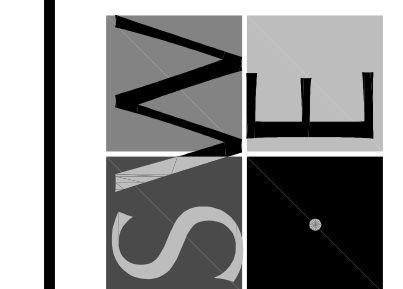
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- SHEET NOTES:**
- 1) PROVIDE EXPANSION JOINT BETWEEN NEW AND (E) BUILDING. PROVIDE FIRE STOPPING AT PENETRATION OF FIRE RATED WALL.
 - 2) INSTALL HOT WATER HEATER EMERGENCY STOP BUTTON. COORDINATING WITH PLUMBING.
 - 3) STUB AT DATA SWITCH LOCATION. COORDINATE WITH OWNER.
 - 4) PART OF ALTERNATE No. 1.
 - 5) VERIFY EXACT LOCATION WITH MECH. PRIOR TO ROUGH-IN.
 - 6) SEE ONE-LINE DIAGRAM FOR FEEDER SIZES.



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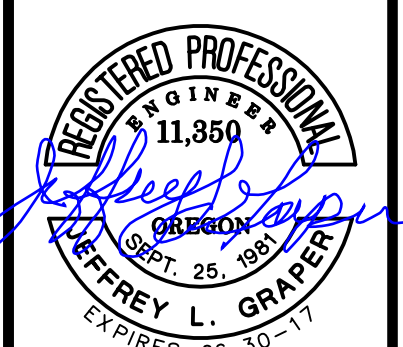
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NEWPORT AQUATICS CENTER

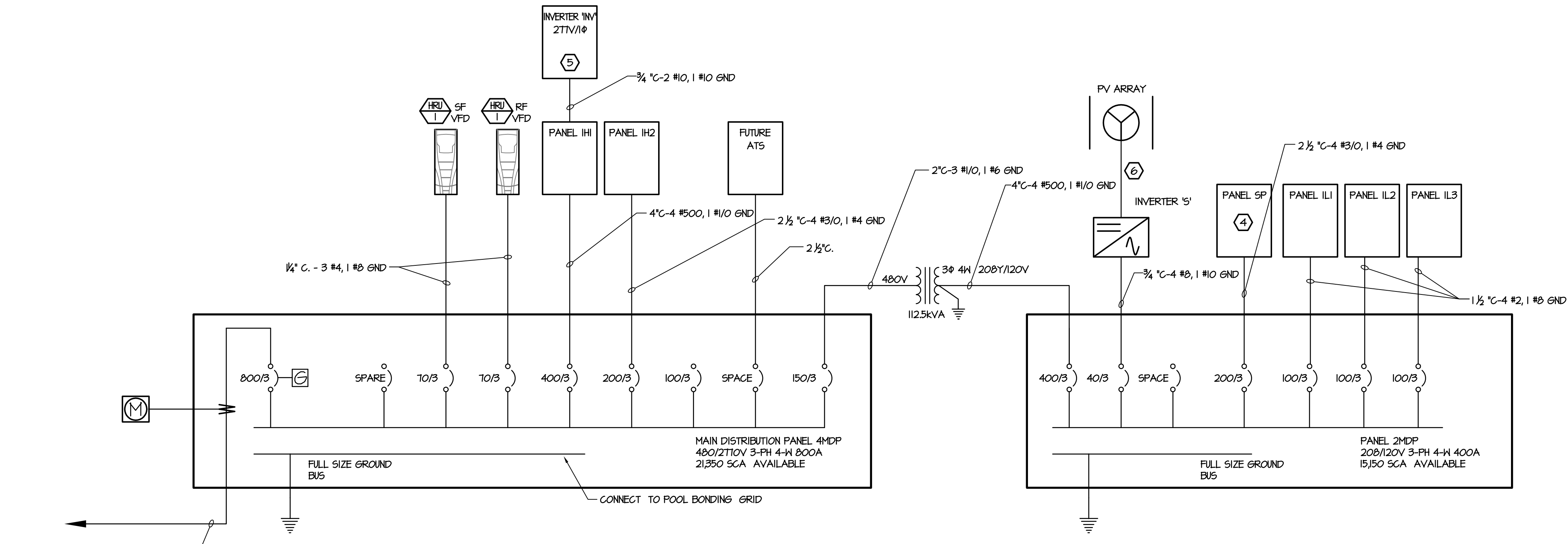
MAIN LEVEL ELECTRICAL & ENLARGED PLANS

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Project	1419

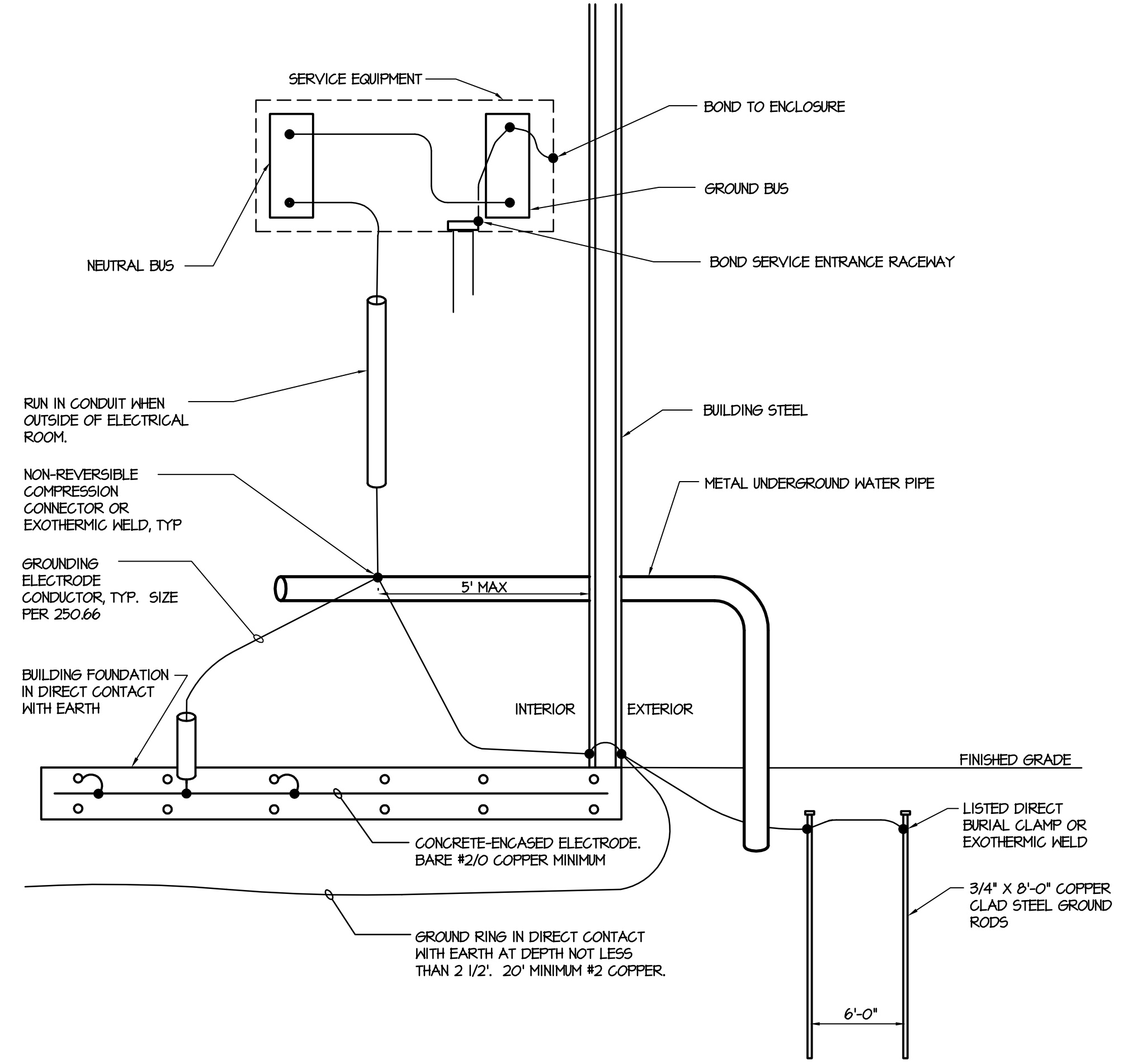
E2.1



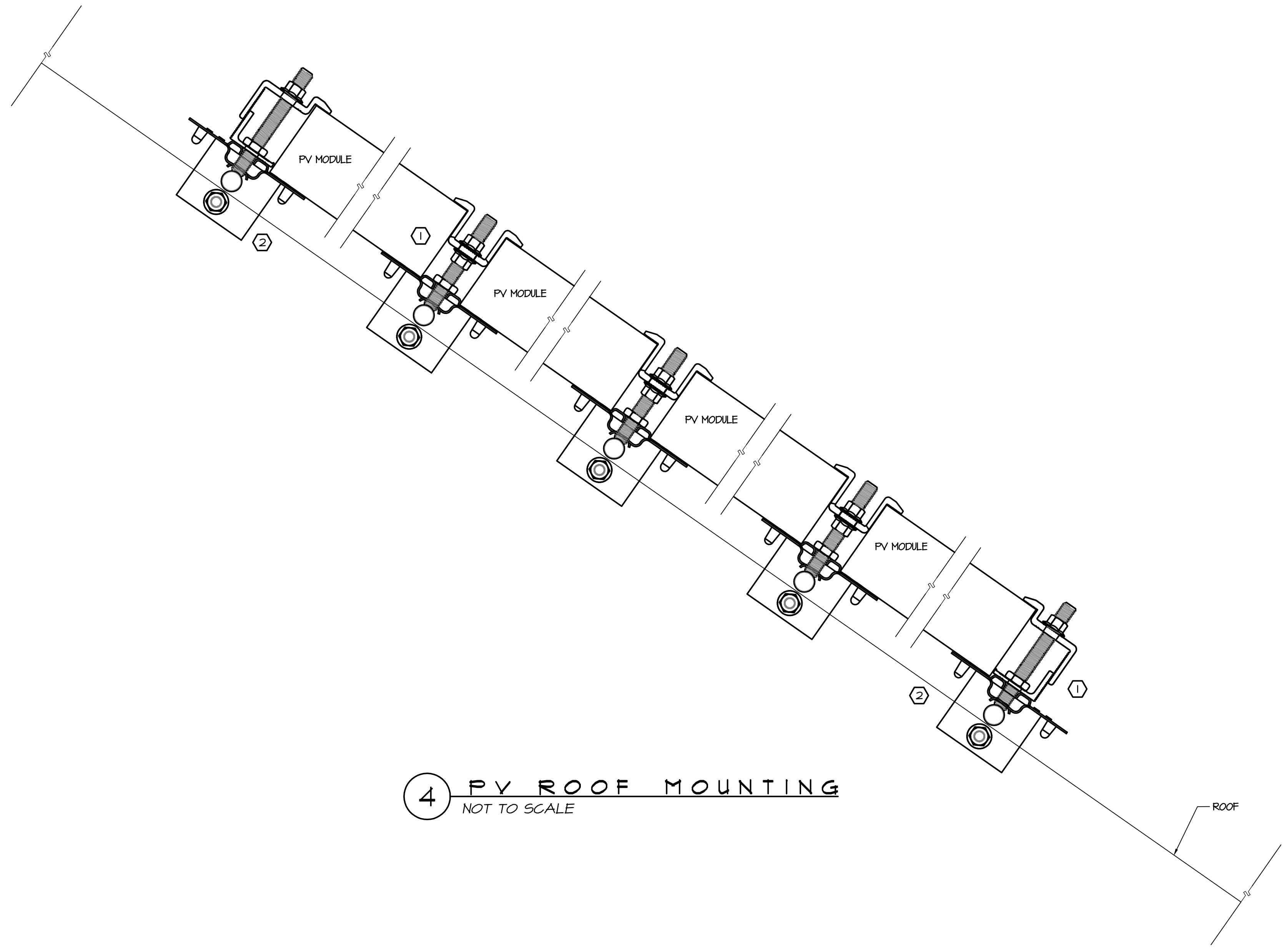
- SHEET NOTES:**
- 1 PV MOUNTING ASSEMBLY. SEE 4/E6.1.
 - 2 ATTACH TO ROOF SEAM WITH 5-51 MINI CLAMP.
 - 3 COORDINATE CLAMP SIZES WITH PV PANELS PROVIDED.
 - 4 REFER TO 2/MS2.
 - 5 PROVIDE 3.75kVA 277/277V INVERTER MIN RUN TIME OF 30 MINUTES, 40% LOADABLE, RS232 COM PORT, INTERNAL MAINTENANCE BYPASS (8) 20-AMP 1-POLE OUTPUT CIRCUIT BREAKERS, EXTENDED FACTORY WARRANTY, FORCED AIR COOLING, AND FACTORY STARTUP/TRAINING.
 - 6 PROVIDE WIRING PER MANUFACTURERS REQUIREMENTS.



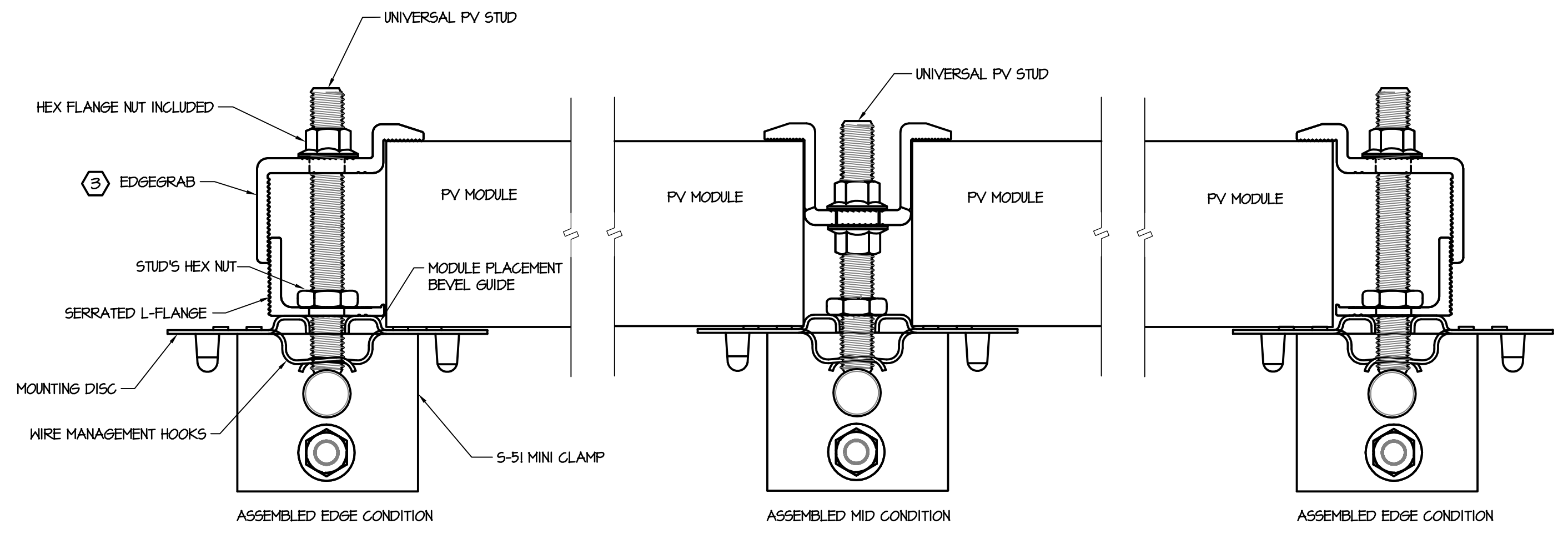
1 ELECTRICAL ONE-LINE DIAGRAM
NOT TO SCALE



2 ELECTRICAL SERVICE GROUNDING ELECTRODE SYSTEM
NOT TO SCALE



4 PV ROOF MOUNTING
NOT TO SCALE



3 PV MOUNTING ASSEMBLY
NOT TO SCALE

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**ONE-LINE DIAGRAM,
DETAILS, & SCHEDULES**

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Checked: MBR
Date: 17-JUNE-2015
Project: 1419

E6.1