

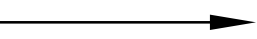



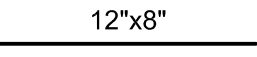
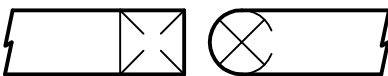
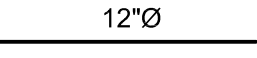
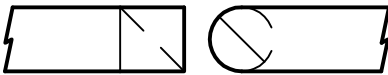
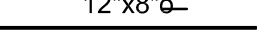
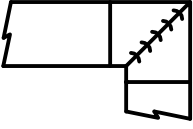
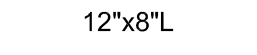
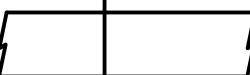
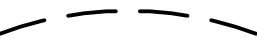

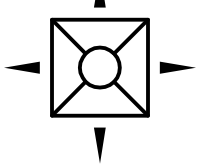
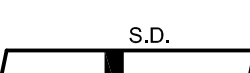

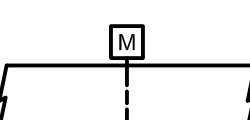
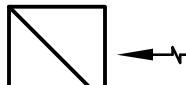
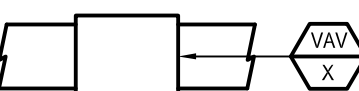
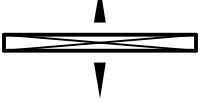
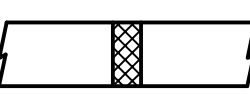
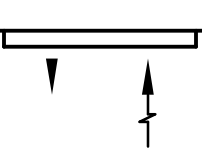
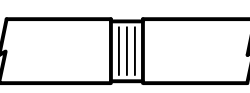
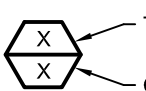
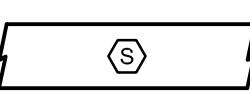
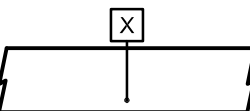
HVAC ABBREVIATIONS





AAV	AUTOMATIC AIR VENT	H	HUMIDIFIER
AC	AIR COMPRESSOR	HC	HEATING COIL
ACCU	AIR COOLED CONDENSING UNIT	HEX	HEAT EXCHANGER
ACS DR	ACCESS DOOR	HP	HORSEPOWER
ACS PNL	ACCESS PANEL	HRU	HEAT RECOVERY UNIT
ACV	AUTOMATIC CONTROL VALVE	HSTAT	HUMIDISTAT
AFF	ABOVE FINISHED FLOOR	HV	HEATING AND VENTILATING UNIT
AFG	ABOVE FINISHED GRADE	HWB	HOT WATER BOILER
AHU	AIR HANDLING UNIT	HWCP	HOT WATER CIRCULATING PUMP
ALUM	ALUMINUM		
AS	AIR SEPARATOR	LAT	LEAVING AIR TEMPERATURE
ASC	ABOVE SUSPENDED CEILING	LRI	LOUVERED ROOF INTAKE
AVG	AVERAGE	LRV	LOUVERED ROOF VENT
		LWT	LEAVING WATER TEMPERATURE
BAV	BALANCING VALVE		
BB-E	BASEBOARD - ELECTRIC	MAU	MAKE-UP AIR UNIT
BFP	BACKFLOW PREVENTER	MAV	MANUAL AIR VENT
BFV	BUTTERFLY VALVE	MC	MECHANICAL CONTRACTOR
BFWP	BOILER FEED WATER PUMP		
BHP	BRAKE HORSEPOWER	NC	NORMALLY CLOSED
BV	BALL VALVE	NC	NOT IN CONTRACT
		NO	NORMALLY OPEN
CA	COMPRESSED AIR	NTS	NOT TO SCALE
CA	COMBUSTION AIR		
CEB	CONCRETE EQUIPMENT BASE	O	OPEN
CFM	CUBIC FEET PER MINUTE	OA	OUTSIDE AIR
CHKV	CHECK VALVE	OC	ON CENTER
CHWP	CHILLED WATER CIRCULATING PUMP	OED	OPEN ENDED DUCT
CIR	CAST IRON RADIATOR		
COM	COMMON	PC	PLUMBING CONTRACTOR
CRP	CONDENSATE RETURN PUMP	PLV	PLUG VALVE
CT	COOLING TOWER	PRV	PRESSURE REDUCING VALVE
CUH	CABINET UNIT HEATER	PTAC	PACKAGE TERMINAL AIR CONDITIONER
CUV	CLASSROOM UNIT VENTILATOR		
CV	CONTROL VALVE	RA	RETURN AIR
		RAF	RETURN AIR FAN
DB	DRY BULB	RH	RELATIVE HUMIDITY
DCI	DUCT COVERING INSULATION	RHC	REHEAT COIL
DLI	DUCT LINING INSULATION	RL	REFRIGERANT LIQUID LINE
DSS	DUCTLESS SPLIT SYSTEM AIR CONDITIONER	RSL	REFRIGERANT SUCTION LINE
DX	DIRECT EXPANSION	RTU	ROOF TOP UNIT
		RV	ROOF VENT
EA	EXHAUST AIR		
EAT	ENTERING AIR TEMPERATURE	SA	SUPPLY AIR
EC	ELECTRICAL CONTRACTOR	SD	SMOKE DAMPER
EDR	EQUIVALENT DIRECT RADIATION	SF	SUPPLY FAN
ET	EXPANSION TANK	SP	STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE	STN	STRAINER
		SUH	SUSPENDED UNIT HEATER
F	DEGREES FAHRENHEIT		
FBO	FURNISHED BY OTHERS	TFA	TO FLOOR ABOVE
FCU	FAN COIL UNIT	TFB	TO FLOOR BELOW
FFA	FROM FLOOR ABOVE		
FFB	FROM FLOOR BELOW	UH	UNIT HEATER
FD	FIRE DAMPER	UV	UNIT VENTILATOR
FSD	FIRE/SMOKE DAMPER		
FTR	FINNED TUBE RADIATOR	VAV	VARIABLE AIR VOLUME
FURN	FURNACE	VD	VOLUME DAMPER
		VIB ISO	VIBRATION ISOLATOR
GC	GENERAL CONTRACTOR		
GLV	GLOBE VALVE	WB	WET BULB
GPM	GALLONS PER MINUTE	WC	WATER COLUMN
GTV	GATE VALVE	WCHRU	WATER CHILLER
GVTR	GAS VENT THROUGH ROOF	WIV	WATER INLET VALVE
		WPD	WATER PRESSURE DROP

GENERAL NOTES

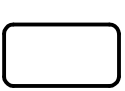
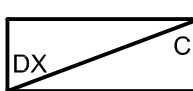

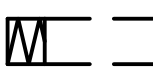


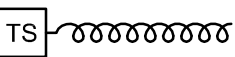

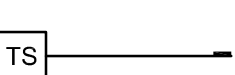


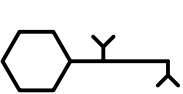




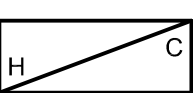

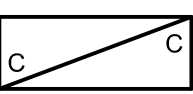

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- THE PLANS ARE DIAGRAMMATIC AND INDICATE ONLY THE SIZE AND GENERAL ARRANGEMENT OF PIPING AND EQUIPMENT. EXACT LOCATION OF ALL ELEMENTS SHALL BE DETERMINED AS WORK PROGRESSES, IN COOPERATION AND COORDINATION WITH THE WORK OF ALL OTHER TRADES. IT IS NOT INTENDED TO SHOW EVERY ITEM OF WORK OR MINOR PIECE OF EQUIPMENT, BUT THE CONTRACTOR SHALL FURNISH AND INSTALL WITHOUT ADDITIONAL REMUNERATION ANY COMPONENT NECESSARY TO COMPLETE THE SYSTEM IN ACCORDANCE WITH THE BEST PRACTICE OF THE TRADE.
- ITEMS OF WORK OR EQUIPMENT SHOWN ON THE DRAWINGS ONLY, OR CALLED FOR IN THE SPECIFICATIONS ONLY, SHALL BE FURNISHED AND INSTALLED IN THE SAME MANNER AS IF THEY APPEARED ON BOTH THE DRAWINGS AND SPECIFICATIONS.
- DRAWINGS DO NOT INDICATE ALL OFFSETS, CHANGES IN ELEVATIONS, ETC. WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL MAKE SUCH CHANGES IN PIPING AND LOCATION OF EQUIPMENT, ETC. TO ACCOMMODATE WORK WITH THAT OF OTHER CONTRACTORS.
- INSTALL EQUIPMENT, DUCTWORK, AND PIPING TO AVOID INTERFERENCE WITH THE OPERATION OR SERVICING AND MAINTENANCE OF EQUIPMENT.
- HVAC CONTRACTOR IS RESPONSIBLE TO PROVIDE ACCESS PANELS AND DOORS WHERE THEY ARE NEEDED TO GAIN ACCESS TO CONCEALED EQUIPMENT.
- ALL COSTS FOR CUTTING, PATCHING AND PAINTING OF EXISTING WALLS, CEILINGS AND FLOORS TO ACCOMMODATE THE INSTALLATION OF HVAC WORK SHALL BE THE RESPONSIBILITY OF THE HVAC CONTRACTOR UNLESS INDICATED OTHERWISE. MATERIALS FOR RESTORATION OF EXISTING SURFACES SHALL MATCH THE EXISTING MATERIALS.
- PIPES AND/OR DUCTS PENETRATING FIRE WALLS AND FLOORS SHALL BE FIRESTOPPED AS SPECIFIED. REFER TO THE ARCHITECTURAL DRAWINGS FOR FIRE WALL AND FLOOR LOCATIONS.
- ALL DUCT SIZES SHOWN ON DRAWINGS INDICATE CLEAR INSIDE DIMENSIONS.
- ALL PHYSICAL ATTRIBUTES OF EQUIPMENT AND DEVICES ARE BASED ON THOSE MANUFACTURERS LISTED IN THE SPECIFICATIONS AND/OR THE EQUIPMENT SCHEDULES. THE RESPECTIVE CONTRACTORS ARE RESPONSIBLE FOR ALL CHANGES BROUGHT ABOUT BY USE OF ITEMS BY OTHER MANUFACTURERS. THE ARCHITECT/ENGINEER HAS RESERVED THE RIGHT TO REJECT ITEMS BY OTHER MANUFACTURERS IF THOSE ITEMS DO NOT MATCH THE PHYSICAL ATTRIBUTES OF THE MANUFACTURERS LISTED.
- COMPLY WITH THE CONNECTICUT STATE BUILDING CODES, ASHRAE 90.1-2007, AND OTHER APPLICABLE CODES.

HVAC SYMBOLS - DUCTWORK

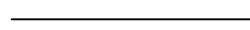



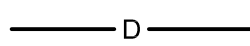




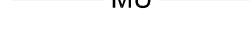








	AIRFLOW - SUPPLY/OUTDOOR AIR		RECTANGULAR/ROUND SUPPLY AIR DUCTWORK UP
	AIRFLOW - RETURN/EXHAUST AIR		RECTANGULAR/ROUND RETURN OR EXHAUST AIR DUCTWORK UP
	RECTANGULAR DUCTWORK (FIRST NUMBER INDICATES VISIBLE DIMENSION)		RECTANGULAR/ROUND SUPPLY AIR DUCTWORK DOWN
	ROUND DUCTWORK		RECTANGULAR/ROUND RETURN OR EXHAUST AIR DUCTWORK DOWN
	FLAT OVAL DUCTWORK		RECTANGULAR ELBOW WITH TURNING VANES
	"L" INDICATES LINED DUCTWORK		VOLUME DAMPER
	FLEXIBLE DUCTWORK		FIRE DAMPER
	RECTANGULAR CEILING DIFFUSER (ARROWS INDICATE DIRECTION OF THROW)		SMOKE DAMPER
	CIRCULAR CEILING DIFFUSER		MOTOR OPERATED DAMPER
	RETURN/EXHAUST REGISTER OR GRILLE		VAV BOX (X INDICATES BOX DESIGNATION)
	LINEAR DIFFUSER		DUCT MOUNTED COIL
	SIDEWALL DIFFUSER, REGISTER OR GRILLE		FLEXIBLE DUCT CONNECTION
	DIFFUSER, REGISTER OR GRILLE DESIGNATION TYPE X INDICATES: CD - CEILING DIFFUSER LD - LINEAR DIFFUSER RCD - RECTANGULAR CEILING DIFFUSER EG - EXHAUST GRILLE ER - EXHAUST REGISTER RG - RETURN GRILLE RR - RETURN REGISTER TG - TRANSFER GRILLE		SMOKE DETECTOR
			DUCT MOUNTED SENSOR X INDICATES: SP - STATIC PRESSURE T - TEMPERATURE H - HUMIDITY V - VELOCITY

	WALL MOUNTED THERMOSTAT
	WALL MOUNTED REMOTE SENSOR THERMOSTAT
	WALL MOUNTED TEMPERATURE SENSOR
	WALL MOUNTED HUMIDISTAT

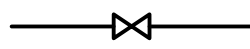
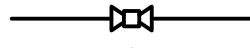



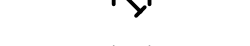



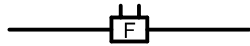



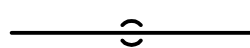
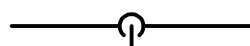
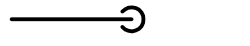
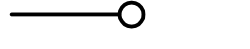
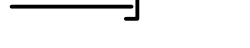

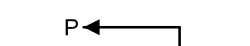



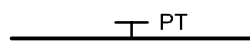

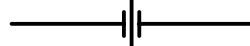
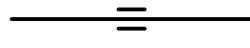

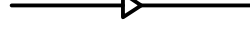
HVAC SYMBOLS - CONTROLS

	DAMPER ACTUATOR		DIRECT EXPANSION REFRIGERANT COIL
	OPPOSED BLADE DAMPER		FIRE DAMPER
	AVERAGING TEMPERATURE SENSOR		ELEC/PNEU TRANSDUCER
	FREEZESTAT		SPACE THERMOSTAT
	PROBE TYPE TEMPERATURE SENSOR		SPACE TEMPERATURE SENSOR
	SMOKE DETECTOR		STATIC PRESSURE SENSOR
	HUMIDITY SENSOR		ROOM DIFFERENTIAL PRESSURE SENSOR
	MOTOR STARTER		TRANSFORMER
	HEATING COIL		CIRCULATING PUMP
	COOLING COIL		FAN

HVAC SYMBOLS - PIPING DESIGNATIONS

	EXISTING PIPING (REFER TO DESIGNATIONS BELOW FOR TYPE)
	PIPING TO BE REMOVED (REFER TO DESIGNATIONS BELOW FOR TYPE)
	BOILER BLOWDOWN
	CONDENSATE RETURN
	DRAIN
	FEEDWATER
	HOT WATER SUPPLY
	HOT WATER RETURN
	LOW PRESSURE STEAM
	MAKE-UP WATER
	PUMPED DISCHARGE
	REFRIGERANT - LIQUID
	REFRIGERANT - SUCTION
	CHILLED WATER SUPPLY
	CHILLED WATER RETURN
	CONDENSER WATER SUPPLY
	CONDENSER WATER RETURN
	POINT OF CONNECTION

HVAC SYMBOLS - VALVES & SPECIALTIES

	SHUT-OFF VALVE (GATE, BALL, ETC.)
	BALANCING VALVE (X INDICATES GPM)
	TWO-WAY AUTOMATIC CONTROL VALVE
	THREE-WAY AUTOMATIC CONTROL VALVE
	CHECK VALVE
	STRAINER
	GLOBE VALVE
	PRESSURE REDUCING VALVE
	LOCKING VALVE
	TRIPLE DUTY VALVE
	FLOW CONTROL VALVE
	RELIEF VALVE (X INDICATES)
	STEAM TRAP (X INDICATES)
	BRANCH CONNECTION - BOTTOM
	BRANCH CONNECTION - TOP
	ELBOW - TURNED DOWN
	ELBOW - TURNED UP
	CAP
	FLEXIBLE CONNECTOR
	DIRECTION OF FLOW
	DIRECTION OF DOWNWARD PITCH
	SENSOR/SWITCH (X INDICATES)
	GAUGE (X INDICATES)
	PRESSURE/TEMPERATURE TAP
	CIRCULATING PUMP
	UNION
	PIPE GUIDE (PG)
	PIPE ANCHOR (PA)
	REDUCER

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MAINTENANCE  
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




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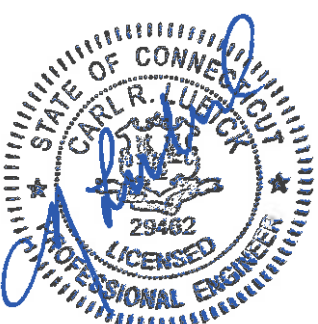


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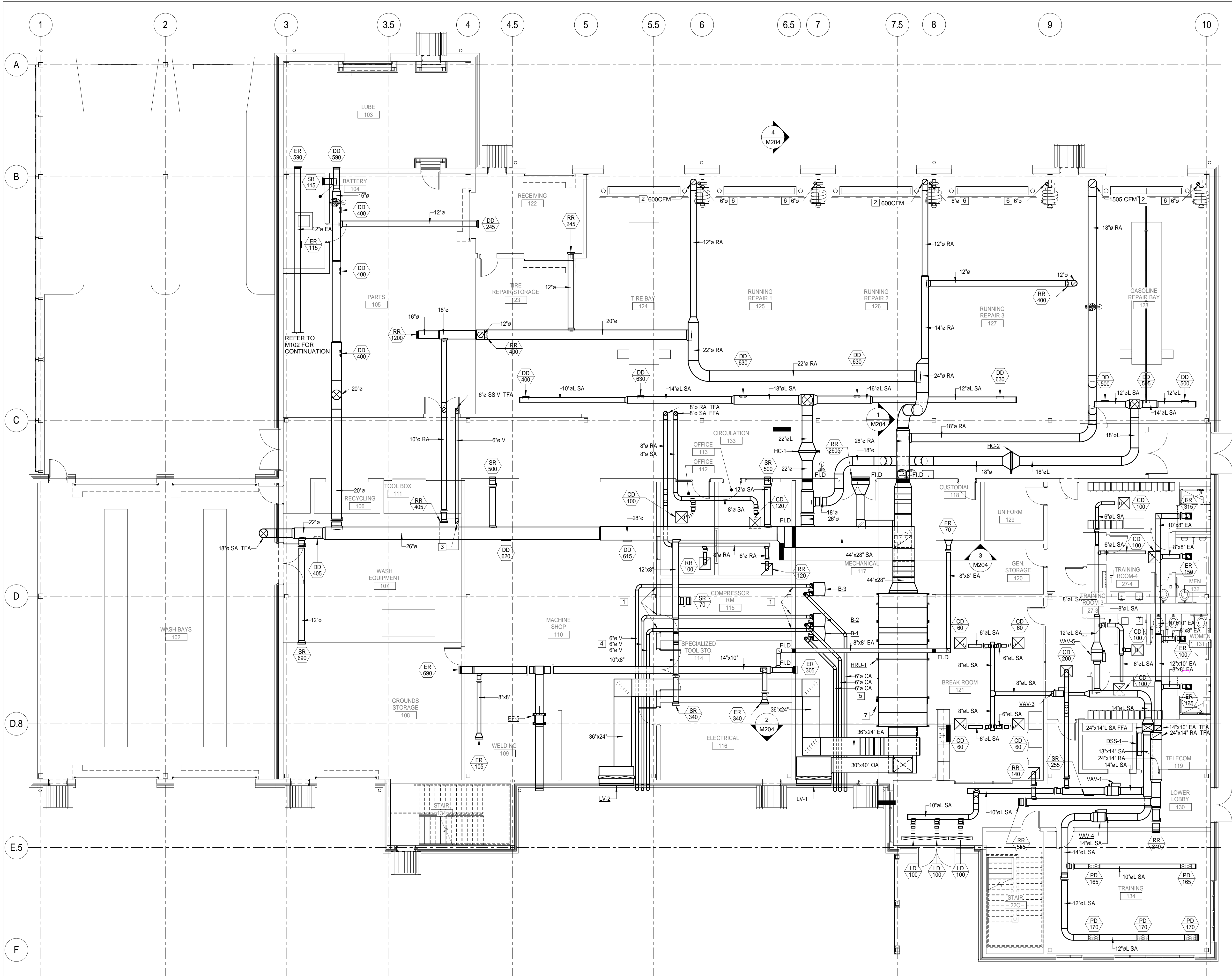
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HVAC SYMBOLS,  
NOTES, &  
ABBREVIATIONS

M001





#### GENERAL NOTES:

1. INSTALL FIRE DAMPERS IN DUCTWORK PENETRATING FIRE RATED WALLS AND FLOORS. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF FIRE RATED WALLS AND FLOORS
2. DIMENSIONS REFLECT CLEAR INSIDE OPENING FOR LINED DUCTWORK.

#### CONSTRUCTION NOTES:

1. PROVIDE UNINSULATED WALL THIMBLE AT INTERIOR WALL PENETRATIONS.
2. EXTEND DUCTWORK DOWN WALL. TERMINATE DUCTWORK APPROXIMATELY 2" AFF. TOP OF REGISTER TO BE WITHIN 12" ABOVE FINISHED FLOOR. REFER TO DETAIL ON DRAWING H204 FOR FURTHER INFORMATION.
3. PROVIDE CONNECTION DOWN TO POWER WASHER. PROVIDE STAINLESS STEEL DUCTWORK WITH WELDED SEAMS AND JOINTS INSULATE DUCTWORK WITH 2" CALCIUM SILICATE INSULATION WITH AN ASJ JACKET. EXTEND DUCT A MINIMUM OF 3' ABOVE THE HIGHEST POINT OF THE ROOF WITHIN A 10 FOOT RADIUS. TERMINATE WITH APPROVED WEATHER CAP. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FLASHING.
4. PROVIDE SECURITY CHIMNEYS SSD AL29-4C DOUBLE WALL STAINLESS STEEL FLUE PIPING SYSTEM WITH 1" AIR GAP OR APPROVED EQUAL. PROVIDE CERTIFIED WALL THIMBLE AT THE WALL PENETRATION. PITCH FLUE PIPING BACK TOWARDS BOILERS. SEAL ALL SEAMS WATER TIGHT. EXTEND BREECHING A MINIMUM OF 3' ABOVE THE PENETRATION OF THE EXTERIOR WALL. TERMINATE WITH APPROVED WEATHER CAP. PROVIDE BOILER EXHAUST CONDENSATE DRAIN. EXTEND CONDENSATE PIPING TO BOILER DRAIN. CONDENSATE TO DRAIN THRU NEUTRALIZATION KIT.
5. PROVIDE SECURITY CHIMNEYS SS AL29-4C SINGLE WALL STAINLESS STEEL INTAKE PIPING SYSTEM. TERMINATE WITH AN APPROVED WEATHER CAP.
6. EXTEND CONNECTION TO VEHICLE EXHAUST REEL. EXTEND VEHICLE EXHAUST DUCT A MINIMUM OF 3' ABOVE THE HIGHEST POINT OF THE ROOF WITHIN A 10 FOOT RADIUS. TERMINATE WITH APPROVED WEATHER CAP. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FLASHING.
7. PROVIDE 4" THICK CONCRETE EQUIPMENT PAD. EXTEND PAD 6" BEYOND UNIT FOOTPRINT IN ALL DIRECTIONS. REFER TO STRUCTURAL SPECIFICATIONS FOR FURTHER INFORMATION.

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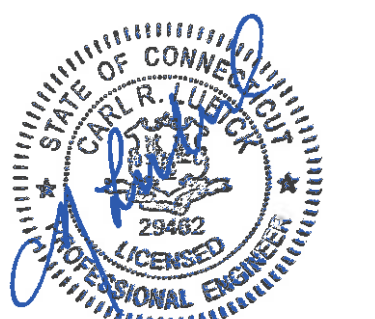


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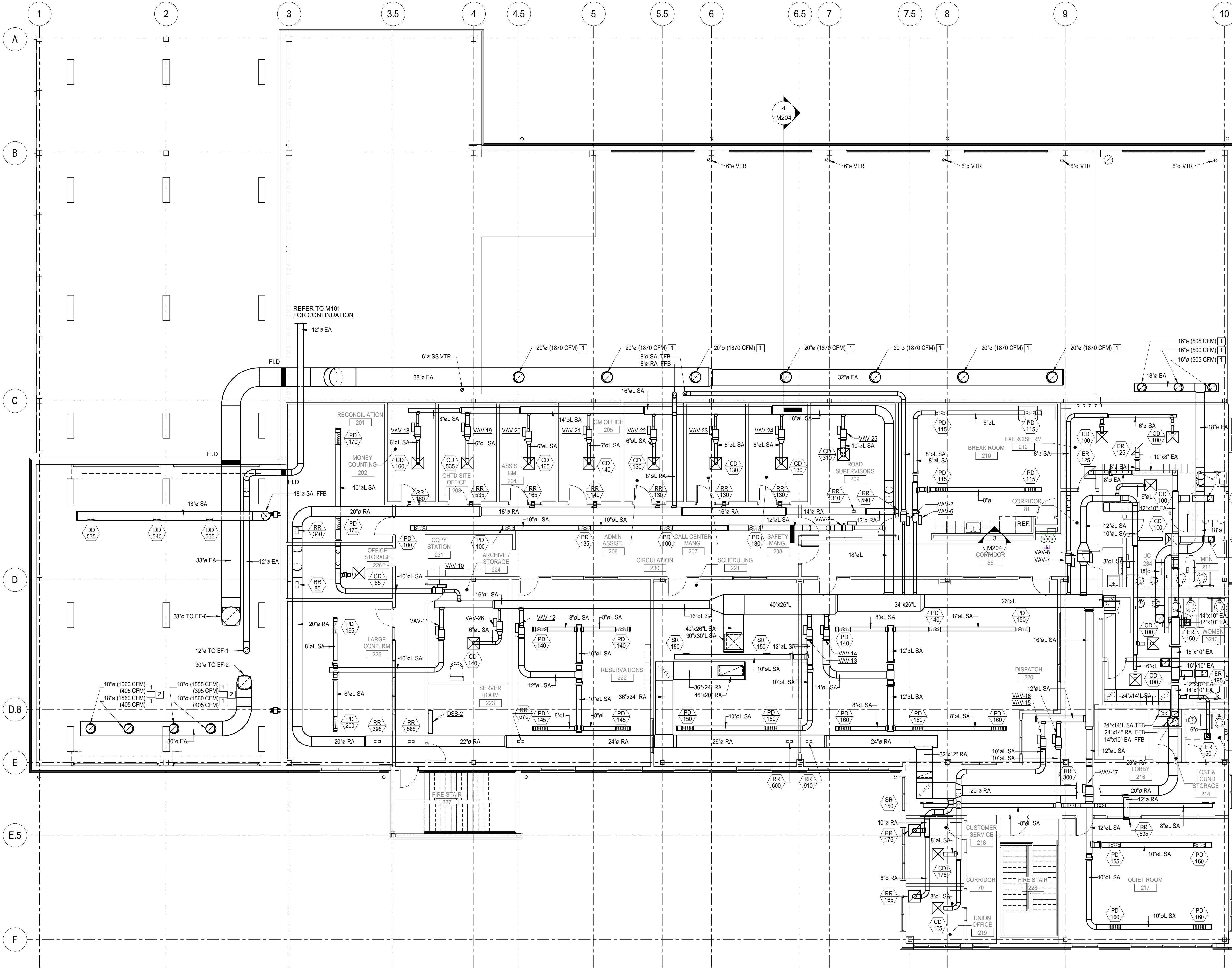
FIRST FLOOR  
HVAC PLAN -  
DUCTWORK

M101

#### FIRST FLOOR HVAC PLAN - DUCTWORK

1/8" = 1'-0"





GENERAL NOTES:

1. INSTALL FIRE DAMPERS IN DUCTWORK PENETRATING FIRE RATED WALLS AND FLOORS. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF FIRE RATED WALLS AND FLOORS.
2. DIMENSIONS REFLECT CLEAR INSIDE OPENING FOR LINED DUCTWORK.

CONSTRUCTION NOTES:

1. PROVIDE EXHAUST DUCT BRANCH CONNECTION AND VOLUME DAMPER. EXTEND DUCT AND TERMINATE WITHIN 18" OF UNDERSIDE OF ROOF STRUCTURE. TERMINATE OPEN ENDED DUCT WITH 1/2"x1/2"x1/2" GALVANIZED BIRDSCREEN.
2. VALUES SHOWN ARE FOR EMERGENCY EXHAUST AND NORMAL OPERATION RESPECTIVELY. FAN SHALL BE BALANCED TO MAXIMUM AIRFLOW AND SPEED ADJUSTED UNTIL THE TOTAL AIRFLOW (COMPRISED OF THE FOUR TAPS) REACHES 1610 CFM. THE SPEED SHALL THEN BE RECORDED AS THE NORMAL OPERATION POINT OF THE EXHAUST FAN IN THE BMS SYSTEM.

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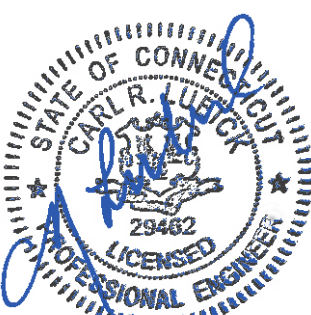


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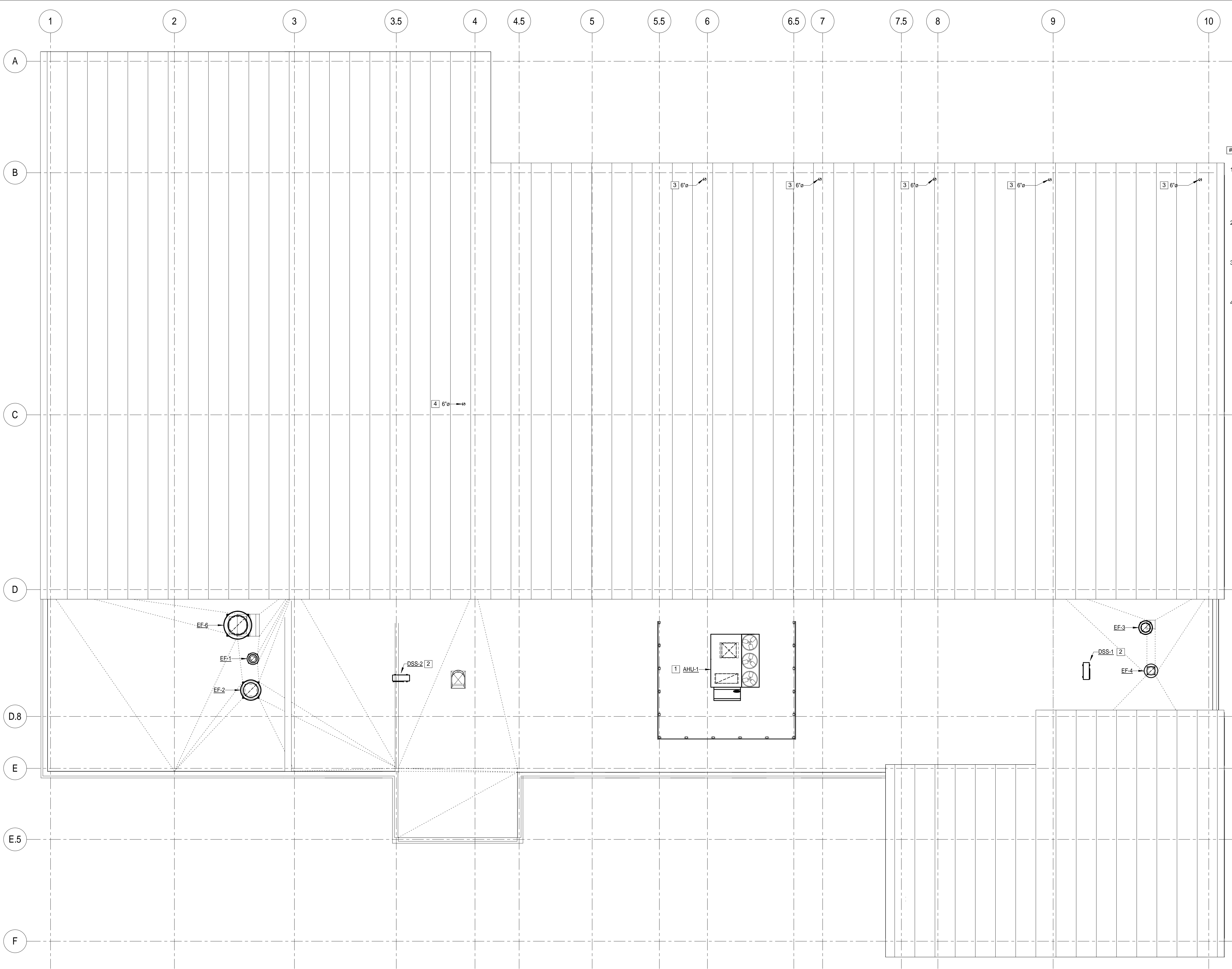
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SECOND FLOOR  
HVAC PLAN -  
DUCTWORK

M102

1 SECOND FLOOR HVAC PLAN - DUCTWORK  
1/8" = 1'-0"



# CONSTRUCTION NOTES:

1. PROVIDE AIR HANDLING UNIT AHU-1. PROVIDE ROOF CURB RATED FOR SEISMIC AND WIND RESTRAINTS. SECURE CURB TO STRUCTURE IN ACCORDANCE WITH THE BUILDING CODE. REFER TO ARCHITECTURAL DETAILS FOR ROOF FLASHING. SECURE AHU-1 TO ROOF CURB WITH SEISMIC RATED TABS WELDED TO UNIT AND CURB.
2. PROVIDE DUCTLESS SPLIT SYSTEM CONDENSING UNIT. PROVIDE EQUIPMENT RAIL. REFER TO DETAIL FOR FURTHER INFORMATION. SECURE UNIT TO EQUIPMENT RAIL IN ACCORDANCE WITH THE BUILDING CODE TO RESIST WIND AND SEISMIC FORCES.
3. EXTEND VEHICLE EXHAUST DUCT A MINIMUM OF 3' ABOVE THE HIGHEST POINT OF THE ROOF WITHIN A 10 FOOT RADIUS. TERMINATE WITH APPROVED WEATHER CAP. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FLASHING.
4. EXTEND STAINLESS STEEL DUCT A MINIMUM OF 3' ABOVE THE HIGHEST POINT OF THE ROOF WITHIN A 10 FOOT RADIUS. TERMINATE WITH APPROVED WEATHER CAP. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FLASHING.

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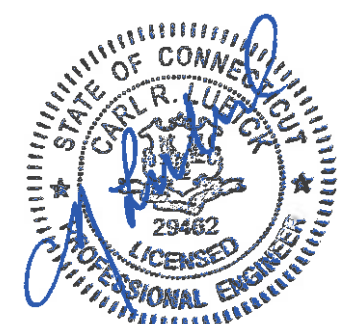


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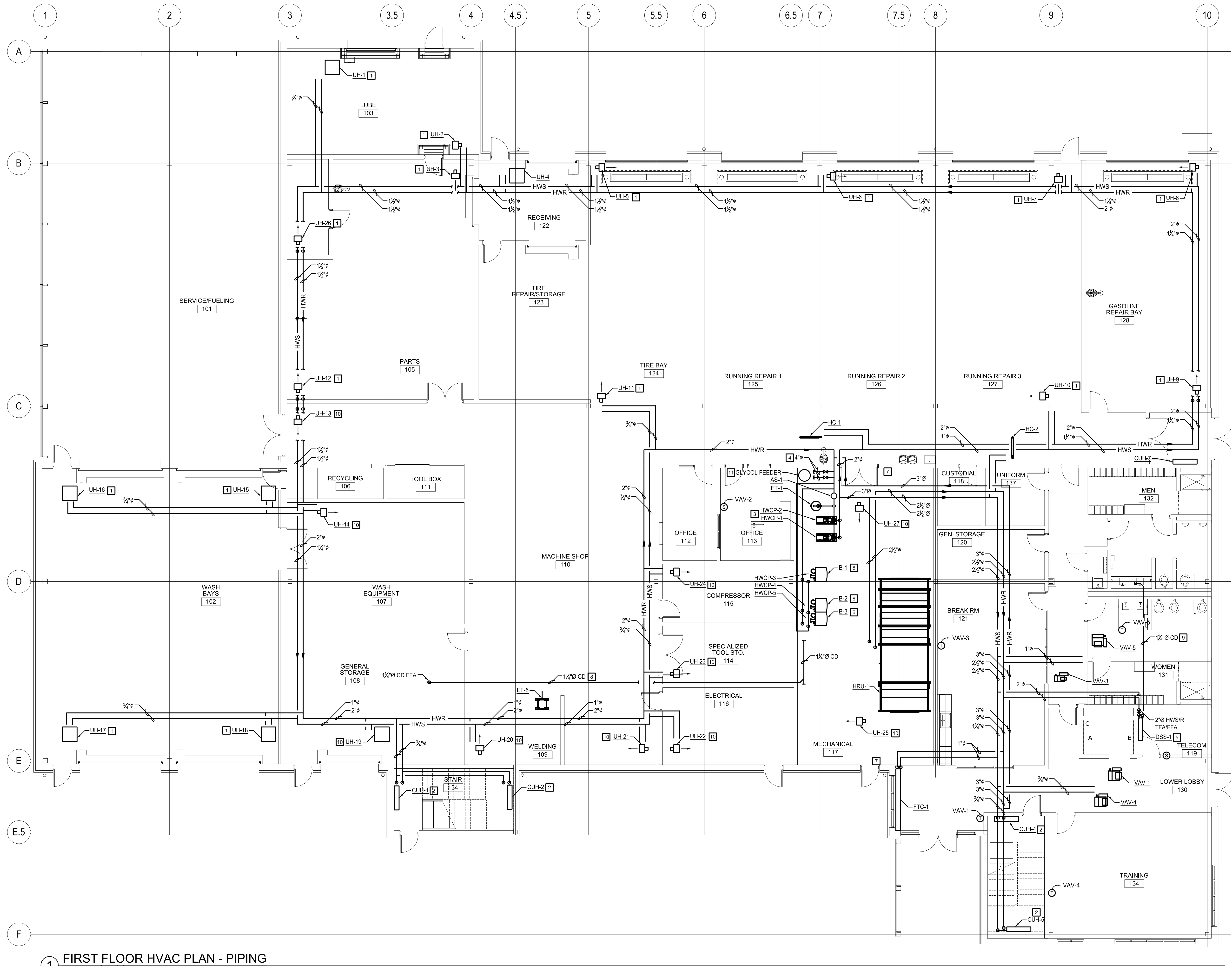
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ROOF HVAC PLAN -  
DUCTWORK

M103





1 FIRST FLOOR HVAC PLAN - PIPING  
SCALE: 1/8" = 1'-0"

- CONSTRUCTION NOTES:**
1. PROVIDE UNIT HEATER. SUPPORT UNIT HEATER FROM STRUCTURE ABOVE. INSTALL AT A HEIGHT OF 12' AFF.
  2. PROVIDE CABINET UNIT HEATER AS INDICATED. MOUNT HEATER 2' ABOVE STAIR LANDING.
  3. PROVIDE BASE MOUNTED HOT WATER PUMP (HWCP-1 & 2) AS SCHEDULED. PROVIDE 4" THICK CONCRETE EQUIPMENT PAD. EXTEND PAD 6" BEYOND PUMP FOOTPRINT IN ALL DIRECTIONS. REFER TO DETAIL FOR FURTHER INFORMATION.
  4. PROVIDE HOT WATER SUPPLY AND RETURN PIPING TAPS AS INDICATED. PROVIDE ISOLATION VALVES AS SPECIFIED AND CAP FOR FUTURE CONNECTION.
  5. PROVIDE INDOOR DUCTLESS SPLIT SYSTEM UNIT AS SCHEDULED. PROVIDE REFRIGERANT PIPING FROM INDOOR UNIT TO OUTDOOR CONDENSING UNIT. SIZE PIPING ACCORDING TO MANUFACTURERS RECOMMENDATIONS.
  6. PROVIDE BOILER AS SCHEDULED. PROVIDE 4" THICK CONCRETE EQUIPMENT PAD. EXTEND PAD 6" BEYOND FOOTPRINT IN ALL DIRECTIONS. SECURE BOILER TO EQUIPMENT PAD TO COMPLY WITH SEISMIC REQUIREMENTS. REFER TO SPECIFICATIONS FOR FURTHER INFORMATION.
  7. PROVIDE BOILER SAFETY SHUTDOWN SWITCH. PROVIDE LOW VOLTAGE WIRING. PROVIDE RELAY AT EACH BOILER FOR SHUTDOWN CONTROL. REFER TO MANUFACTURERS RECOMMENDATIONS FOR INSTALLATION.
  8. PROVIDE 1/4"Ø CONDENSATE DRAIN PIPING AS INDICATED. PIPING SHALL SLOPE DOWNWARD A MINIMUM OF 1/8" PER LINEAR FOOT OF HORIZONTAL PIPING IN THE DIRECTION OF FLOW. ROUTE PIPING INTO MECHANICAL ROOM AND TERMINATE INDIRECTLY AT FLOOR DRAIN.
  9. PROVIDE 1/4"Ø CONDENSATE DRAIN PIPING AS INDICATED. ROUTE CONDENSATE DRAIN TO MOP SERVICE SINK LOCATED IN THE JANITOR ROOM AND TERMINATE ABOVE FLOOD RIM OF THE FIXTURE. CONDENSATE PIPING SHALL SLOPE DOWN A MINIMUM OF 1/8" PER LINEAR FOOT OF HORIZONTAL PIPING IN THE DIRECTION OF FLOW.
  10. PROVIDE UNIT HEATER. SUPPORT UNIT HEATER FROM STRUCTURE ABOVE. INSTALL AT A HEIGHT OF 10' AFF.
  11. PROVIDE DIGITAL GLYCOL FEEDER PULSAFEEDER MODEL DGF1-BB8CBX OR APPROVED EQUAL. PROVIDE SHUT-OFF VALVE IN PIPE RISER. FEEDER TO BE PREWIRED AND FULLY PACKAGED. PROVIDE REQUIRED VALVES, TUBING, AND PRESSURE GAUGES. FEEDER TO BE FILLED WITH 20% PROPYLENE GLYCOL SOLUTION UPON FINAL INSTALLATION.

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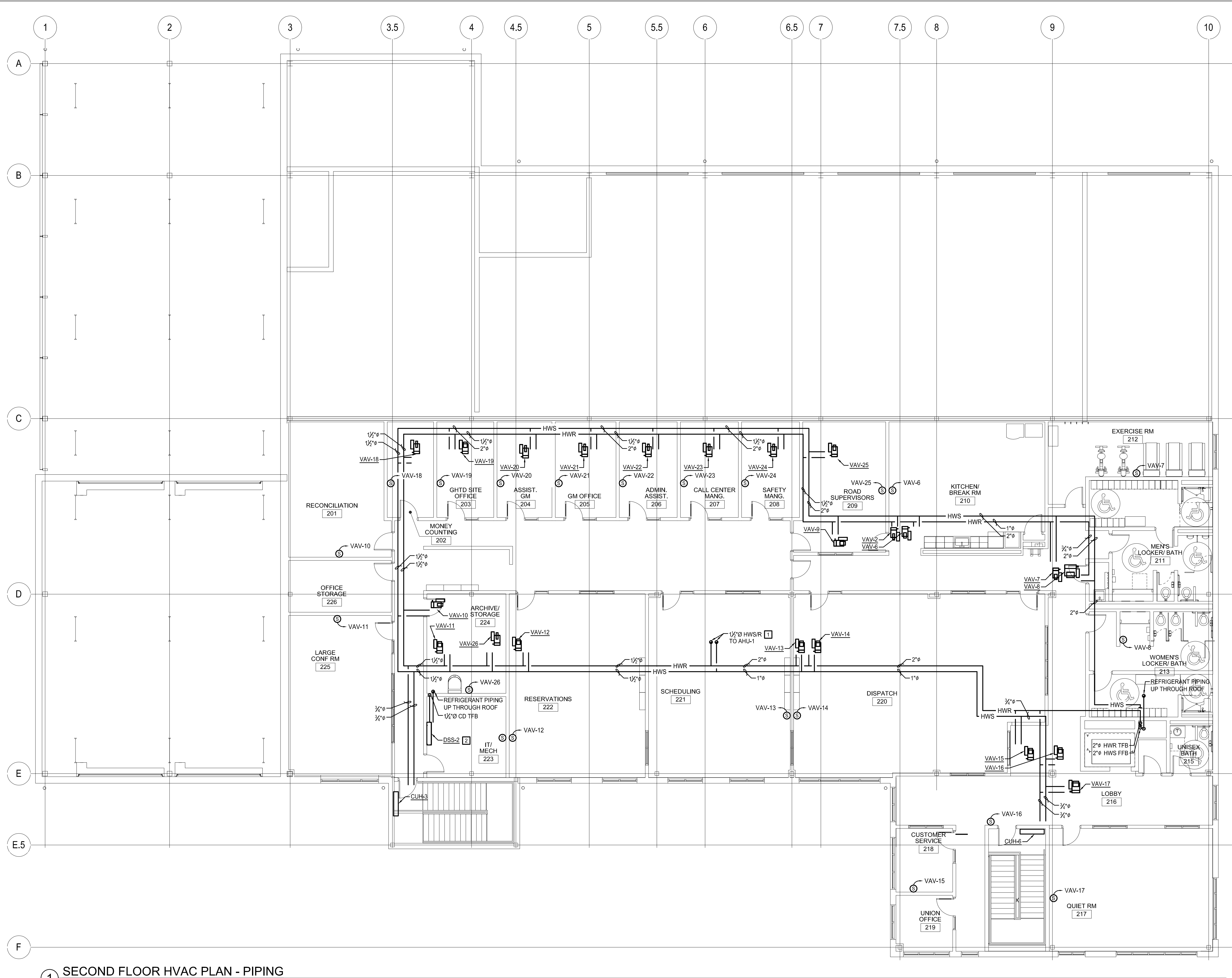
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**FIRST FLOOR  
HVAC PLAN -  
PIPING**

**M104**





- CONSTRUCTION NOTES:**
1. PROVIDE HOT WATER SUPPLY AND RETURN PIPING AS INDICATED. ROUTE PIPING THROUGH ROOF TO SERVE AHU-1.
  2. PROVIDE INDOOR DUCTLESS SPLIT SYSTEM UNIT AS SCHEDULED. PROVIDE REFRIGERANT PIPING FROM INDOOR UNIT TO OUTDOOR CONDENSING UNIT. SIZE PIPING ACCORDING TO MANUFACTURERS RECOMMENDATIONS. PROVIDE CONDENSATE DRAIN. ROUTE CONDENSATE DRAIN TO FLOOR DRAIN LOCATED IN THE MECHANICAL ROOM. CONDENSATE PIPING SHALL SLOPE DOWN A MINIMUM OF 1/8" PER LINEAR FOOT OF HORIZONTAL PIPING IN THE DIRECTION OF FLOW.

**1 SECOND FLOOR HVAC PLAN - PIPING**  
SCALE: 1/8" = 1'-0"

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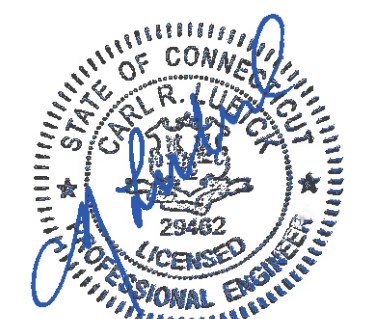
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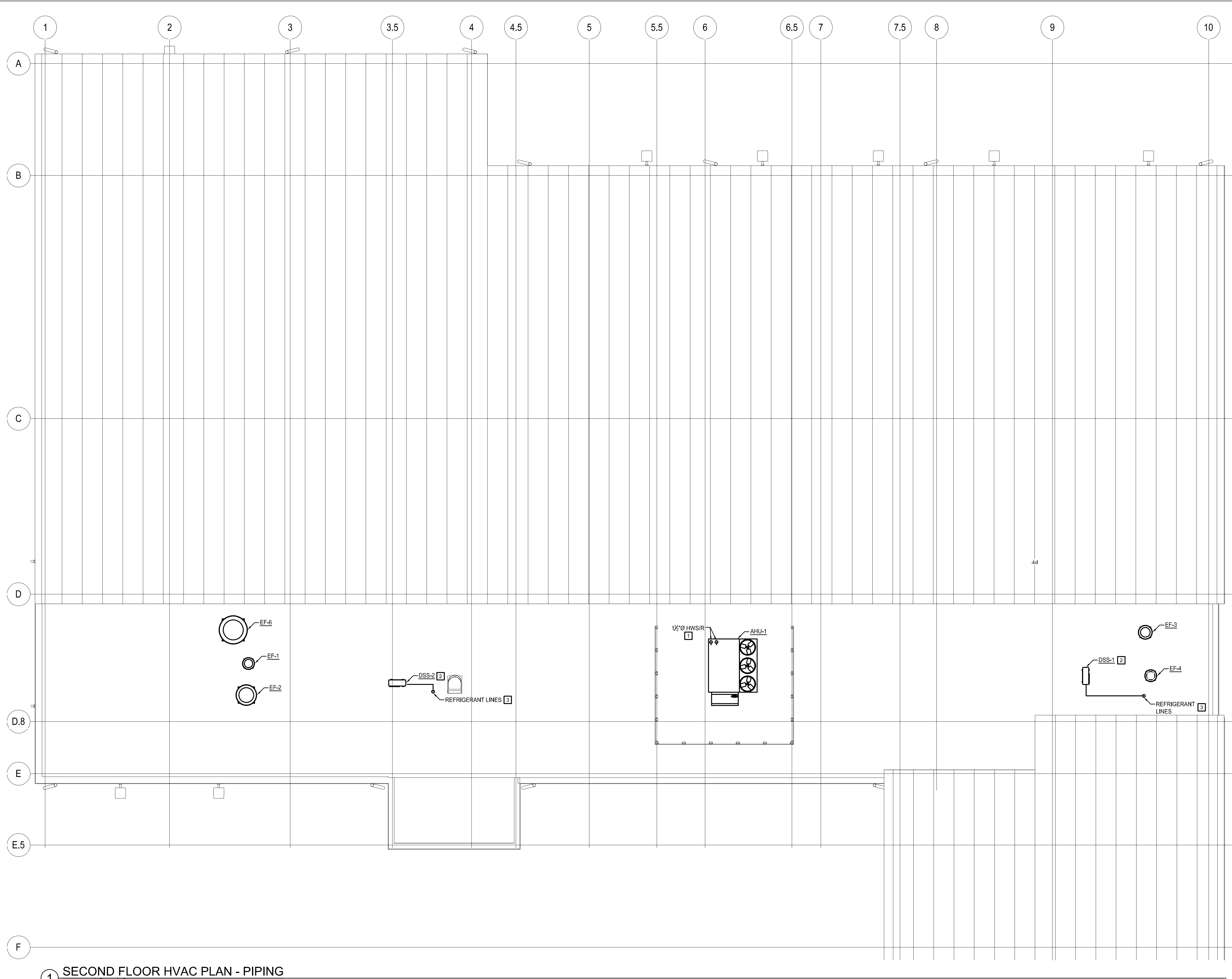
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**SECOND FLOOR  
HVAC PLAN -  
PIPING**

**M105**





- CONSTRUCTION NOTES:**
1. PROVIDE HOT WATER SUPPLY AND RETURN PIPING FROM FLOOR BELOW. PIPING SHALL PENETRATE INSIDE THE ROOF CURB. FINAL COIL CONNECTION SHALL BE MADE INTERNAL TO THE UNIT. ALL VALVES SHALL BE LOCATED IN THE CEILING SPACE OF THE FLOOR BELOW.
  2. PROVIDE REFRIGERANT PIPING FROM OUTDOOR CONDENSING UNIT TO INDOOR HEATING/COOLING UNIT. SIZE REFRIGERANT PIPING PER MANUFACTURERS RECOMMENDATIONS.
  3. PROVIDE PIPE PORTAL FOR REFRIGERANT PIPING ROOF PENETRATION. REFER TO ARCHITECTURAL DETAIL FOR FURTHER INFORMATION.

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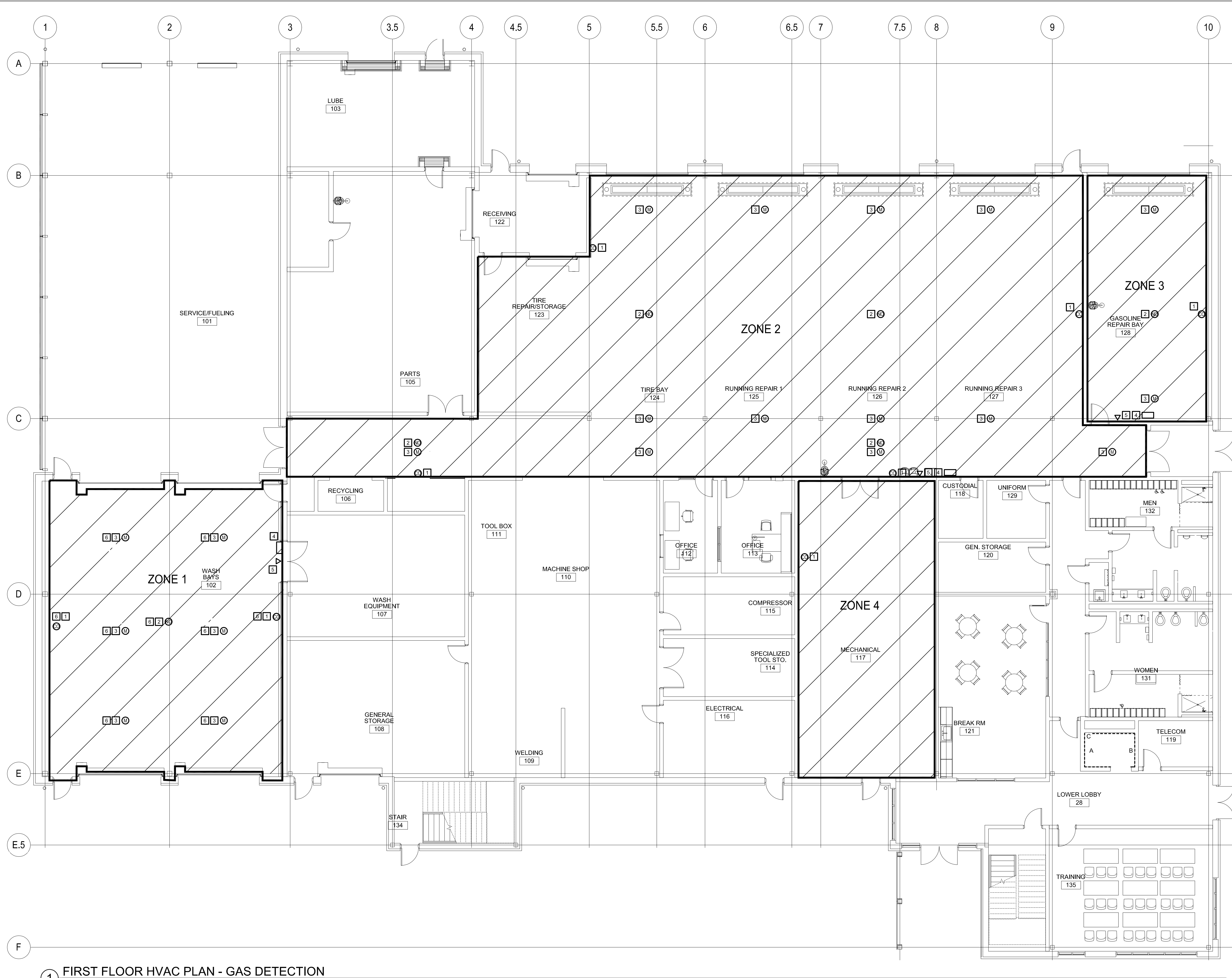
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**ROOF  
HVAC PLAN -  
PIPING**

**M106**





- CONSTRUCTION NOTES:**
1. PROVIDE SURFACE MOUNTED NETWORK PLATFORM CARBON MONOXIDE SENSOR. INSTALL CO SENSOR 5'-0" ABOVE FINISHED FLOOR.
  2. PROVIDE SURFACE MOUNTED NETWORK PLATFORM NITROGEN DIOXIDE SENSOR. INSTALL NO2 SENSOR 3'-0" BELOW THE FINISHED ROOF DECK. PROVIDE UNISTRUCT SUPPORT SUSPENDED FROM THE DECK AS REQUIRED TO ACCOMMODATE INSTALLATION. ALL WIRING AND CONDUIT WITHIN 18 INCHES OF THE FINISHED ROOF DECK TO COMPLY WITH CLASS 1 DIV 2 INSTALLATION REQUIREMENTS OF THE NEC. REFER TO ELECTRICAL DETAILS AND SPECIFICATION 260533 "RACEWAY AND BOXES" FOR FURTHER INFORMATION.
  3. PROVIDE EXPLOSION PROOF INFRARED METHANE GAS DETECTOR WITH NETWORK PLATFORM. INSTALL CH4 SENSOR 16" BELOW THE FINISHED ROOF DECK AT UNDERSIDE OF STEEL. PROVIDE UNISTRUCT SUPPORT SUSPENDED FROM THE DECK AS REQUIRED TO ACCOMMODATE INSTALLATION. ALL WIRING AND CONDUIT WITHIN 18 INCHES OF THE FINISHED ROOF DECK TO COMPLY WITH CLASS 1 DIV 2 INSTALLATION REQUIREMENTS OF THE NEC. REFER TO ELECTRICAL DETAILS AND SPECIFICATION 260533 "RACEWAY AND BOXES" FOR FURTHER INFORMATION.
  4. PROVIDE GAS DETECTION CONTROLLER AND RELAY MODULE. SYSTEM TO HAVE THE CAPABILITY TO ACTIVE ASSOCIATED VENTILATION EQUIPMENT INDEPENDENT OF THE BMS. SYSTEM TO SEND AN ALARM SIGNAL TO THE BMS TO NOTIFY THE END USER OF GAS DETECTION SYSTEM ACTIVATION. PROVIDE ALL REQUIRED CONTROL WIRING AND ANCILLARY DEVICES TO MAKE A COMPLETE AND OPERABLE SYSTEM. CONTROL WIRING TO BE INSTALLED WITHIN 3/4" EMT. REFER TO THE SEQUENCE OF OPERATION FOR FURTHER DETAIL.
  5. PROVIDE REMOTE STROBE AND BUZZER. HONEYWELL P2W-P. PROVIDE WARNING SIGN AT EACH STROBE AND WITHIN THE OPERATIONS AREA AT ALL ENTRANCES INTO THE GARAGE STATING: "UPON ACTIVATION OF GAS DETECTION HORN AND STROBE- HIGH LEVEL GAS DETECTED. EMERGENCY EVACUATION REQUIRED. DO NOT ENTER GARAGE AREA". COORDINATE EXACT LOCATION WITH OWNER SAFETY PERSONNEL.
  6. PROVIDE NEMA4 ENCLOSURE SPLASH GUARD. HONEYWELL ECLAB OR APPROVED EQUAL. INSTALL GAS DETECTION SENSOR WITHIN ENCLOSURE.
  7. PROVIDE GAS DETECTION CONTROLLER AND RELAY MODULE. SYSTEM TO HAVE THE CAPABILITY TO DE-ACTIVE BOILER OPERATION INDEPENDENT OF THE BMS. SYSTEM TO SEND AN ALARM SIGNAL TO THE BMS TO NOTIFY THE END USER OF GAS DETECTION SYSTEM ACTIVATION. PROVIDE ALL REQUIRED CONTROL WIRING AND ANCILLARY DEVICES TO MAKE A COMPLETE AND OPERABLE SYSTEM. CONTROL WIRING TO BE INSTALLED WITHIN 3/4" EMT. REFER TO THE SEQUENCE OF OPERATION FOR FURTHER DETAIL.

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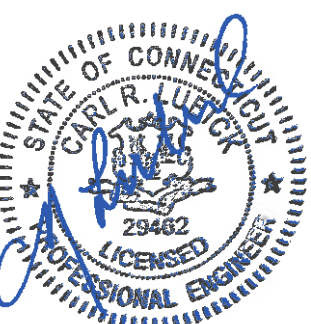
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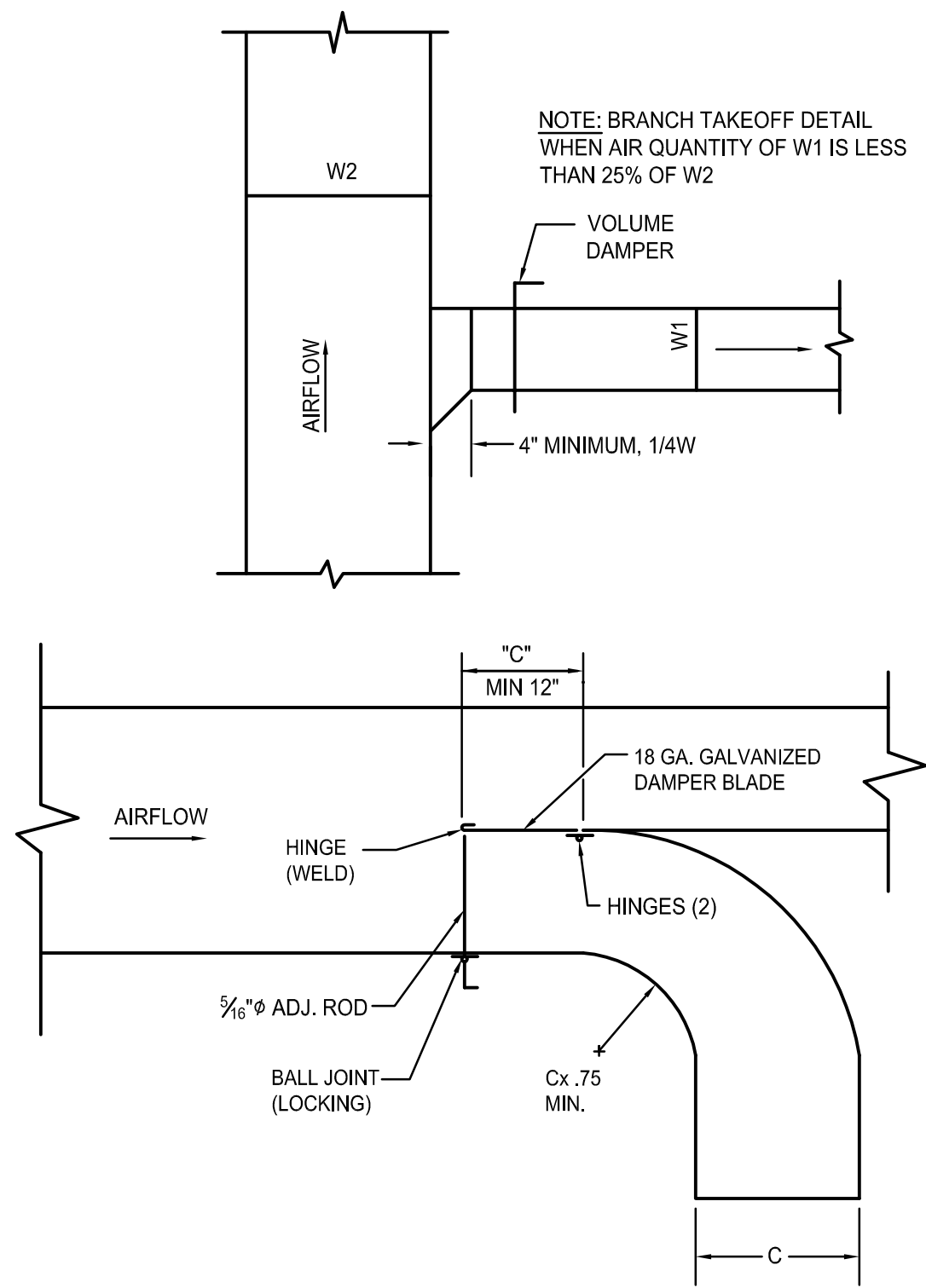
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**FIRST FLOOR  
HVAC PLAN -  
GAS DETECTION**

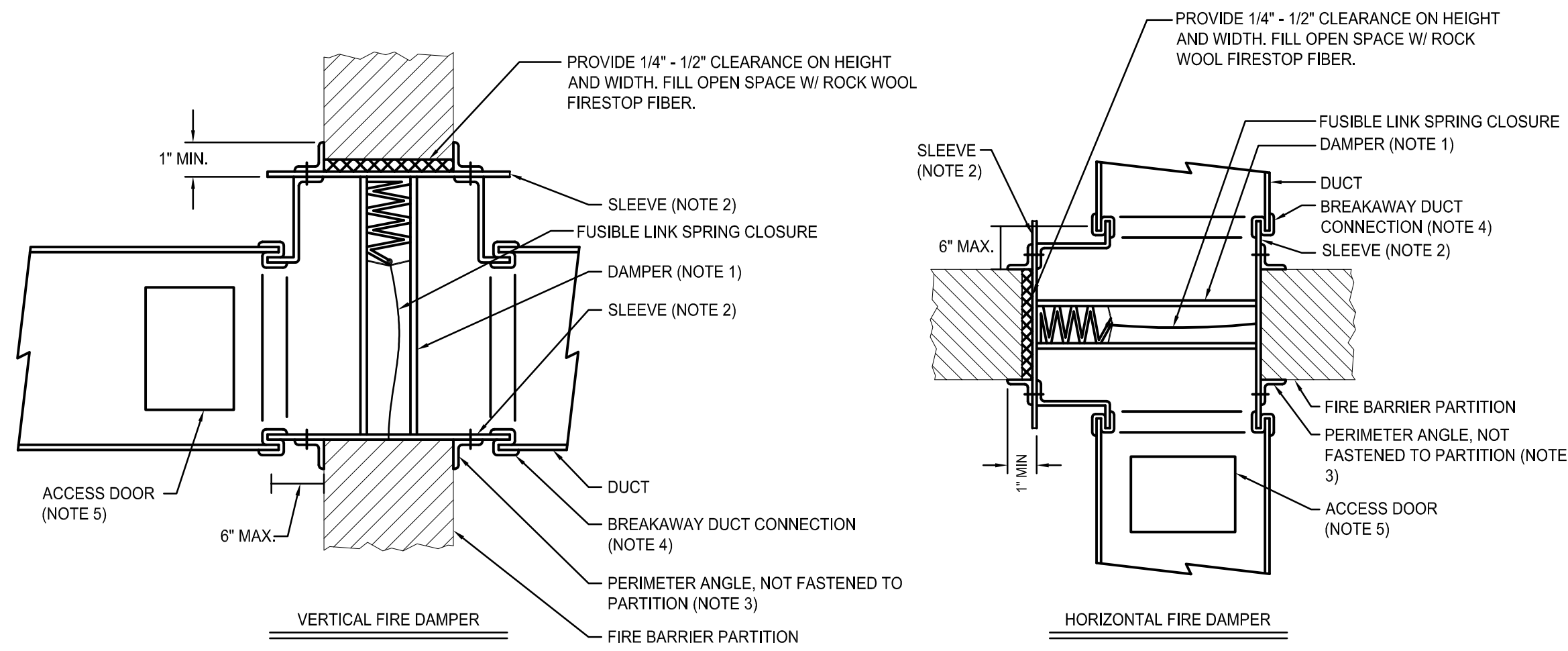
**M107**

**1 FIRST FLOOR HVAC PLAN - GAS DETECTION**  
SCALE: 1/8" = 1'-0"



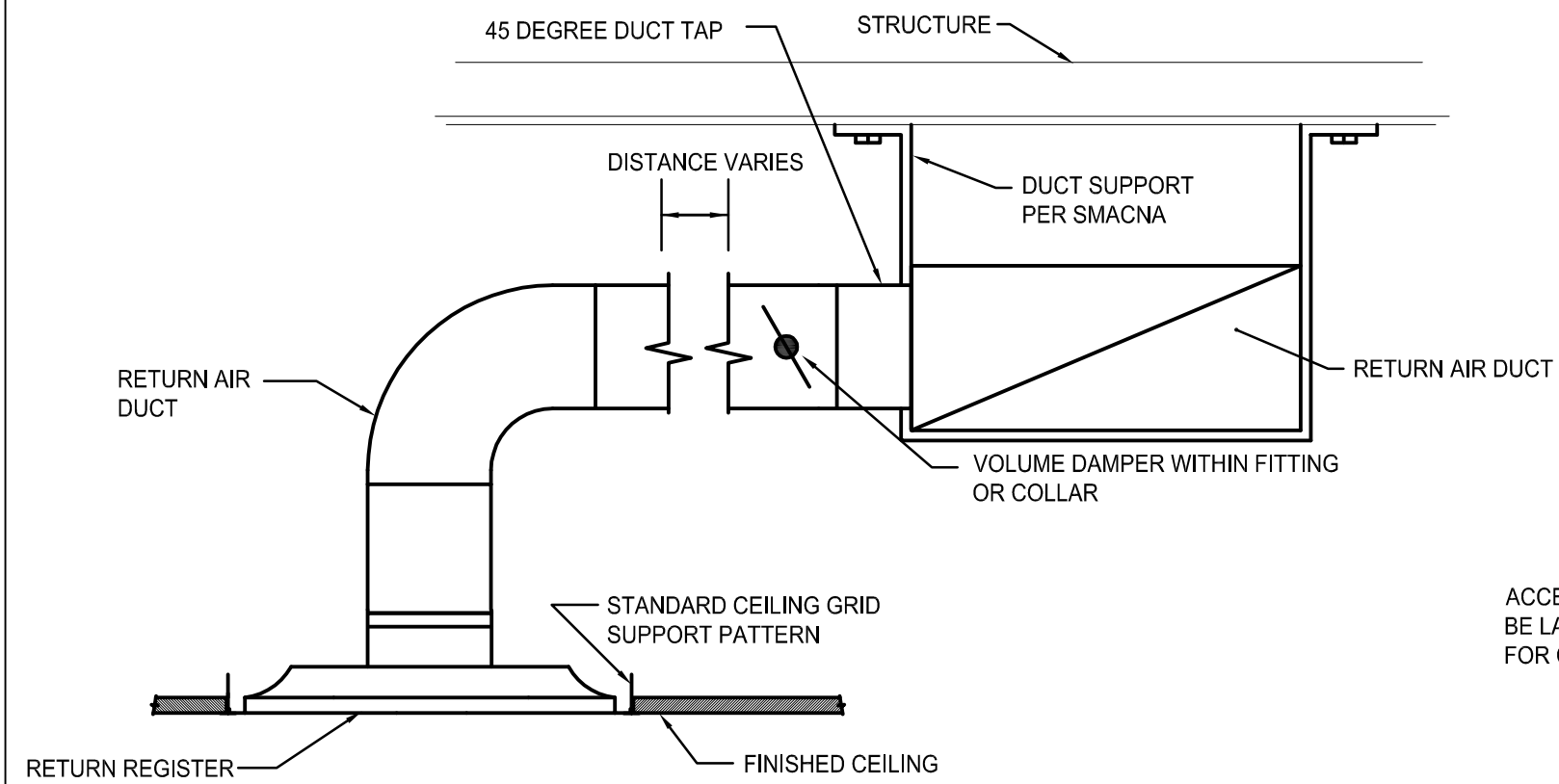


1 DUCTWORK BRANCH TAKE-OFF DETAIL  
SCALE: NOT TO SCALE

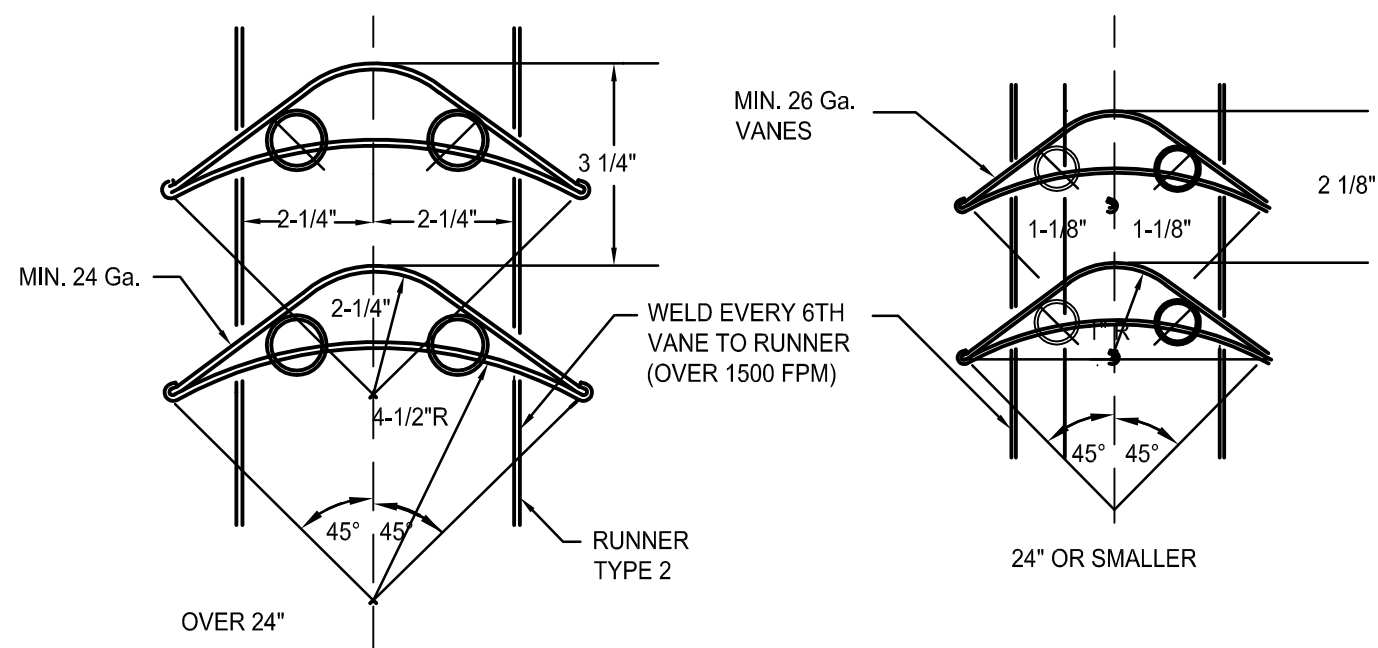


- NOTES:
1. FOLLOW DAMPER MANUFACTURERS INSTRUCTIONS, INCLUDING FASTENERS, OPTIONS, AND GAGES FOR SLEEVE AND PERIMETER ANGLES. FIRE DAMPERS MUST BE INSTALLED IN THE PARTITION, NOT OUTSIDE THE PENETRATION.
  2. GALVANIZED SLEEVE: GAGE NOT LESS THAN THE CONNECTING DUCT. FASTEN SLEEVE TO DAMPER FRAME AND TO PERIMETER ANGLES.
  3. PERIMETER ANGLES: GALVANIZED STEEL, NOT LESS THAN 1-1/2" x 1-1/2", 14 GAGE, TO PROVIDE 1" MINIMUM OVERLAP OF OPENING ON ALL SIDES. DO NOT ATTACH TO WALL, FASTEN TO SLEEVE ONLY.
  4. BREAKAWAY DUCT CONNECTION: CONTRACTORS OPTION OF TYPES SHOWN IN SMACNA LPDS, FIG. 2-13. SEAL JOINTS.
  5. ACCESS DOOR: SIZE AND LOCATION TO PERMIT SERVING THE FUSIBLE LINK OR LINKS.

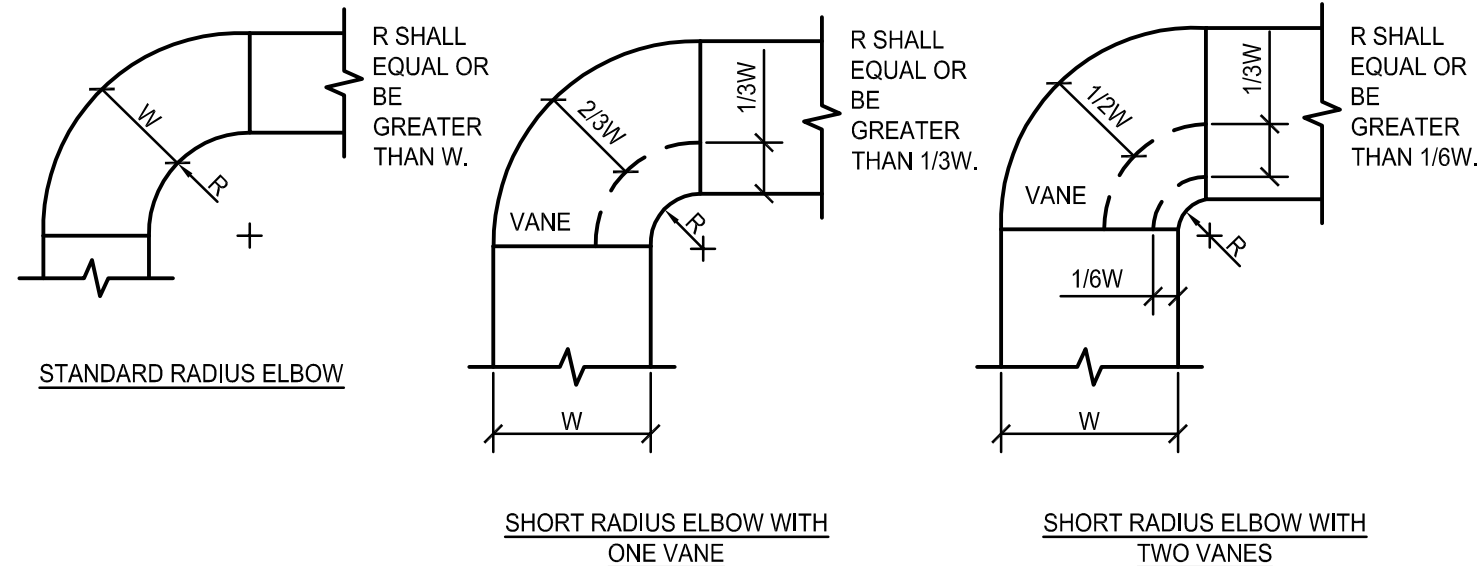
2 TYPICAL FIRE DAMPER DETAIL  
SCALE: NOT TO SCALE



4 TYPICAL CEILING RETURN REGISTER DETAIL  
SCALE: NOT TO SCALE



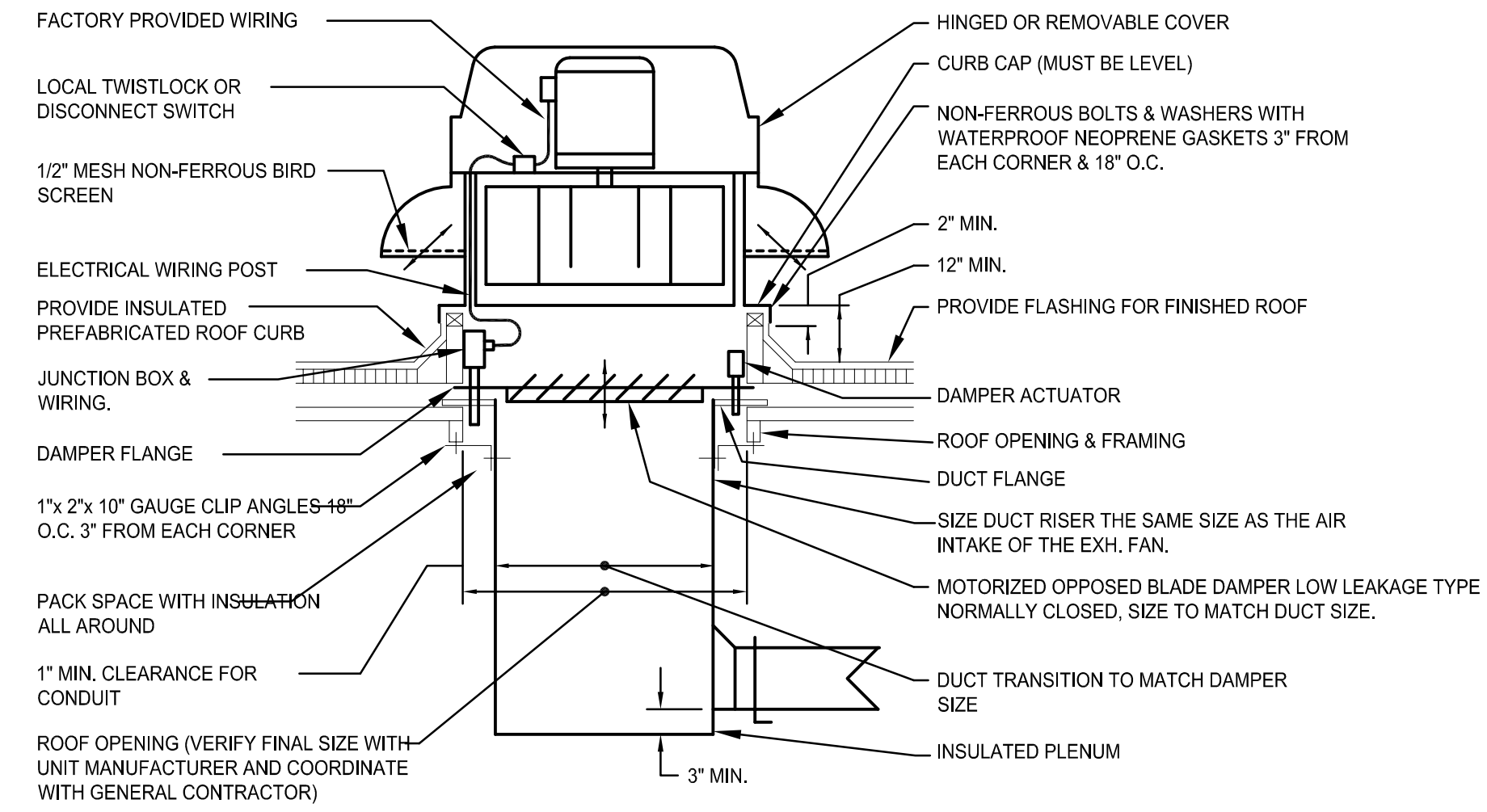
5 REMOTE HEATING COIL INSTALLATION  
SCALE: NOT TO SCALE



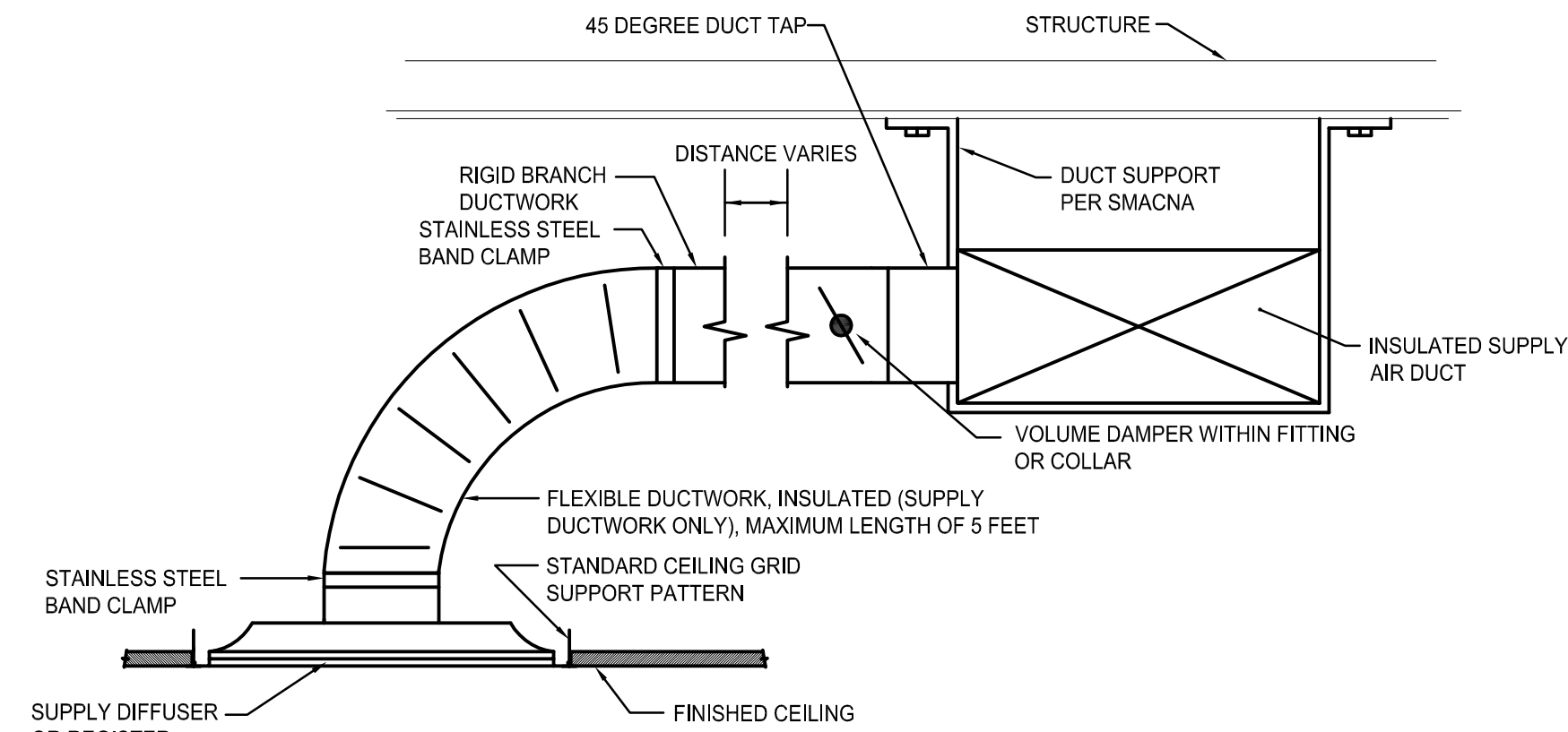
6 TYPICAL VAV BOX DETAIL  
SCALE: NOT TO SCALE

- NOTE:
1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
  2. ALL STANDARD RADIUS ELBOWS SHOWN ON FLOOR PLANS MAY BE MADE SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

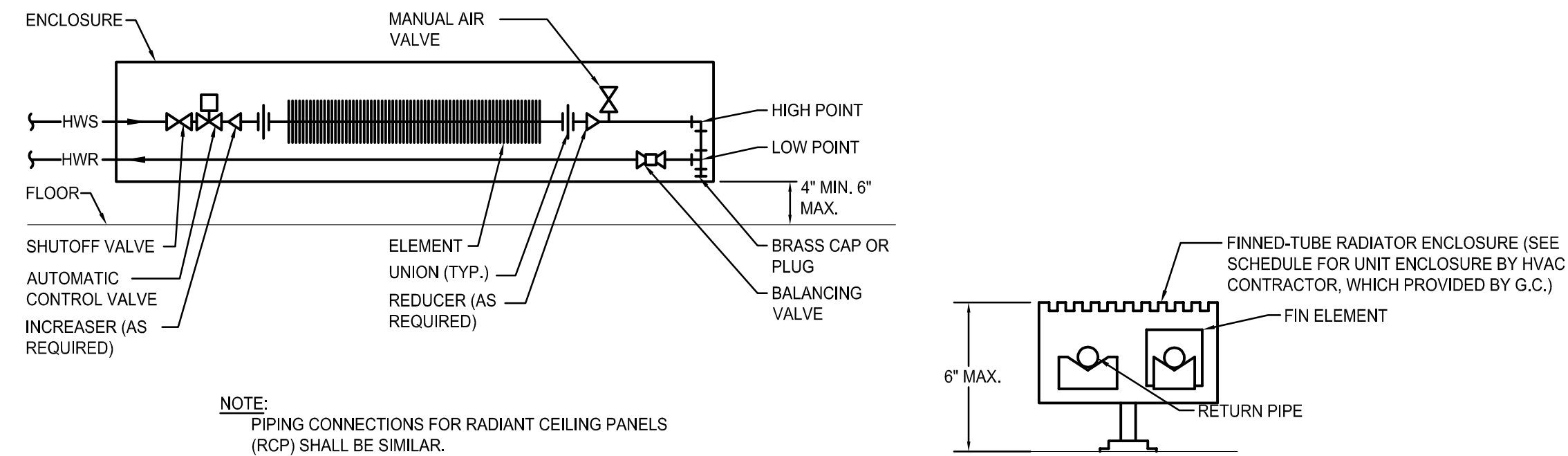
9 DUCTWORK RADIUS ELBOWS  
SCALE: NOT TO SCALE



3 EXHAUST FAN (EF)  
SCALE: NOT TO SCALE



7 TYPICAL CEILING SUPPLY DIFFUSER DETAIL  
SCALE: NOT TO SCALE



10 FINNED TUBE CONVECTOR (FTC) DETAIL  
SCALE: NOT TO SCALE

## PARATRANSIT OPERATIONS & MAINTENANCE FACILITY

148 ROBERTS STREET  
EAST HARTFORD, CT 06118

## GREGG WIES & GARDNER ARCHITECTS, LLC

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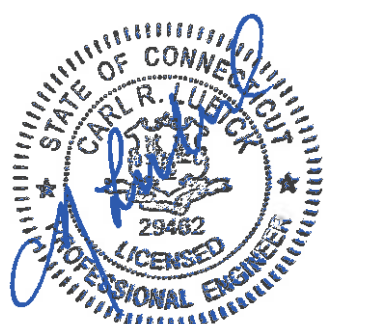
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JOB NUMBER:	1339.00
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## HVAC DETAILS

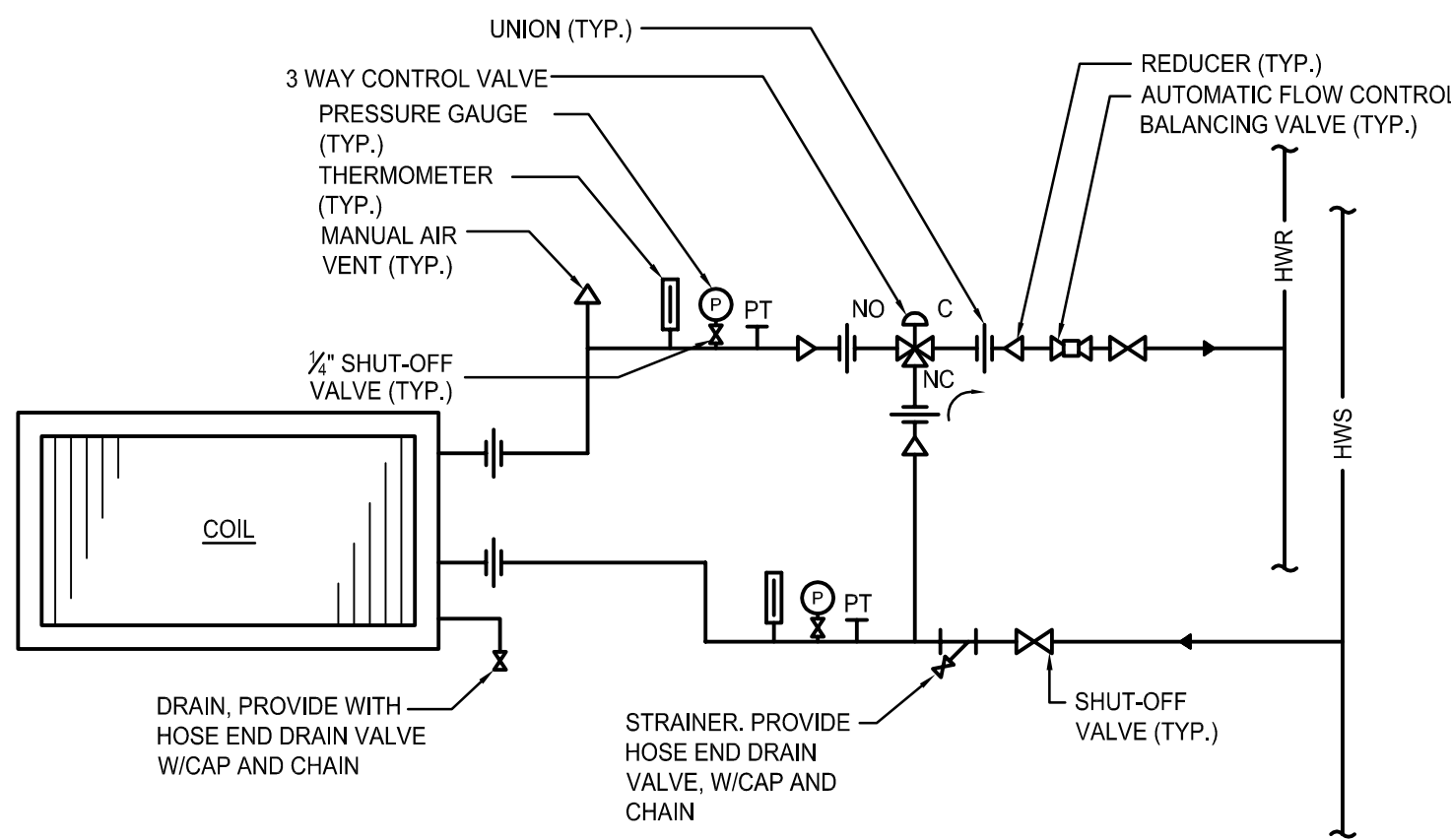
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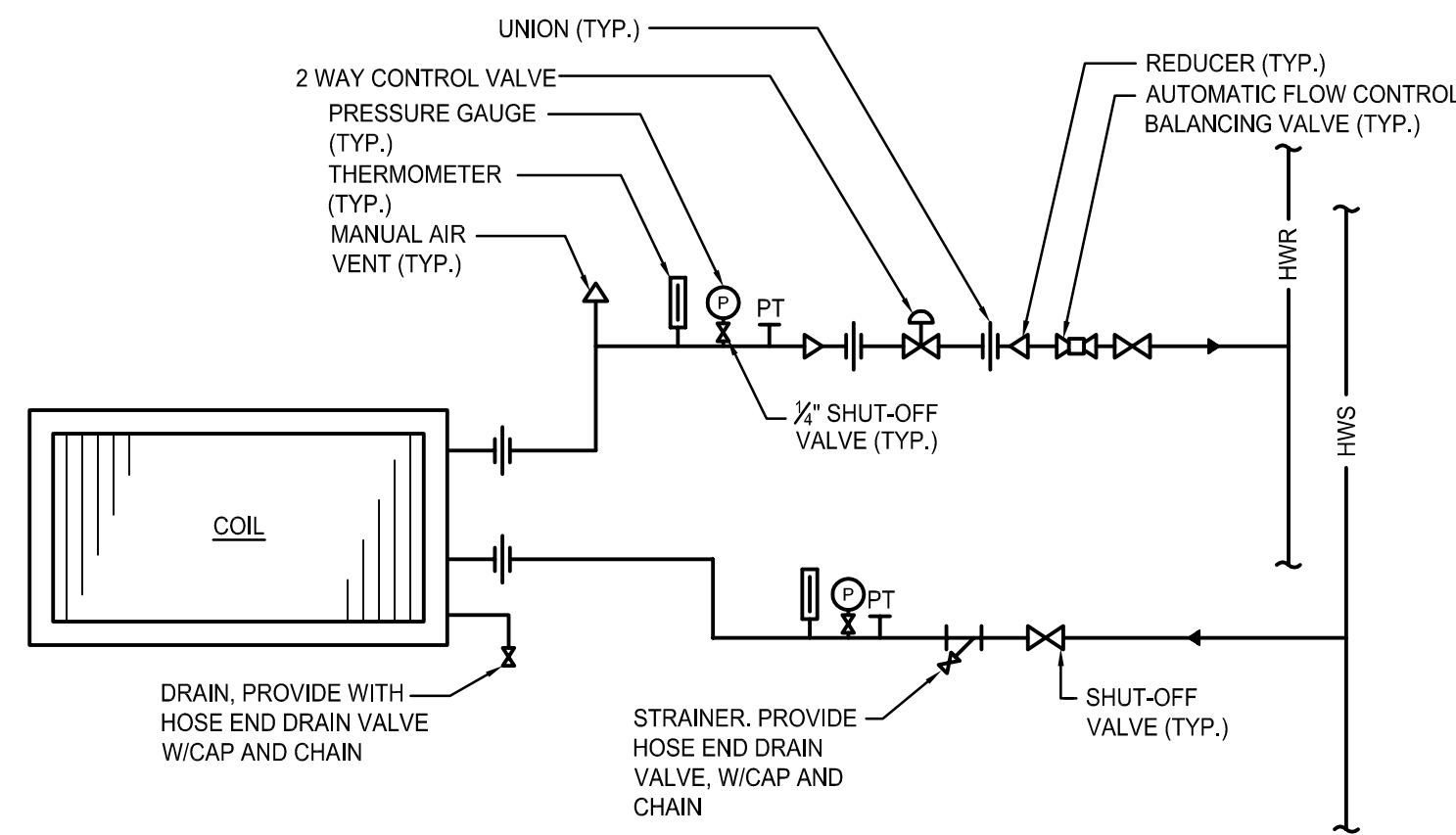
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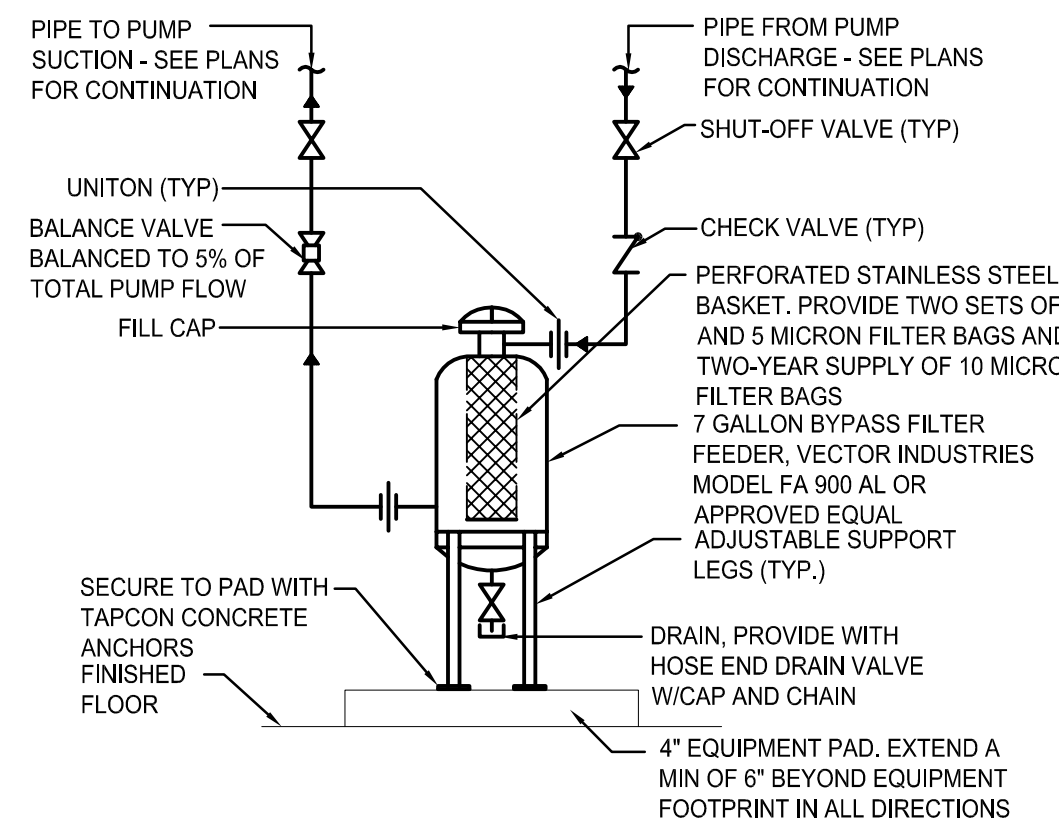


NOTE: THIS DETAIL APPLIES TO THE FOLLOWING ITEMS: HC-1, UH-10, CUH-7, UH-9, UH-8, UH-7, UH-6, UH-5, UH-4, UH-3, UH-1, UH-26, UH-12, UH-13, UH-14, UH-15, UH-16, UH-17, UH-18, UH-19, CUH-1, CUH-2, UH-20, UH-21, UH-22, UH-23, UH-24, & UH-11

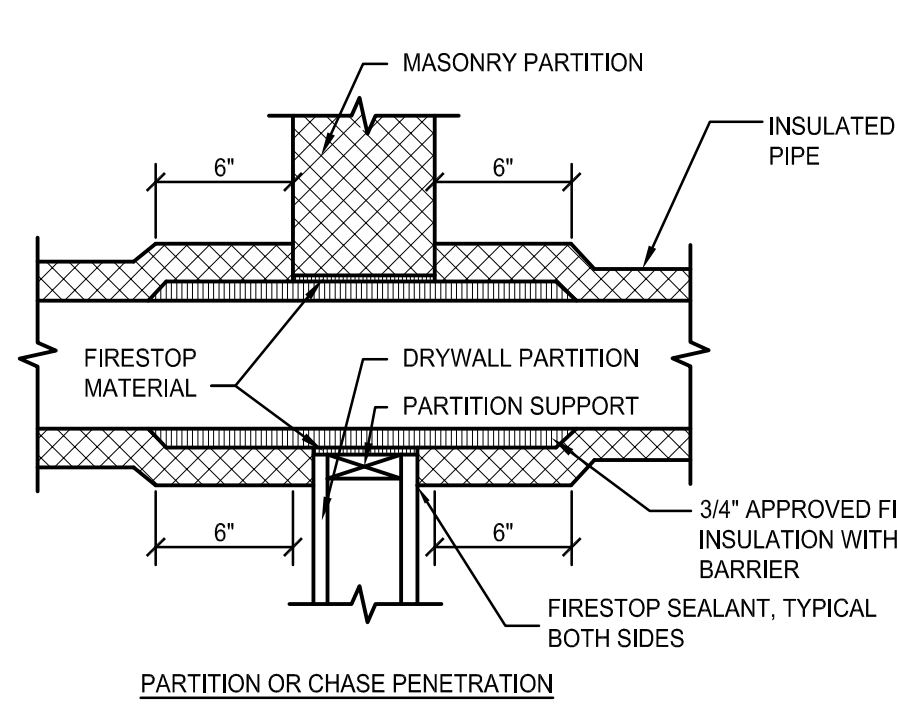
**1 COIL PIPING ARRANGEMENT 3-WAY VALVE**  
SCALE: NOT TO SCALE



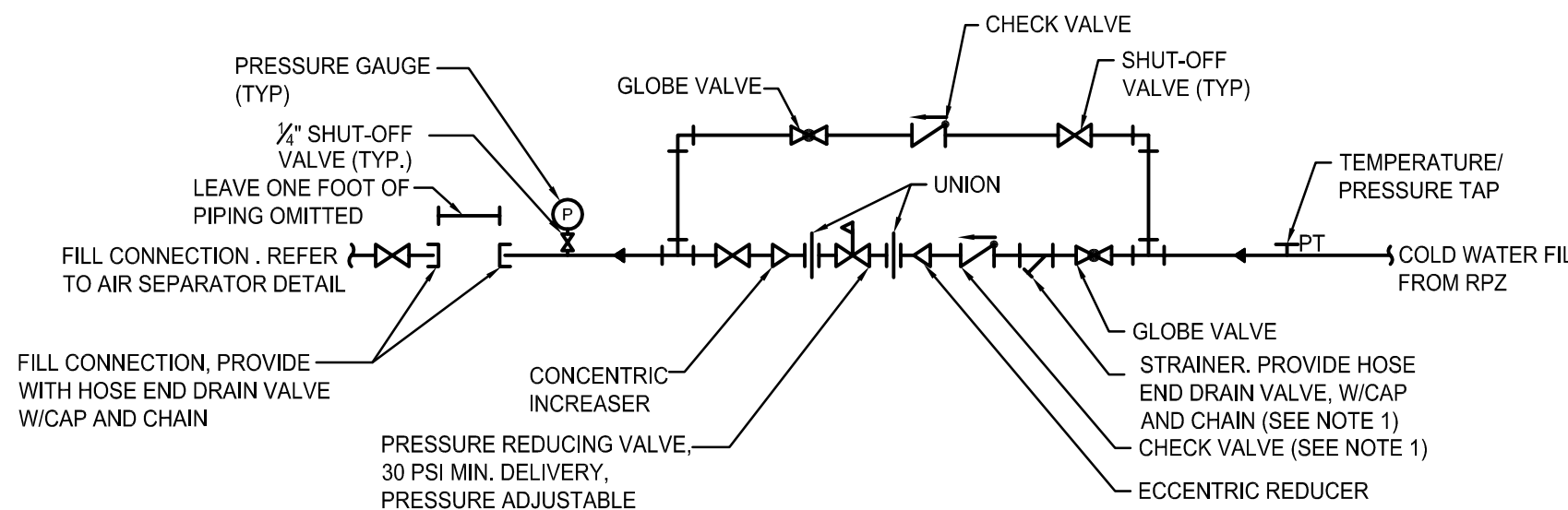
**2 COIL PIPING ARRANGEMENT 2-WAY VALVE**  
SCALE: NOT TO SCALE



**3 BYPASS FILTER FEEDER**  
SCALE: NOT TO SCALE

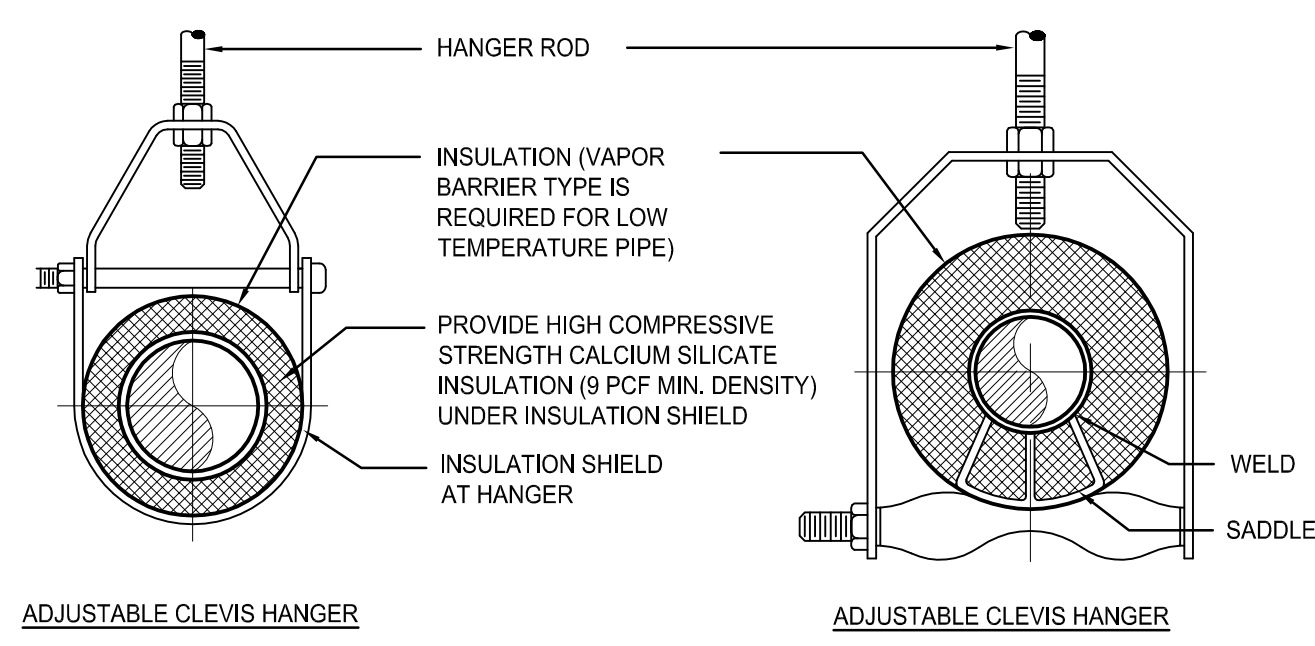


**4 PIPE PENETRATIONS OF FIRE WALL**  
SCALE: NOT TO SCALE

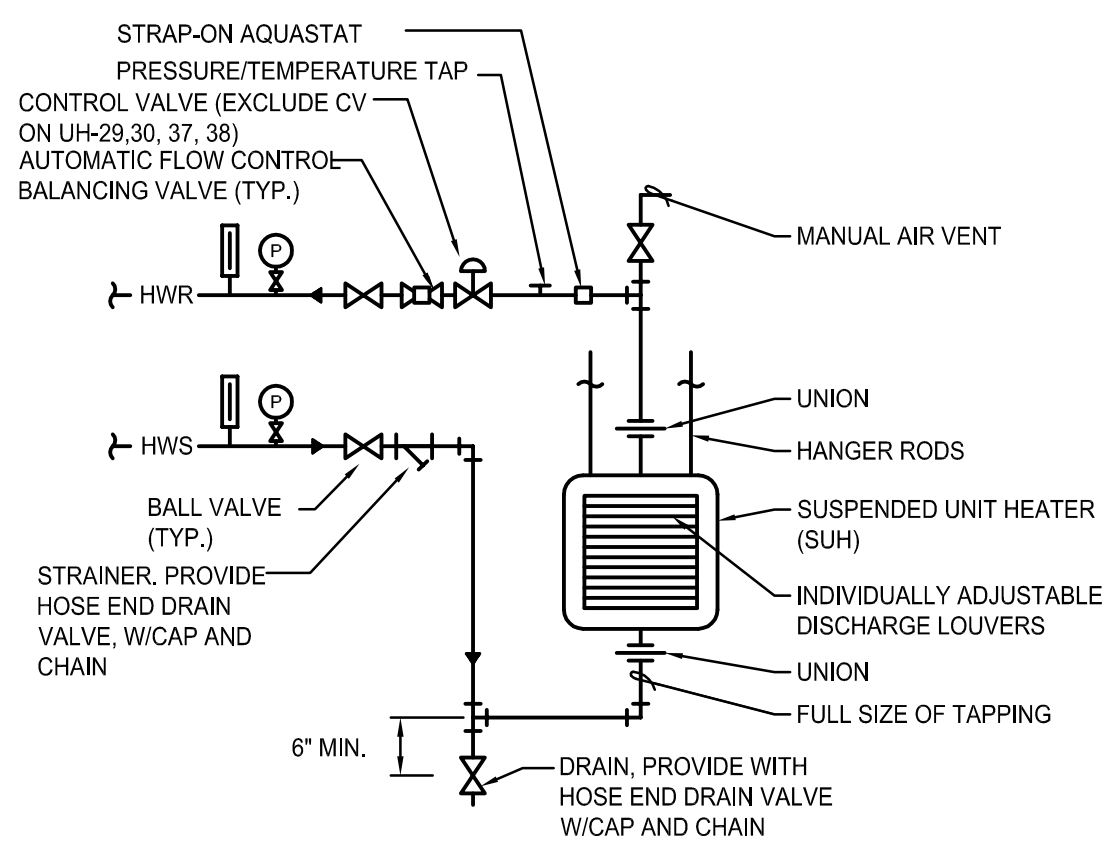


NOTE 1: MAY BE OMITTED IF INTEGRAL WITH PRESSURE REDUCING VALVE

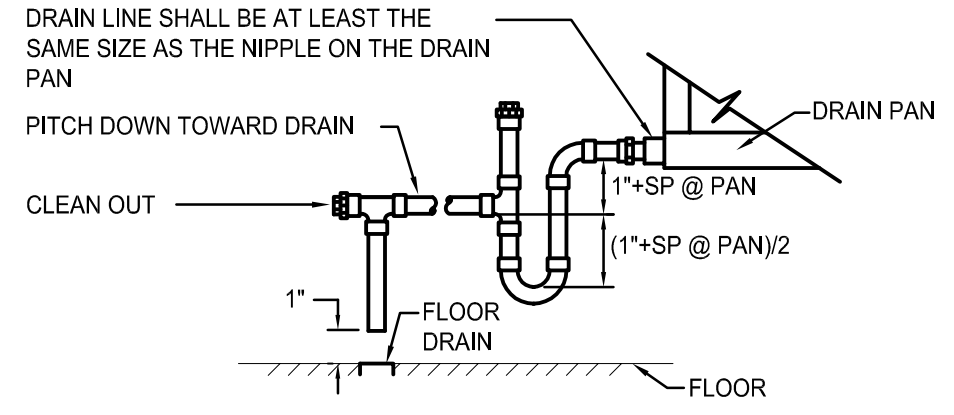
**7 PIPING SCHEMATIC-WATER INLET VALVE ASSEMBLY (WIV)**  
SCALE: NOT TO SCALE



**8 TYPICAL PIPE HANGER DETAIL**  
SCALE: NOT TO SCALE

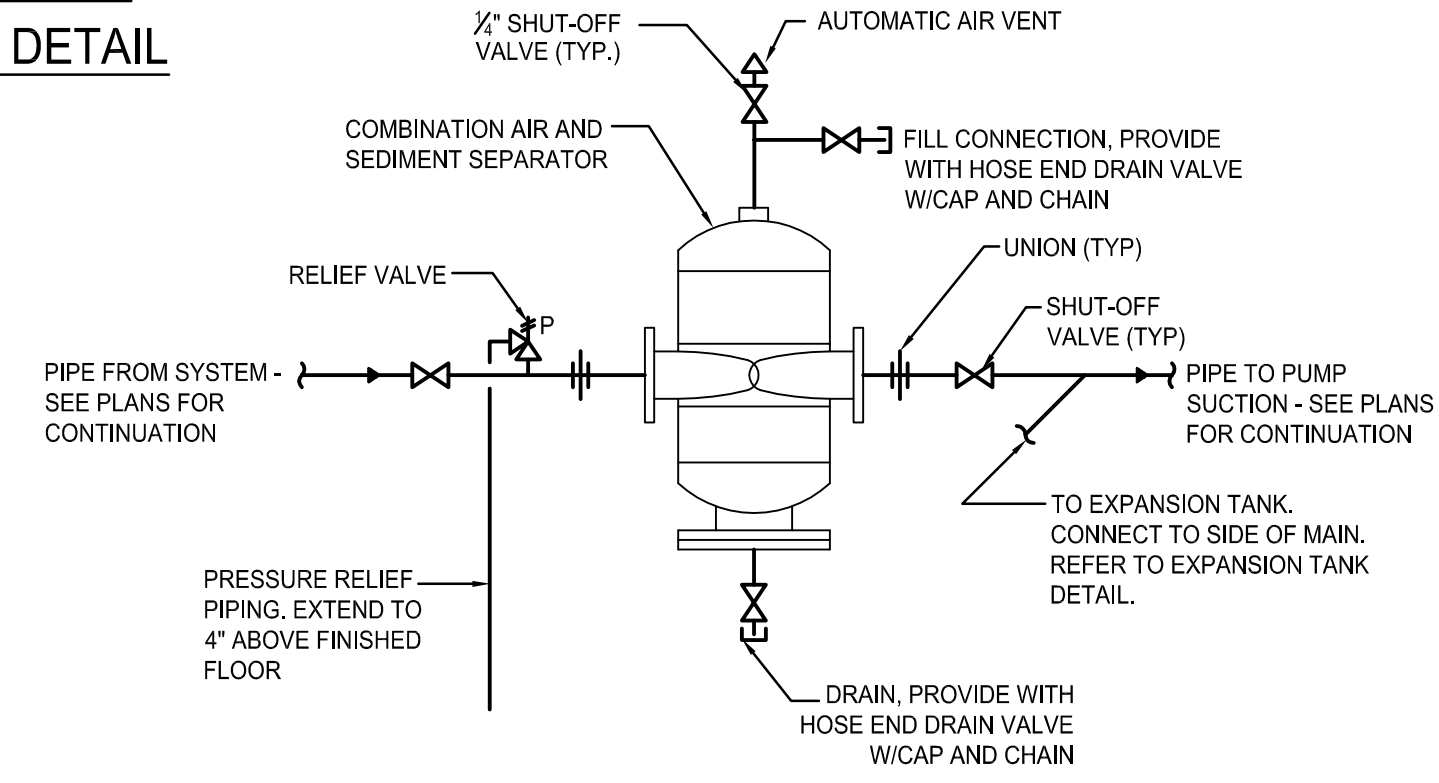
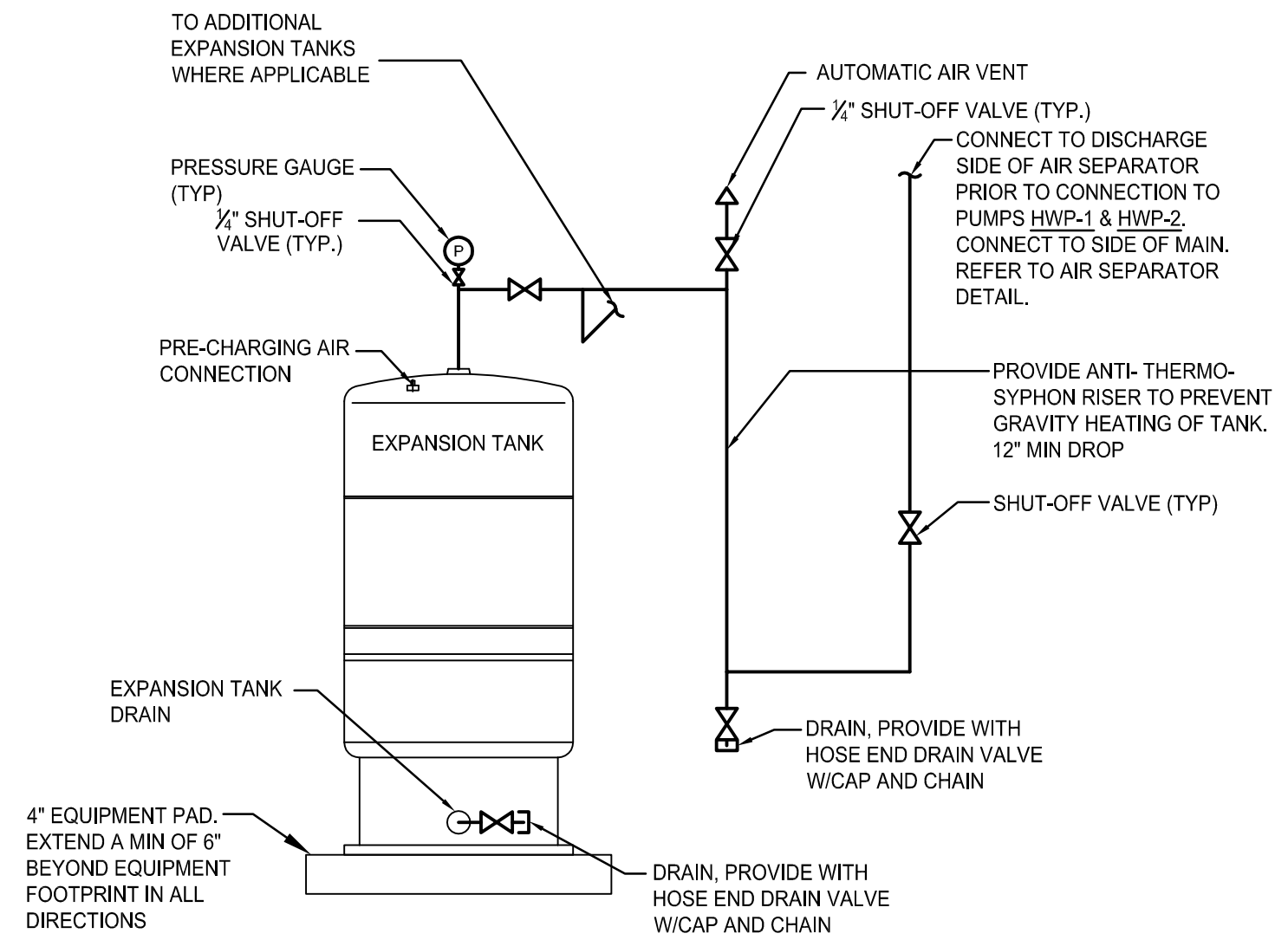


**9 HOT WATER UNIT HEATER - PIPING SCHEMATIC**  
SCALE: NOT TO SCALE

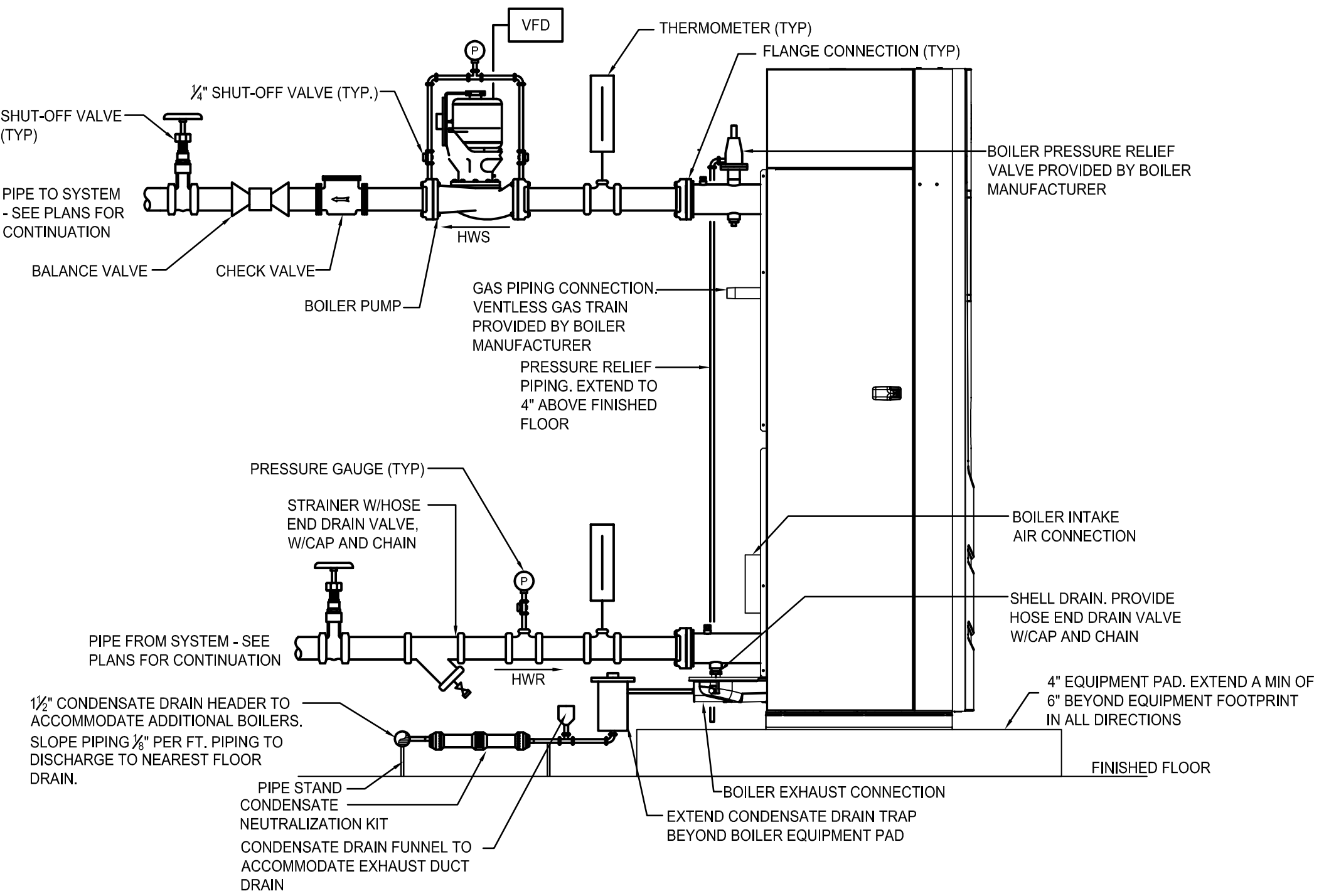


**10 CONDENSATE TRAP**  
SCALE: NOT TO SCALE

**5 TYPICAL EXPANSION TANK**  
SCALE: NOT TO SCALE

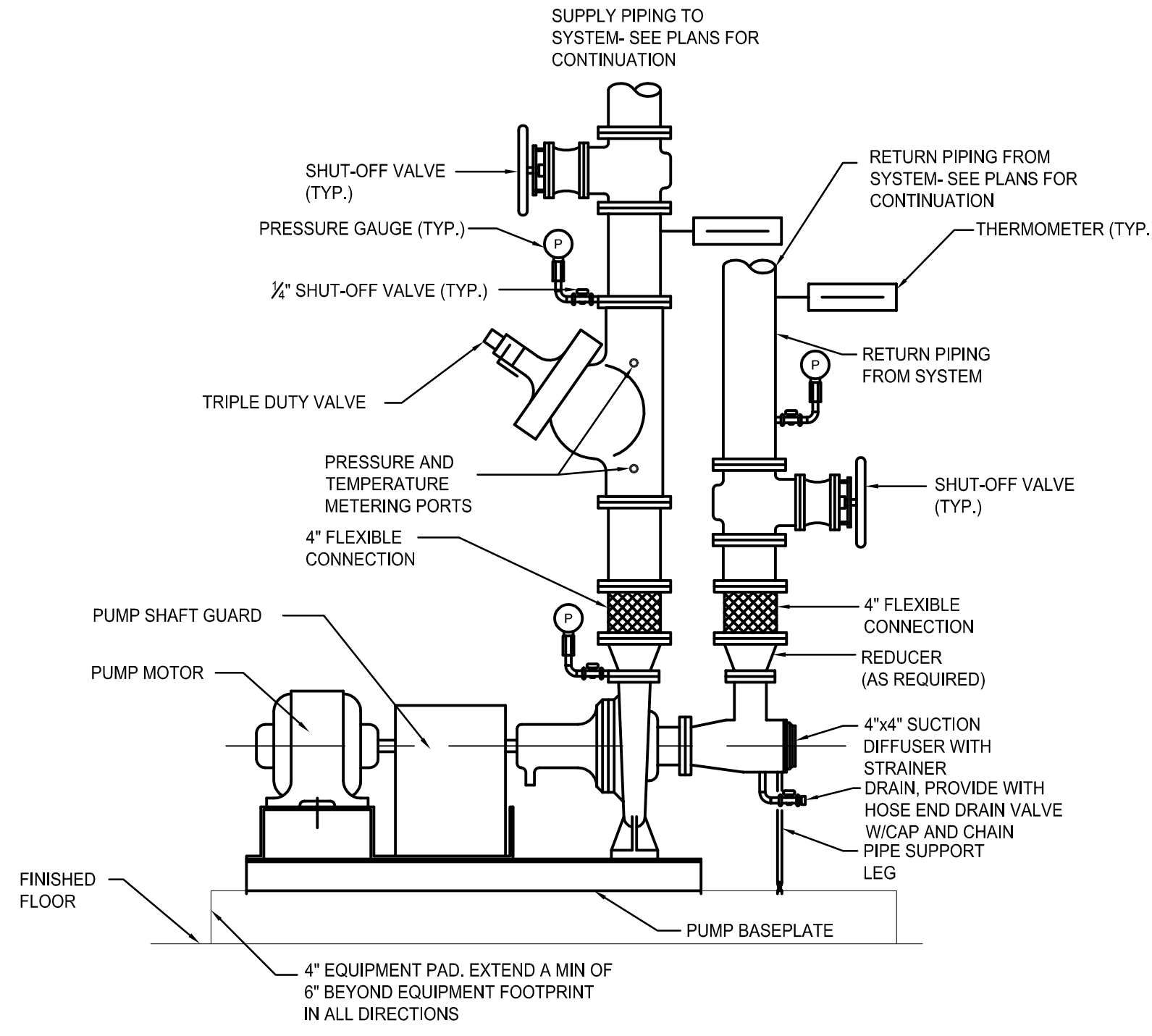


**13 TYPICAL SUSPENDED AIR SEPARATOR**  
SCALE: NOT TO SCALE

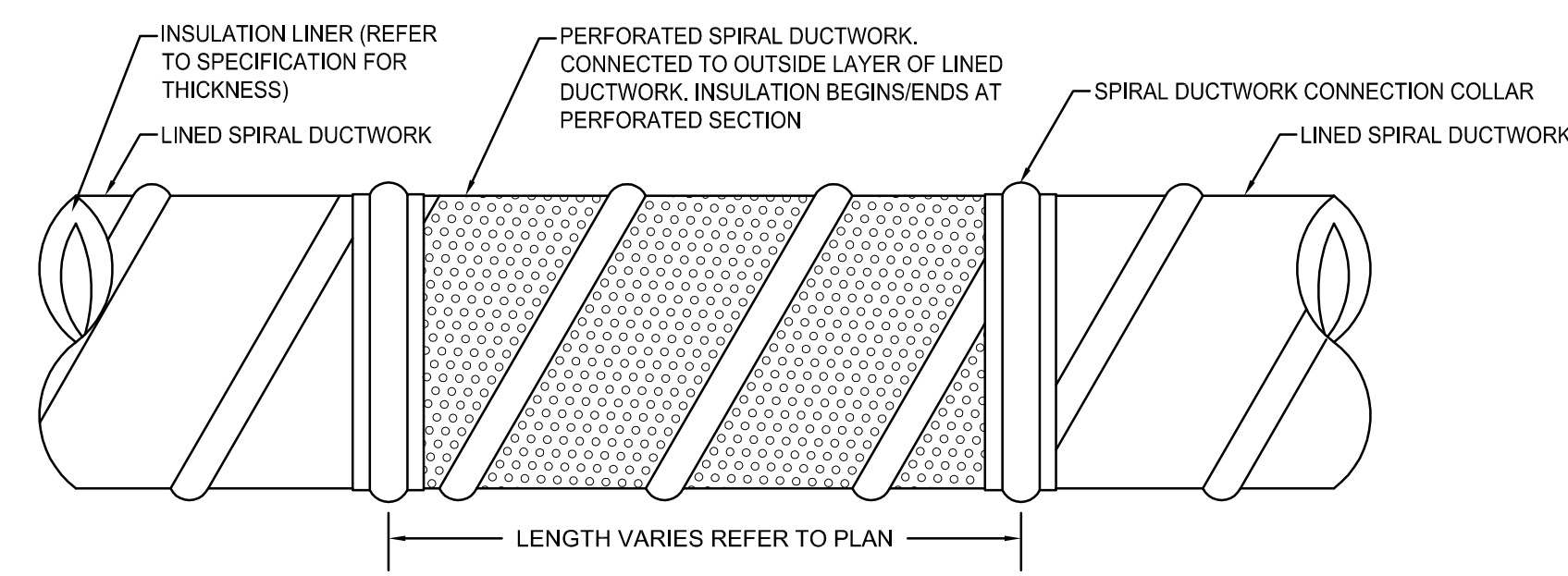


NOTE: LOCATE WATER INLET AND OUTLET FITTINGS A MINIMUM OF 6" FROM THE BOILER FITTING

**11 TYPICAL BOILER**  
SCALE: NOT TO SCALE



**12 BASE MOUNTED CIRCULATING PUMP**  
SCALE: NOT TO SCALE



**14 PERFORATED SPIRAL DUCT CONNECTION DETAIL**  
SCALE: NOT TO SCALE

**PARATRANSIT OPERATIONS & MAINTENANCE FACILITY**  
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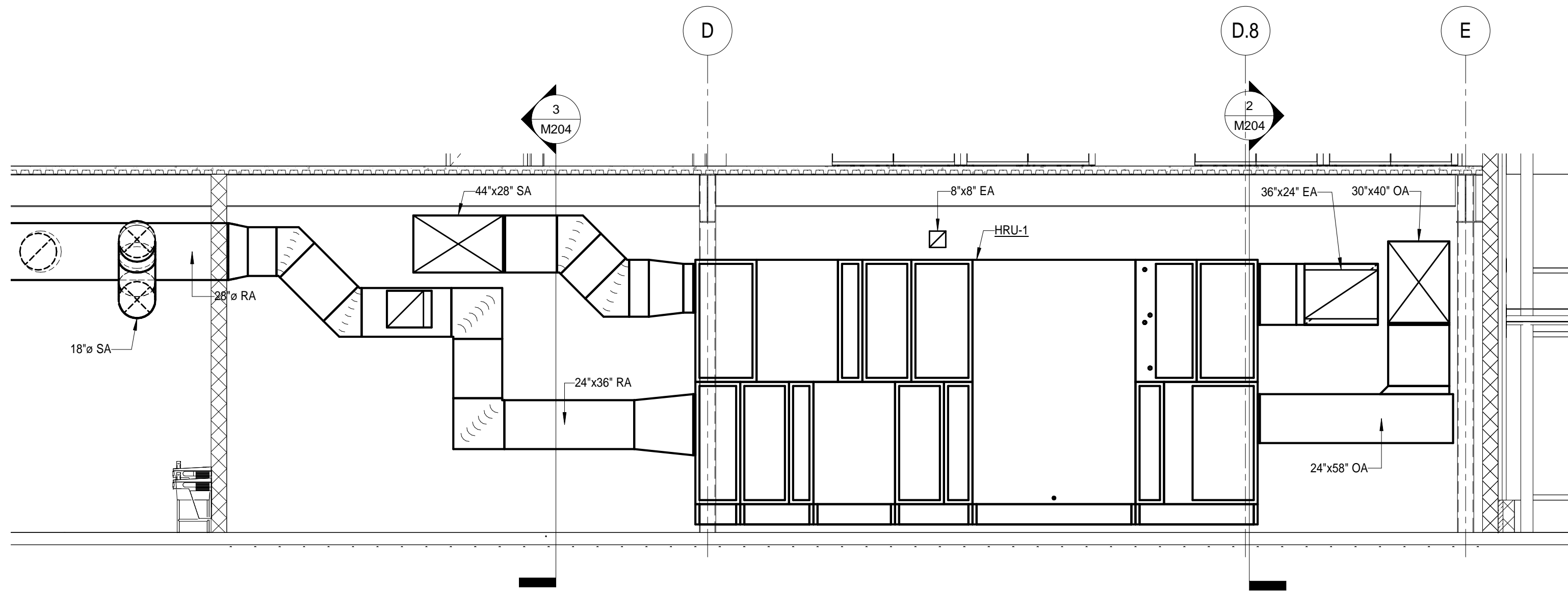
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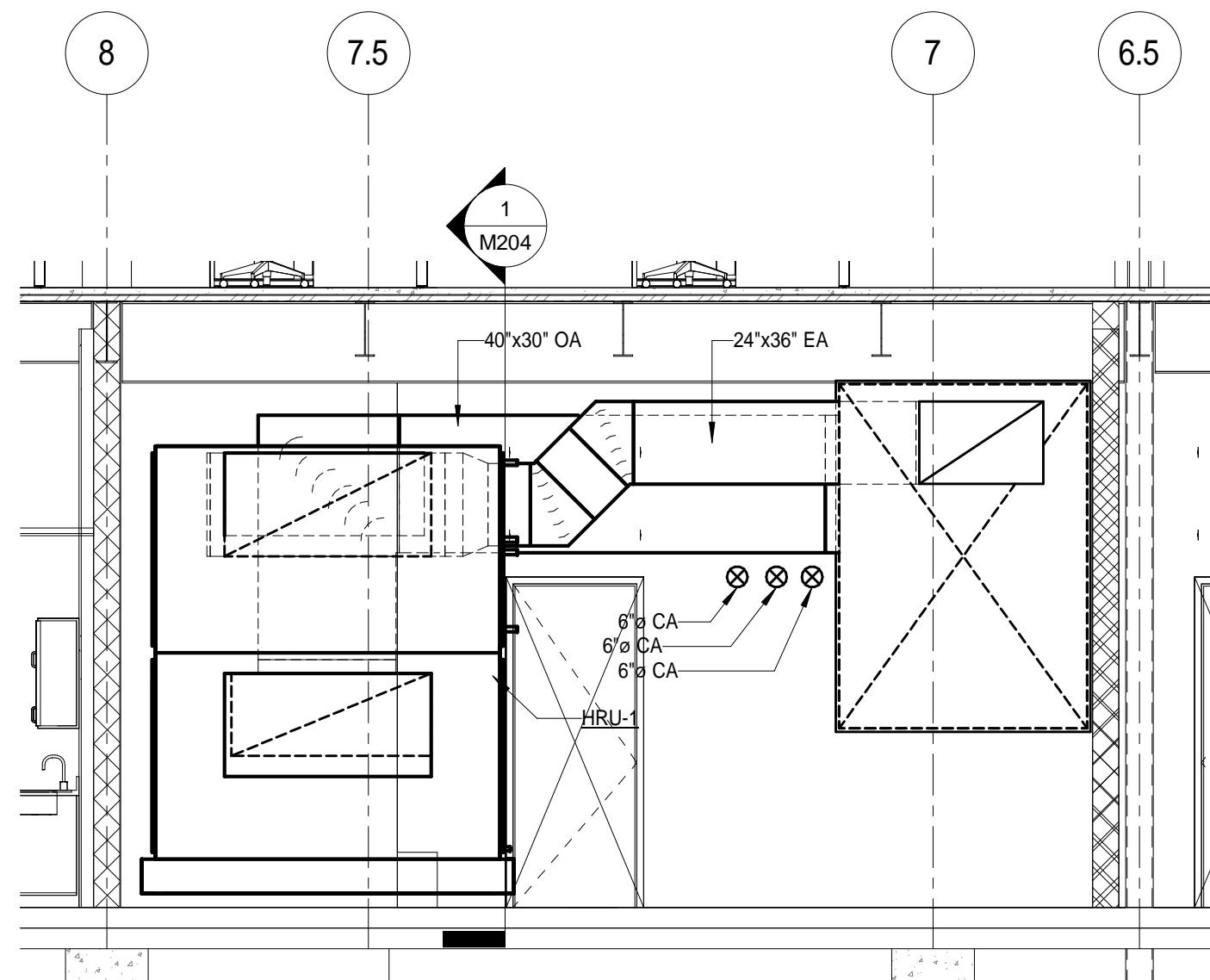
HVAC DETAILS

M203

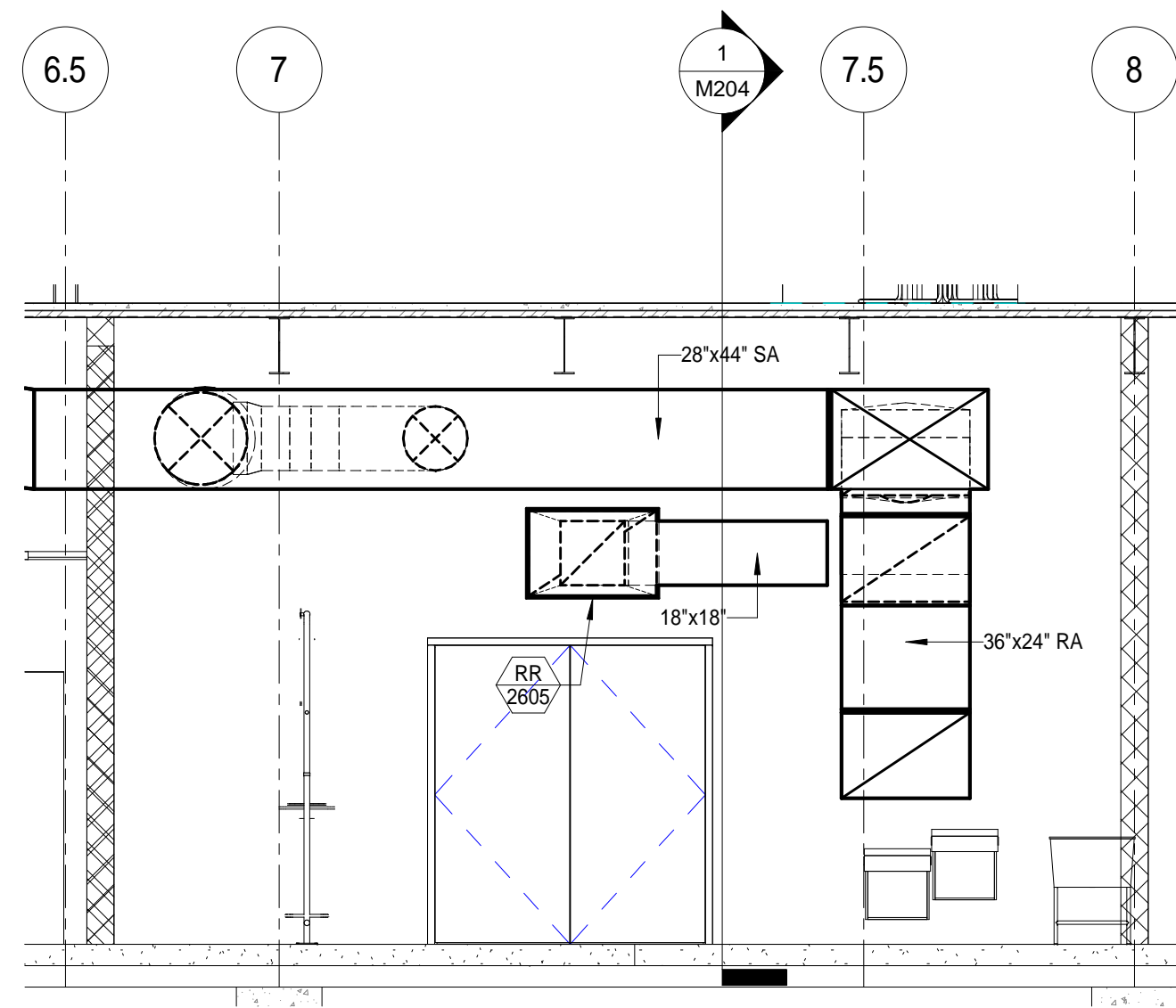




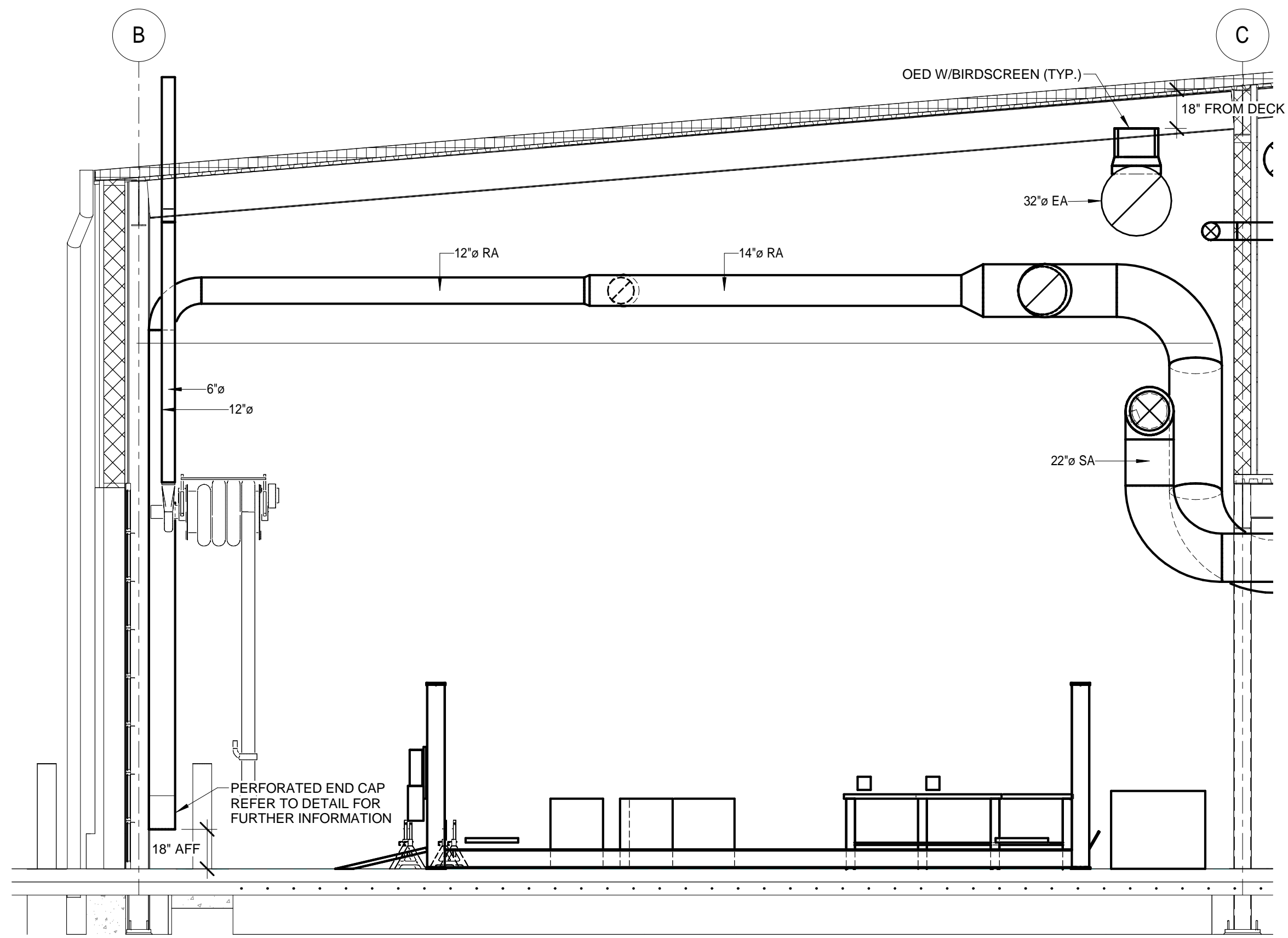
1 MECHANICAL ROOM SECTION  
1/4" = 1'-0"



2 MECHANICAL ROOM SECTION E/W  
1/4" = 1'-0"



3 MECHANICAL ROOM SECTION E/W 2  
1/4" = 1'-0"



4 GARAGE SECTION  
1/4" = 1'-0"

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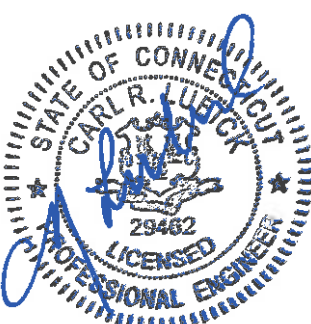


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SECTIONS

M204



AIR HANDLING UNIT SCHEDULE (AHU)																															
PLAN DESIGNATION	MANUFACTURER MODEL NO.	LOCATION	MAXIMUM UNIT DIMENSIONS L X W X H (IN.)	SUPPLY FAN			RETURN FAN			MIN. G.A. CFM (OCCUPIED)	DX COOLING COIL								HOT WATER COIL					SUPPLY FAN ELECTRICAL DATA			RETURN FAN ELECTRICAL DATA			NOTES	
				AIR FLOW (CFM)	EXTERNAL SP (IN. WC)	TOTAL SP (IN. WC)	AIR FLOW (CFM)	EXTERNAL SP (IN. WC)	TOTAL SP (IN. WC)		TOTAL CAP. (MBH)	SENS. CAP. (MBH)	EAT ("Fdb"/Fwb)	LAT ("Fdb"/Fwb)	MIN. COIL AREA (SF)	SAT. SUCTION TEMP. ("F)	REFRIGERANT TYPE	ASSOCIATED EQUIPMENT	CAPACITY (MBH)	EAT/LAT ("F)	EWTLWT ("F)	FLOW RATE (GPM)	WPD (FT HD)	MIN. COIL AREA (SF)	MOTOR BHP	MOTOR HP	VOLTS/ PHASE	MOTOR BHP	MOTOR HP		VOLTS/ PHASE
AHU-1	AAON RN-030-3-4-EA09-EHJ	ROOFTOP	203x100x101	10800	2.5	3.7	8930	1.0	1.15	1870	302.23	264.07	77/84	54/54	31.9	-	R410A	-	155.9	47.4/70.5	160/133	12	0.6	18.75	9.46	15	460/3	2.28	5	460/3	SEE BELOW
<div>NOTES:</div> <div><div>1. PROVIDE INVERTER DUTY PREMIUM EFFICIENCY MOTOR(S) CLASS F INSULATION COMPATIBLE WITH VARIABLE FREQUENCY DRIVE. UNIT TO BE FACTORY PRE-WIRED TO PROVIDE SINGLE POINT ELECTRICAL CONNECTION TO J-BOX.</div><div>2. PROVIDE SIDE LOADING REMOVABLE FILTERS, PREFILTER: 2" PLEATED WITH METAL MESH, FINAL FILTER: 4" PLEATED 65% EFF - MERV 11</div><div>3. UNIT TO BE FACTORY FABRICATED AS ONE UNIT BY ONE MANUFACTURER</div><div>4. PROVIDE 2" THICK DOUBLE WALL INSULATED GALVANIZED STEEL CABINET, INJECTED FOAM MIN R-VALUE 13</div><div>5. PROVIDE LOCKABLE DISCONNECT SWITCH, DISCONNECT SWITCH SHALL BE CAPABLE OF EARLYBREAK/LATE MAKE OPERATION COMPATIBLE WITH REMOTE LOCATION VARIABLE FREQUENCY DRIVES</div><div>6. ROOF CURB TO BE PROVIDED BY ROOF CURB MANUFACTURER IN COMPLIANCE WITH 2012 IBC 1604.9 AND 1604.10 AND DEMONSTRATE A CONTINUOUS LOAD PATH FROM EQUIPMENT THROUGH THE CURB AND TO THE BUILDING TO ACCOMMODATE WIND LOADING AND BE DESIGNED PER ASCE 7</div><div>7. UNIT TO BE SIZED BASED ON 20% PROPYLENE GLYCOL SOLUTION</div></div>																															

HEAT RECOVERY HEATING AND VENTILATING UNIT SCHEDULE (HRU)																																
PLAN DESIGNATION	MANUFACTURER MODEL NO.	LOCATION	MAXIMUM UNIT DIMENSIONS L X W X H (IN.)	SUPPLY FAN			RETURN FAN			HOT WATER COIL						AIR TO AIR HEAT EXCHANGER DATA								ELECTRICAL DATA						NOTES		
				AIR FLOW (CFM)	EXTERNAL SP (IN. WC)	TOTAL SP (IN. WC)	AIR FLOW (CFM)	EXTERNAL SP (IN. WC)	TOTAL SP (IN. WC)	CAPACITY (MBH)	EAT/LAT (°F)	EWTLWT (°F)	FLOW RATE (GPM)	WPD (FT HD)	MIN. COIL AREA (SF)	MINIMUM EFFICIENCY (%)	SUPPLY AIR				EXHAUST AIR				INDIVIDUAL SUPPLY FAN			INDIVIDUAL EXHAUST FAN				
																	AIR FLOW RATE (CFM)	SP (IN. W.C.)	EAT (°Fdb/°Fwb)	LAT (°Fdb/°Fwb)	AIR FLOW RATE (CFM)	SP (IN. W.C.)	EAT (°Fdb/°Fwb)	LAT (°Fdb/°Fwb)	# OF FANS	FAN SPEED (RPM)	MOTOR HP	# OF FANS	FAN SPEED (RPM)		MOTOR HP	VOLTS/ PHASE
HRU-1	DAIKIN VISION CAH031GHGM	MECHANICAL 117	276x100x120	11660	1.75	3.82	7850	1.3	2.49	876.5	39/109	160/109.4	35.8	4	29	81	11320	0.98	2/1	39/27	7850	0.54	68/51	22/22	2	2350	7.5	2	1767	3	460/3	SEE BELOW
<div>NOTES:</div> <div><div>1. PROVIDE INVERTER DUTY PREMIUM EFFICIENCY MOTOR(S) CLASS F INSULATION COMPATIBLE WITH VARIABLE FREQUENCY DRIVE. SINGLE DRIVE TO CONTROL MULTIPLE FAN ARRANGEMENTS. UNIT TO BE FACTORY PRE-WIRED TO PROVIDE SINGLE POINT ELECTRICAL CONNECTION TO J-BOX.</div><div>2. PROVIDE SIDE LOADING REMOVABLE FILTERS.</div><div>3. PROVIDE CENTRIFUGAL PLENUM STYLE SUPPLY AND RETURN FANS</div><div>4. UNIT TO BE FACTORY FABRICATED AS ONE UNIT BY ONE MANUFACTURER</div><div>5. PROVIDE 2" THICK DOUBLE WALL INSULATED GALVANIZED STEEL CABINET, INJECTED FOAM MIN R-VALUE 13</div><div>6. PROVIDE MARINE LIGHTS PREWIRED TO J-BOXES AT EACH SECTION DEMOUNT JOINT</div><div>7. UNIT TO BE SIZED BASED ON 20% PROPYLENE GLYCOL SOLUTION</div></div>																																

EXHAUST FAN SCHEDULE (EF)													
PLAN DESIGNATION	MANUFACTURER MODEL NO.	LOCATION	TYPE	AIR FLOW RATE (CFM)	EXTERNAL S.P. (IN. W.C.)	FAN SPEED (RPM)	SONES	DRIVE TYPE	ELECTRICAL DATA				NOTES
									MOTOR BHP	MOTOR HP	FLA	VOLTS/ PHASE	
EF-1	GREENHECK GB-101-4	ROOF	DOWN BLAST	705	0.5	1243	6.4	BELT	0.13	1/4	1.1	460/3	1,4,6,7
EF-2	GREENHECK CUBE-121-5	ROOF	UPBLAST	6235	0.5	1572	15.1	BELT	0.37	1/2	1.1	460/3	1,4,6,7,8,10
EF-3	GREENHECK CUBE-141-4	ROOF	UPBLAST	1510	0.25	974	8.6	BELT	0.2	1/4	1.1	460/3	1,4,6,7
EF-4	GREENHECK GB-131-5	ROOF	DOWN BLAST	1750	0.5	1489	15	BELT	0.4	1/2	1.1	460/3	1,4,6,7
EF-5	GREENHECK BSQ-180-3	WELDING 109	INLINE	1510	0.5	723	10.7	BELT	0.26	1/3	1.1	460/3	1,2,3,4,5
EF-6	GREENHECK CUBE-360-50	ROOF	UPBLAST	13100	0.75	597	21	BELT	3.48	5	7.6	460/3	1,4,6,7,9
NOTES: 1. PROVIDE SOLID SHAFT WITH ANTI CORROSIVE COATING AND EXTENDED LUBE LINES 2. PROVIDE WITH OSHA APPROVED BELT GUARD 3. PROVIDE CEILING SUSPENSION RUBBER IN SHEAR VIBRATION ISOLATORS 4. PROVIDE INVERTER DUTY PREMIUM EFFICIENCY MOTOR, CLASS F INSULATION COMPATIBLE WITH VARIABLE FREQUENCY DRIVE 5. PROVIDE FLEXIBLE DUCT CONNECTION AT FAN INLET AND OUTLET 6. PROVIDE INSULATED ROOF CURB 7. PROVIDE INSULATED CONTROL DAMPER WITH END SWITCH AT ROOF PENETRATION 8. PROVIDE 2 SPEED CONTROLS FOR EXHAUST FAN. - NORMAL OPERATION: FAN SHALL BE BALANCED TO 1610 CFM - EMERGENCY EXHAUST OPERATION: FAN SHALL BE BALANCED TO 6235. 9. PROVIDE EXPLOSION RESISTANT MOTOR ENCLOSURE 10. PROVIDE 2 SPEED MOTOR													

BOILER SCHEDULE (B)														
PLAN DESIGNATION	MANUFACTURER MODEL NO.	TYPE	HEATING INPUT (MBH)	HEATING OUTPUT (MBH)	FUEL BURNER TYPE	FLUE OUTLET SIZE (IN.)	COMBUSTION AIR INLET SIZE (IN.)	PRESSURE RATING (PSI)	WPD (PSI)	EWTLWT	TURNDOWN	ELECTRICAL DATA		NOTES
												VOLTS/PH	AMPS	
B-1,2, & 3	AERCO BENCHMARK 750	CONDENSING	750	720	FIRE TUBE	6	6	160	3	120/160	20:1	115/1	13	SEE BELOW
NOTES: 1. PROVIDE EMERGENCY SHUT-DOWN SWITCH INSTALLED PER MANUFACTURERS RECOMMENDATIONS. 2. PROVIDE CONDENSATE NEUTRALIZATION KIT 3. INSTALL BOILERS PER MANUFACTURERS RECOMMENDATIONS. REFER TO INSTALLATION MANUAL FOR SIDE BY SIDE INSTALLATION REQUIREMENTS. 4. UNIT TO BE SIZED BASED ON A 20% PROPYLENE GLYCOL SOLUTION. 5. PROVIDE STAINLESS STEEL HEAT EXCHANGER 6. PROVIDE FACTORY INSTALLED STAND-ALONE CONTROL SYSTEM CAPABLE OF BMS SYSTEM INTEGRATION AND LED DISPLAY BY BOILER MANUFACTURER. 7. BOILER TO BE SUPPLIED WITH INTERNAL COMBUSTION BLOWER. 8. PROVIDE SECURITY CHIMNEYS AL29-4C DOUBLE WALL FLUE PIPING WITH 1" AIR GAP OR APPROVED EQUAL. 9. PROVIDE SECURITY CHIMNEYS AL29-4C SINGLE WALL STAINLESS STEEL INTAKE PIPING SYSTEM														

CABINET UNIT HEATER SCHEDULE (CUH)												
PLAN DESIGNATION	MANUFACTURER MODEL NO.	LOCATION	COIL ROWS	ENCLOSURE TYPE/SIZE	CAPACITY (MBH)	EWTLWLT (°F)	EAT/LAT (°F)	FLOW RATE (GPM)	PRESSURE DROP (FT. HD.)	MOTOR HP	VOLTS/ PHASE	NOTES
CUH-1	RITTLING RF-200-02	FIRE STAIR 227	1	FLOOR MOUNTED	8	160/120	60/76.8	0.23	0.05	1/60	115/1ø	SEE BELOW
CUH-2	RITTLING RF-200-02	FIRE STAIR 227	1	FLOOR MOUNTED	8	160/120	60/76.8	0.23	0.05	1/60	115/1ø	SEE BELOW
CUH-3	RITTLING RF-200-02	FIRE STAIR 227	1	FLOOR MOUNTED	8	160/120	60/76.8	0.23	0.05	1/60	115/1ø	SEE BELOW
CUH-4	RITTLING RF-200-02	FIRE STAIR 228	1	FLOOR MOUNTED	8	160/120	60/76.8	0.23	0.05	1/60	115/1ø	SEE BELOW
CUH-5	RITTLING RF-200-02	FIRE STAIR 228	1	FLOOR MOUNTED	8	160/120	60/76.8	0.23	0.05	1/60	115/1ø	SEE BELOW
CUH-6	RITTLING RF-200-02	FIRE STAIR 228	1	FLOOR MOUNTED	8	160/120	60/76.8	0.23	0.05	1/60	115/1ø	SEE BELOW
CUH-7	RITTLING RF-200-02	VESTIBULE 135	1	FLOOR MOUNTED	8	160/120	60/76.8	0.23	0.05	1/60	115/1ø	SEE BELOW
NOTES: 1. PROVIDE UNIT MOUNTED DISCONNECT SWITCH. 2. UNIT TO BE SIZED BASED ON 20% PROPYLENE GLYCOL SOLUTION												

AIR SEPARATOR SCHEDULE (AS)										
PLAN DESIGNATION	MANUFACTURER MODEL NO.	LOCATION	STYLE	FLOW (GPM)	WPD (FT HD)	SIZE (IN.)	HEIGHT (IN.)	DIAMETER (IN.)	SURFACE AREA (SQFT)	NOTES
AS-1	TACO 4904AD-125	MECHANICAL 117	TANGENTIAL	140	1.5	4	25-1/8	12	22	SEE BELOW
NOTES: 1. PROVIDE HIGH VELOCITY COMBINATION AIR AND DIRT SEPARATOR 2. PROVIDE ACCESSORY MAGNET IN AIR SEPARATOR										

UNIT HEATER SCHEDULE (UH)												
PLAN DESIGNATION	MANUFACTURER MODEL NO.	LOCATION	AIR FLOW RATE (CFM)	HOT WATER COIL				ELECTRICAL DATA			NOTES	
				CAPACITY (MBH)	EAT/LAT (°F)	EWTL/LWT (°F)	FLOW RATE (GPM)	WPD (FT. HD.)	MOTOR HP	MOTOR RPM		VOLTS/ PHASE
UH-1	RITTLING RH-18	LUBE 103	400	8	70/89	160/129.6	0.55	0.11	1/30	1550	115/1ø	SEE BELOW
UH-2	RITTLING RH-18	LUBE 103	400	8	70/89	160/129.6	0.55	0.11	1/30	1550	115/1ø	SEE BELOW
UH-3	RITTLING RH-18	PARTS 105	400	8	70/89	160/129.6	0.55	0.11	1/30	1550	115/1ø	SEE BELOW
UH-4	RITTLING RH-33	RECEIVING 122	630	15	70/92.9	160/130.2	1.05	0.03	1/15	1550	115/1ø	SEE BELOW
UH-5	RITTLING RH-47	TIRE BAY 124	730	20.7	70/97.5	160/129.8	1.43	0.05	1/15	1550	115/1ø	SEE BELOW
UH-6	RITTLING RH-47	RUN REPAIR 125	730	20.7	70/97.5	160/129.8	1.43	0.05	1/15	1550	115/1ø	SEE BELOW
UH-7	RITTLING RH-47	RUN REPAIR 127	730	20.7	70/97.5	160/129.8	1.43	0.05	1/15	1550	115/1ø	SEE BELOW
UH-8	RITTLING RH-33	GAS REPAIR 128	630	15	70/92.9	160/130.2	1.05	0.03	1/15	1550	115/1ø	SEE BELOW
UH-9	RITTLING RH-33	GAS REPAIR 128	630	15	70/92.9	160/130.2	1.05	0.03	1/15	1550	115/1ø	SEE BELOW
UH-10	RITTLING RH-47	RUN REPAIR 127	730	20.7	70/97.5	160/129.8	1.43	0.05	1/15	1550	115/1ø	SEE BELOW
UH-11	RITTLING RH-47	TIRE BAY 124	730	20.7	70/97.5	160/129.8	1.43	0.05	1/15	1550	115/1ø	SEE BELOW
UH-12	RITTLING RH-18	PARTS 105	400	8	70/89	160/129.6	0.55	0.11	1/30	1550	115/1ø	SEE BELOW
UH-13	RITTLING RH-33	CORRIDOR	630	15	70/92.9	160/130.2	1.05	0.03	1/15	1550	115/1ø	SEE BELOW
UH-14	RITTLING RH-18	WASH EQUIP 107	400	8	70/89	160/129.6	0.55	0.11	1/30	1550	115/1ø	SEE BELOW
UH-15	RITTLING RH-47	WASH BAY 102	730	20.7	70/97.5	160/129.8	1.43	0.05	1/15	1550	115/1ø	SEE BELOW
UH-16	RITTLING RH-47	WASH BAY 102	730	20.7	70/97.5	160/129.8	1.43	0.05	1/15	1550	115/1ø	SEE BELOW
UH-17	RITTLING RH-47	WASH BAY 102	730	20.7	70/97.5	160/129.8	1.43	0.05	1/15	1550	115/1ø	SEE BELOW
UH-18	RITTLING RH-47	WASH BAY 102	730	20.7	70/97.5	160/129.8	1.43	0.05	1/15	1550	115/1ø	SEE BELOW
UH-19	RITTLING RH-24	GEN STORAGE 108	450	10.6	70/92.6	160/129.1	0.71	0.18	1/30	1550	115/1ø	SEE BELOW
UH-20	RITTLING RH-18	WELDING 109	400	8	70/89	160/129.6	0.55	0.11	1/30	1550	115/1ø	SEE BELOW
UH-21	RITTLING RH-33	MACHINE SHOP 110	630	15	70/92.9	160/130.2	1.05	0.03	1/15	1550	115/1ø	SEE BELOW
UH-22	RITTLING RH-18	ELECTRICAL 116	400	8	70/89	160/129.6	0.55	0.11	1/30	1550	115/1ø	SEE BELOW
UH-23	RITTLING RH-18	SPEC TOOL 114	400	8	70/89	160/129.6	0.55	0.11	1/30	1550	115/1ø	SEE BELOW
UH-24	RITTLING RH-18	COMPRESSOR 115	400	8	70/89	160/129.6	0.55	0.11	1/30	1550	115/1ø	SEE BELOW
UH-25	RITTLING RH-18	MECHANICAL 117	400	8	70/89	160/129.6	0.55	0.11	1/30	1550	115/1ø	SEE BELOW
UH-26	RITTLING RH-18	BATTERY 104	400	8	70/89	160/129.6	0.55	0.11	1/30	1550	115/1ø	SEE BELOW
UH-27	RITTLING RH-18	MECHANICAL 117	400	8	70/89	160/129.6	0.55	0.11	1/30	1550	115/1ø	SEE BELOW
NOTES: 1. PROVIDE TWO SPEED MOTOR. 2. PROVIDE OSHA FAN GUARD. 3. PROVIDE SPRING MOUNTED HORIZONTAL LOUVERS.				4. PROVIDE COPPER HEAT EXCHANGER TUBES WITH ALUMINUM FINs. 5. PROVIDE UNIT MOUNTED DISCONNECT SWITCH 6. PROVIDE EXPLOSION RESISTANT MOTOR 7. UNIT TO BE SIZED BASED ON 20% PROPYLENE GLYCOL SOLUTION								



AIR INLET AND OUTLET SCHEDULE								
PLAN DESIGNATION	CFM RANGE	MAX S.P.	MANUFACTURER MODEL NO.	TYPE	NECK SIZE (IN.)	FACE SIZE (IN.)	N.C. LEVEL	NOTES
CD	0-200	.062	PRICE SPD	CEILING DIFFUSER	6	24x24	< 30	W/ VOLUME DAMPER
CD	300-550	.060	PRICE SPD	CEILING DIFFUSER	10	24x24	< 30	W/ VOLUME DAMPER
LD	0-200	.044	PRICE SDS75	LINEAR DIFFUSER	8	48x6	< 30	(1) SLOT, 3/4" SLOT WIDTH, WITH INSULATED PLENUM, 48" LONG.
DD	0-450	0.134	PRICE HCD	DRUM DIFFUSER	-	18x6	< 30	W/ OPPOSED BLADE DAMPER
DD	450-900	0.106	PRICE HCD	DRUM DIFFUSER	-	18x12	< 30	W/ OPPOSED BLADE DAMPER
PD	100-200	-	LINDAB	PERFORATED DUCT DIFFUSER	8	24	< 30	180° PERFORATION ON BOTTOM HALF OF DUCT
PD	100-200	-	LINDAB	PERFORATED DUCT DIFFUSER	10	24	< 30	180° PERFORATION ON BOTTOM HALF OF DUCT
PD	100-200	-	LINDAB	PERFORATED DUCT DIFFUSER	12	24	< 30	180° PERFORATION ON BOTTOM HALF OF DUCT
SR	0-180	.146	PRICE 520D	SUPPLY REGISTER	-	6x6	< 30	W/ OPPOSED BLADE DAMPER. FRONT BLADES PARALLEL TO LONG DIMENSION.
SR	180-390	.146	PRICE 520D	SUPPLY REGISTER	-	8x8	< 30	W/ OPPOSED BLADE DAMPER. FRONT BLADES PARALLEL TO LONG DIMENSION.
SR	390-550	.094	PRICE 520D	SUPPLY REGISTER	-	12x10	< 30	W/ OPPOSED BLADE DAMPER. FRONT BLADES PARALLEL TO LONG DIMENSION.
SR	550-945	.094	PRICE 520D	SUPPLY REGISTER	-	20x10	< 30	W/ OPPOSED BLADE DAMPER. FRONT BLADES PARALLEL TO LONG DIMENSION.
ER	0-100	.062	PRICE 635DAL	EXHAUST REGISTER	-	8x8	< 30	W/ OPPOSED BLADE DAMPER
ER	100-350	.097	PRICE 635DAL	EXHAUST REGISTER	-	12x10	< 30	W/ OPPOSED BLADE DAMPER
ER	350-600	.097	PRICE 635DAL	EXHAUST REGISTER	-	14x14	< 30	W/ OPPOSED BLADE DAMPER
ER	600-700	.097	PRICE 635DAL	EXHAUST REGISTER	-	18x14	< 30	W/ OPPOSED BLADE DAMPER
RR	0-195	.097	PRICE 535D	RETURN REGISTER	-	8x8	< 30	W/ OPPOSED BLADE DAMPER
RR	200-400	.097	PRICE 535D	RETURN REGISTER	-	14x10	< 30	W/ OPPOSED BLADE DAMPER
RR	400-670	.097	PRICE 535D	RETURN REGISTER	-	22x10	< 30	W/ OPPOSED BLADE DAMPER
RR	700-900	.097	PRICE 535D	RETURN REGISTER	-	30x10	< 30	W/ OPPOSED BLADE DAMPER
RR	900-1240	.062	PRICE 535D	RETURN REGISTER	-	24x20	< 30	W/ OPPOSED BLADE DAMPER
RR	1250-2500	.062	PRICE 535D	RETURN REGISTER	-	40x24	< 30	W/ OPPOSED BLADE DAMPER
NOTES: VERIFY CEILING TYPE BEFORE SUBMITTING SHOP DRAWINGS. PROVIDE REQUIRED BRACKETS, FLANGES, SURFACE PLATES, ETC. TO MOUNT DIFFUSERS, REGISTERS AND GRILLES IN CEILINGS. PROVIDE ALUMINUM DIFFUSERS AND REGISTERS IN TOILET, LOCKER, CUSTODIAL, CHASSIS WASH, BUS WASH, AND WATER RECYCLING ROOMS.								

HEATING COIL SCHEDULE (HC)																
PLAN DESIGNATION	MANUFACTURER MODEL NO.	LOCATION	CAPACITY (MBH)	AIR SIDE			WATER SIDE				ROWS DEEP	FIN HEIGHT x FIN LENGTH	FACE VELOCITY (FPM)	FIN SPACING (FPIN)	COIL FACE AREA (SQ FT)	NOTES
				AIR FLOW (CFM)	EAT/LAT (°F)	AIR ΔP (IN. WG)	WATER FLOW (GPM)	EWTL/LWT (°F)	FLUID/MEDIA	WATER ΔP (IN. WG)						
HC-1	GREENHECK HW	MECH 117	131.3	2920	55/100	0.09	6.9	160/120	20% PG	10.3	2	30x36	389	8	7.5	SEE BELOW
HC-2	GREENHECK HW	MECH 117	262.2	5845	55/100	0.42	13.7	160/120	20% PG	7.6	2	30x36	779	14	7.5	SEE BELOW
NOTES: 1. PROVIDE DRAINABLE COIL WITH ALUMINUM FINS. 2. VERIFY COIL CONNECTION SIDE PRIOR TO ORDERING COIL. 3. PROVIDE DUCT ACCESS DOOR UPSTREAM AND DOWN STREAM OF COIL. 4. UNIT TO BE SIZED BASED ON 20% PROPYLENE GLYCOL SOLUTION																

PUMP SCHEDULE (HWCP)													
PLAN DESIGNATION	MANUFACTURER MODEL NO.	LOCATION	ARRANGEMENT	SERVICE	MEDIA	FLOW RATE (GPM)	IMPELLER SIZE (IN.)	WPD (FT HD)	ELECTRICAL DATA				NOTES
									MOTOR BHP	MOTOR HP	MOTOR RPM	VOLTS/ PHASE	
HWCP-1,2	TACO F12090C	MECHANICAL 117	BASE MOUNTED	HOT WATER LOOP	20% PG	145	7.9	60	3.2	5	1760	460/3	SEE BELOW
HWCP-3,4,5	TACO 1911	MECHANICAL 117	INLINE	BOILERS	20% PG	40	5.3	20	0.4	1/2	1760	460/3	SEE BELOW
NOTES: 1. PROVIDE INVERTER DUTY PREMIUM EFFICIENCY MOTOR CLASS F INSULATION COMPATIBLE WITH VARIABLE FREQUENCY DRIVE 2. PROVIDE PUMPS WITH MAX IMPELLER SIZE, BALANCING TO DESIGN FLOW RATES SHALL BE DONE THROUGH VARIABLE FREQUENCY DRIVE.													

SEISMIC DESIGN - IMPORTANCE FACTOR (I <sub>p</sub> )		
SYSTEM DESCRIPTION	ASSOCIATED EQUIPMENT	IMPORTANCE FACTOR (I <sub>p</sub> )
1ST FLOOR HEAT RECOVERY VENTILATION SYSTEM	HRU-1, ALL ASSOCIATED DUCTWORK, AND ALL ASSOCIATED PIPING	1
2ND FLOOR VARIABLE AIR VOLUME SYSTEM	AHU-1, VAV-1 THRU 26, ALL ASSOCIATED DUCTWORK AND AIR DEVICES, ALL ASSOCIATED PIPING	1
DUCTLESS SPLIT SYSTEM AIR CONDITIONERS SERVING IT/SERVER ROOMS	DSS-1, DSS-2 (INDOOR AND OUTDOOR UNITS) AND ASSOCIATED REFRIGERANT PIPING	1
HOT WATER HEATING SYSTEM PUMPS	HWCP-1,2,3,4, & 5, ET-1, AS-1, HC-1 & 2, UH-1 THRU 26, AND ALL ASSOCIATED PIPING	1
EMERGENCY EXHAUST FOR THE OPEN SHOP AREA	EF-6 AND ALL ASSOCIATED DUCTWORK	1.5
EMERGENCY EXHAUST FOR THE GASOLINE REPAIR BAY	EF-3 AND ALL ASSOCIATED DUCTWORK	1.5
EMERGENCY EXHAUST FOR THE WASH BAY	EF-2 AND ALL ASSOCIATED DUCTWORK	1.5
HOT WATER HEATING SYSTEM BOILERS	B-1,2, & 3 AND ALL ASSOCIATED NATURAL GAS PIPING	1.5

VARIABLE AIR VOLUME BOX SCHEDULE (VAV)													
PLAN DESIGNATION	MANUFACTURER MODEL NO.	MAXIMUM AIR FLOW (CFM)	MINIMUM AIR FLOW (CFM)	HEATING AIR FLOW (CFM)	AIR PRESSURE DROP (IN. WC)	COIL DATA				MAXIMUM NC	INLET DIA. (IN.)	NOTES	
						CAPACITY (MBH)	EAT/LAT (°F)	EWTL/LWT (°F)	FLOW RATE (GPM)				WPD (FT HD)
VAV-1	CARRIER 35E	755	500	500	0.074	29.43	55/100	160/128	1.94	0.61	9	14	SEE BELOW
VAV-2	CARRIER 35E	220	40	110	0.256	5.37	55/100	160/154	1.9	1.84	28	4	SEE BELOW
VAV-3	CARRIER 35E	220	125	220	0.107	10.74	55/100	160/138	1.01	0.29	13	6	SEE BELOW
VAV-4	CARRIER 35E	840	505	740	0.09	36.13	55/100	160/123	2.06	0.68	12	14	SEE BELOW
VAV-5	CARRIER 35E	700	700	700	0.045	39.26	55/100	160/131	2.9	0.54	13	16	SEE BELOW
VAV-6	CARRIER 35E	465	120	225	0.426	10.99	55/100	160/138	1.06	0.31	24	6	SEE BELOW
VAV-7	CARRIER 35E	210	150	175	0.099	9.5	55/100	160/139	0.97	0.26	13	6	SEE BELOW
VAV-8	CARRIER 35E	750	750	750	0.051	40.63	55/100	160/131	2.9	0.54	15	16	SEE BELOW
VAV-9	CARRIER 35E	565	105	175	0.312	10.61	55/100	160/138	0.97	0.37	21	8	SEE BELOW
VAV-10	CARRIER 35E	425	100	175	0.361	9.5	55/100	160/140	0.97	0.26	22	6	SEE BELOW
VAV-11	CARRIER 35E	270	140	225	0.082	12.09	55/100	160/134	0.97	0.37	12	8	SEE BELOW
VAV-12	CARRIER 35E	570	140	300	0.317	14.65	55/100	160/134	1.19	0.53	21	8	SEE BELOW
VAV-13	CARRIER 35E	600	160	300	0.348	14.65	55/100	160/134	1.19	0.53	20	8	SEE BELOW
VAV-14	CARRIER 35E	910	125	300	0.743	14.65	55/100	160/134	1.19	0.53	26	8	SEE BELOW
VAV-15	CARRIER 35E	340	215	230	0.124	12.23	55/100	160/134	0.97	0.37	15	8	SEE BELOW
VAV-16	CARRIER 35E	300	135	200	0.099	11.39	55/100	160/135	0.97	0.37	13	8	SEE BELOW
VAV-17	CARRIER 35E	635	350	470	0.104	23.81	55/100	160/126	1.45	0.54	14	12	SEE BELOW
VAV-18	CARRIER 35E	160	35	100	0.137	4.87	55/100	160/150	1.07	0.66	21	4	SEE BELOW
VAV-19	CARRIER 35E	535	110	110	0.176	5.37	55/100	160/140	0.57	0.3	20	8	SEE BELOW
VAV-20	CARRIER 35E	165	40	100	0.145	4.87	55/100	160/150	1.07	0.66	21	4	SEE BELOW
VAV-21	CARRIER 35E	140	50	95	0.105	4.62	55/100	160/148	0.83	0.42	18	4	SEE BELOW
VAV-22	CARRIER 35E	130	40	95	0.091	4.62	55/100	160/148	0.83	0.42	16	4	SEE BELOW
VAV-23	CARRIER 35E	130	40	95	0.091	4.62	55/100	160/148	0.83	0.42	16	4	SEE BELOW
VAV-24	CARRIER 35E	130	40	95	0.091	4.62	55/100	160/148	0.83	0.42	16	4	SEE BELOW
VAV-25	CARRIER 35E	310	65	175	0.202	9.5	55/100	160/140	0.97	0.26	18	6	SEE BELOW
VAV-26	CARRIER 35E	125	50	100	0.084	4.86	55/100	160/150	1.04	0.63	15	4	SEE BELOW
NOTES: 1. PROVIDE DIGITAL VAV CONTROLS 2. PROVIDE ACCESS DOOR IN VAV BOX FOR VIEWING DAMPER AND COIL 3. COORDINATE SUPPLY AIR TAPS WITH VAV NECK CONNECTION SIZE 4. UNIT TO BE SIZED BASED ON 20% PROPYLENE GLYCOL SOLUTION													

DUCTLESS SPLIT SYSTEM AIR CONDITIONER SCHEDULE (DSS)											
PLAN DESIGNATION	MANUFACTURER MODEL NO.	LOCATION	AIR FLOW (CFM)	COOLING CAPACITY (MBH)	ELECTRICAL DATA		CONDENSING UNIT (OUTDOOR)				NOTES
					WATTS	VOLTS/PH	MANUFACT/ MODEL NO.	TOTAL MBH	SENSIBLE MBH	VOLTS/PH	
DSS-1	DAIKIN FAQ18PVJU	TELECOM 119	500	18	1610	208/1	DAIKIN RZQ18PVJU9	18	13.7	208/1	SEE BELOW
DSS-2	DAIKIN FAQ24PVJU	SERVER ROOM 223	635	24	2610	208/1	DAIKIN RZQ24PVJU9	24	18	208/1	SEE BELOW
NOTES: 1. INDOOR UNIT SHALL BE POWERED FROM OUTDOOR CONDENSER 2. PROVIDE LOCKABLE DISCONNECT SWITCH AT BOTH THE INDOOR AND OUTDOOR UNITS											

FINNED TUBE CONVECTOR SCHEDULE (FTC)												
PLAN DESIGNATION	MANUFACTURER MODEL NO.	LOCATION	ROWS WIDE	ELEMENT LENGTH (FT)	ENCLOSURE LENGTH (FT)	ENCLOSURE TYPE	CAPACITY (MBH)	EWTL/LWT (°F)	FLOW RATE (GPM)	WPD (FT HD)	ENCLOSURE HEIGHT (IN)	NOTES
FTC-1	RITTLING PIBG 1½C - 4½ x 4½ - 48	LOWER LOBBY 130	2	10	10'8"	PEDESTAL	6.6	160/120	7.5	0.41	6	SEE BELOW
NOTES: 1. PROVIDE POWDER COATED FINISH, COLOR SELECTED BY ARCHITECT. 2. PROVIDE ADJUSTABLE DAMPER.						3. PROVIDE 4"x6" ACCESS DOOR FOR VALVE ACCESS. 4. UNIT TO BE SIZED BASED ON 20% PROPYLENE GLYCOL SOLUTION 5. ENCLOSURE SHALL BE 16GA STEEL.						

LOUVER SCHEDULE (LV)											
PLAN DESIGNATION	MANUFACTURER MODEL NO.	SERVICE	LOUVER DIMENSION (WxH)	VELOCITY (FPM)	FREE AREA (SQ. FT.)	MATERIAL	PATTERN	FINISH	CONTROL DAMPER	NOTES	
LV-1	GREENHECK EHH-401	HRU-1	72x102	500	22.69	ALUMINUM	WIND DRIVEN RAIN RESISTANT	BAKED ENAMEL	INSULATED	SEE BELOW	
LV-2	GREENHECK EHH-401	HRU-1	72x72	500	15.71	ALUMINUM	WIND DRIVEN RAIN RESISTANT	BAKED ENAMEL	INSULATED	SEE BELOW	
NOTES:					3.	PROVIDE THERMALLY INSULATED DAMPER WITH END SWITCHES					
1. COLOR TO BE SELECTED BY ARCHITECT					4.	CONTRACTOR SHALL VERIFY WALL OPENING SIZES PRIOR TO ORDERING LOUVER					
2. PROVIDE 1/2 x 1/2 ALUMINUM BIRDSCREEN					5.	PROVIDE ACCESSORY MOUNTING FLANGES FOR ALL SIDES.					

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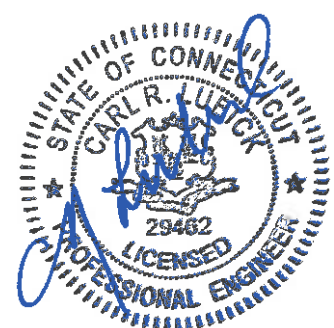


COMPREHENSIVE  
ENVIRONMENTAL  
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REVISION SECHEDULE

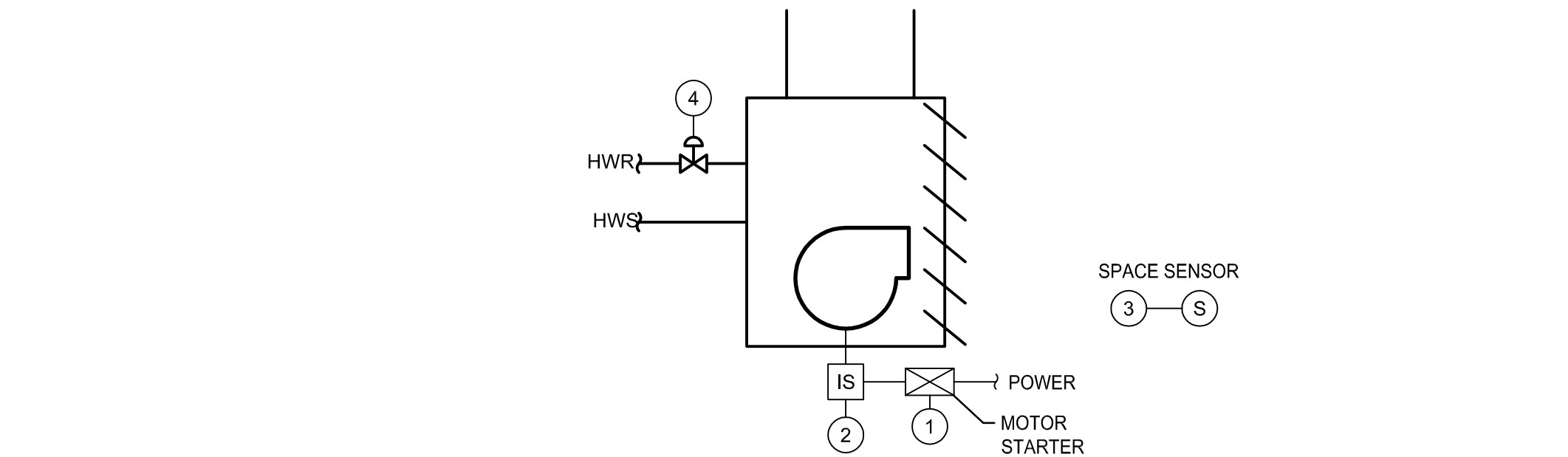
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3	ADDENDUM #3 - 07-13-2015
4	ADDENDUM #4 - 07-17-2015
5	ADDENDUM #5 - 07-24-2015
6	ADDENDUM #6 - 07-28-2015
A	PRE-PERMIT COMMENTS - 07-31-2015



PERMIT SET

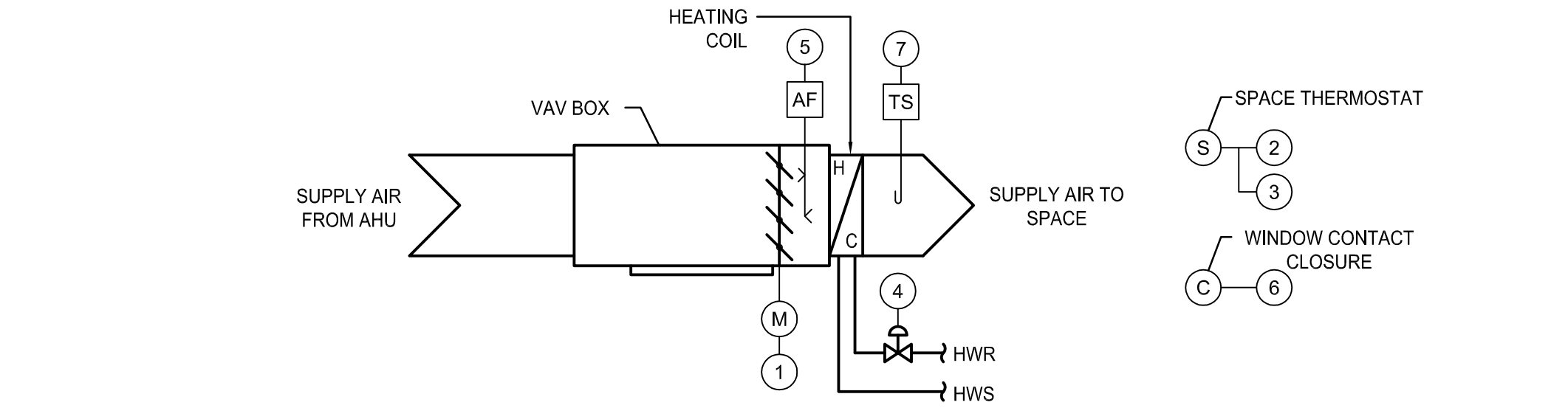
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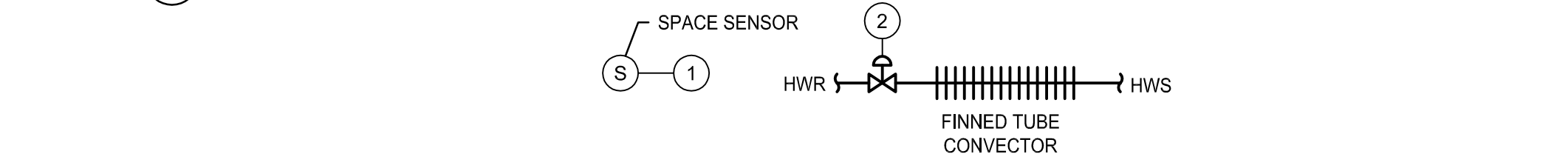
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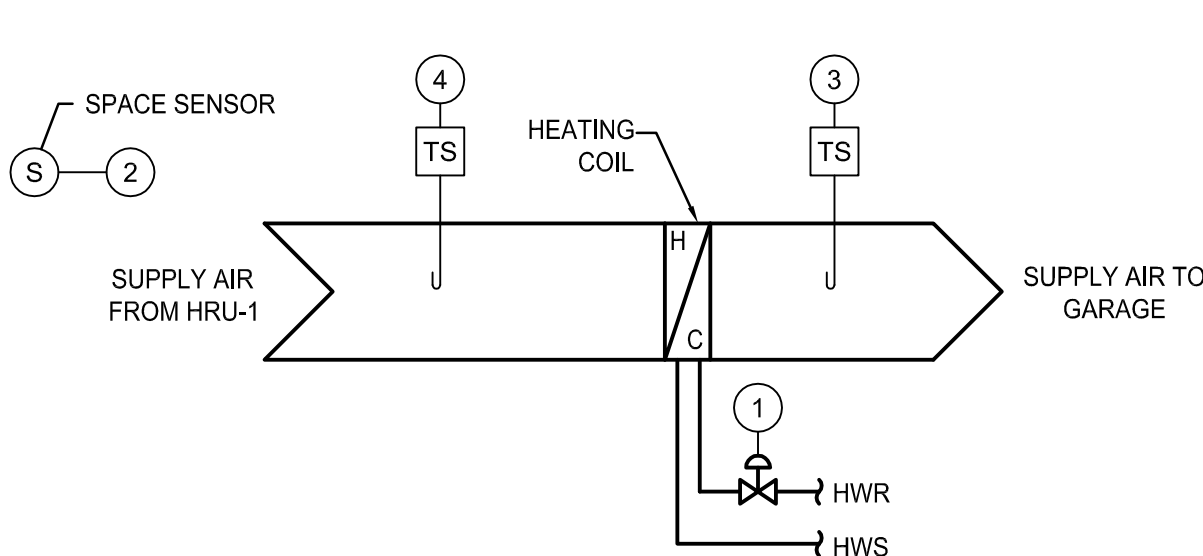
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3 VARIABLE AIR VOLUME BOX WITH REHEAT CONTROL POINTS LIST (VAV)  
SCALE: NTS



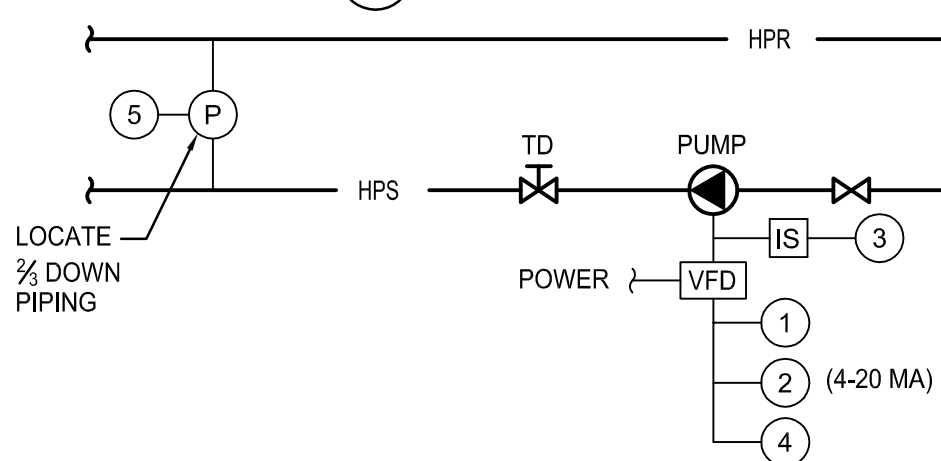
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5 FINNED TUBE CONVECTOR CONTROL POINTS LIST (FTC)  
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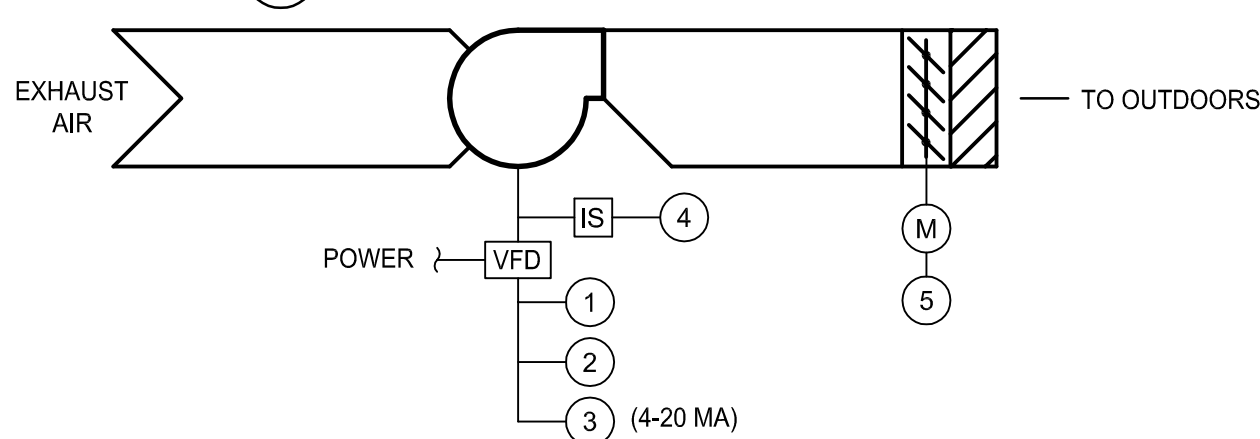
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4 PUMPS (HWCP-1,2)  
SCALE: NTS



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6 EXHAUST FAN (EF-1,4,5)  
SCALE: NTS

## PARATRANSIT OPERATIONS & MAINTENANCE FACILITY

148 ROBERTS STREET  
EAST HARTFORD, CT 06118

## GREGG WIES & GARDNER ARCHITECTS, LLC

151 East Street | New Haven, CT 06511 | 1.203.468.1967 | 1.203.468.8662  
www.gwgarchitects.com

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© 2014 Gregg Wies & Gardner Architects, LLC.

### CLIENT



### CONSULTANTS

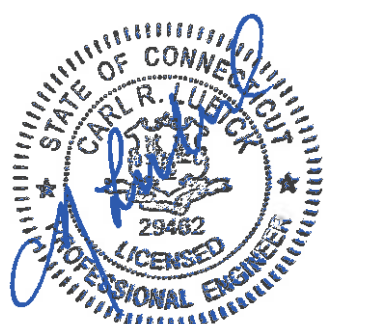


COMPREHENSIVE ENVIRONMENTAL INCORPORATED

1 HARTFORD SQUARE  
NEW BRITAIN, CT

### REVISION SCHEDULE

REV #	REVISION NAME & DATE
3	ADDENDUM #3 - 07-13-2015
4	ADDENDUM #4 - 07-17-2015
5	ADDENDUM #5 - 07-24-2015
6	ADDENDUM #6 - 07-28-2015
7	PRE-PERMIT COMMENTS - 07-31-2015



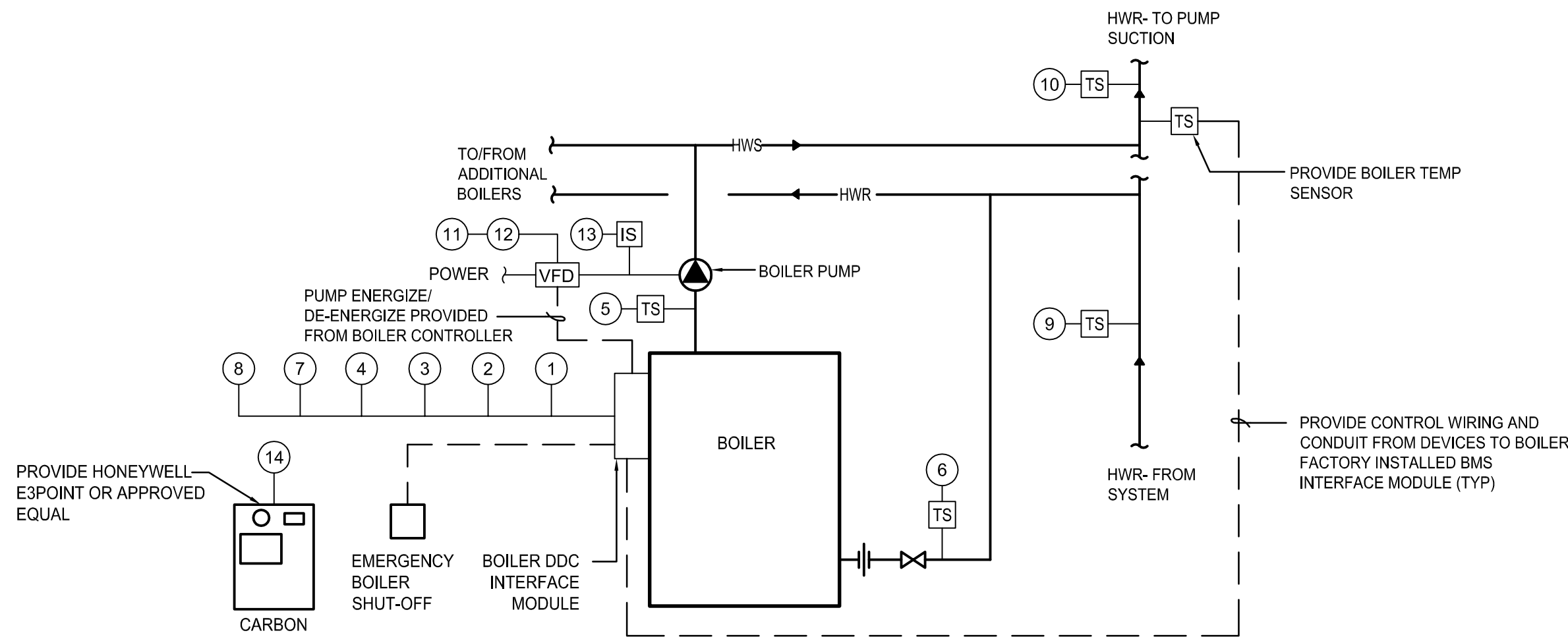
### PERMIT SET

JOB NUMBER:	1339.00
DRAWN BY:	MJB
CHECKED BY:	CRL
ISSUE DATE:	JUNE 18, 2015
REVISED DATE:	SEE SCHEDULE

## HVAC CONTROL POINTS LIST

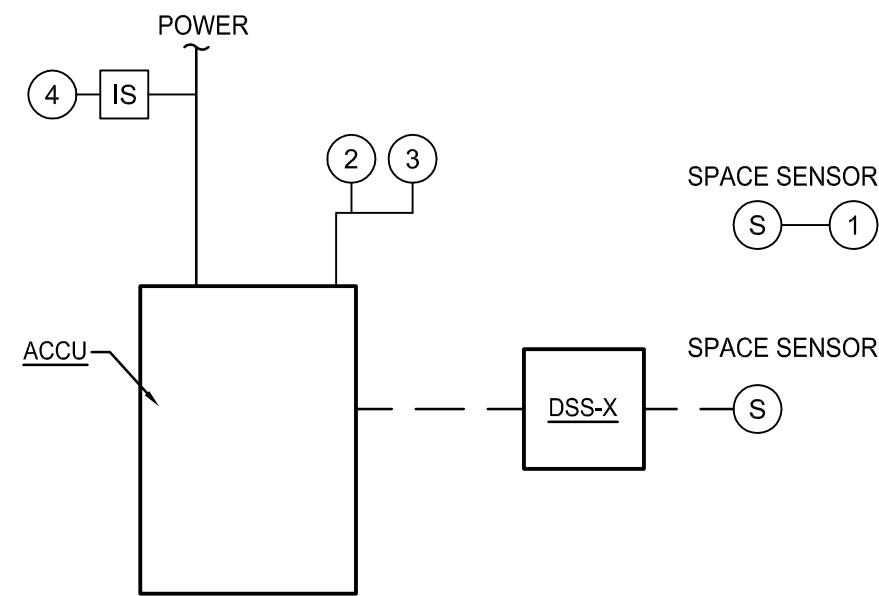
M401





CONTROL POINTS LIST		HARDWARE				SOFTWARE																													
		OUTPUT		INPUT		ALARMS		BMS FUNCTION																											
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SYSTEM:		RELAY	SCALE/NO	CONTACTOR	4-20mA	PNEUMATIC TRANSDUCER	ELECTRIC TRANSDUCER	4-20mA	TEMPERATURE	PRESSURE	SWITCH CLOSURE	AUXILIARY CONTACT	TEMPERATURE	FIRING RATE	POSITION	SPEED FEEDBACK	EQUIPMENT STATUS	MAINTENANCE	FAILURE	HIGH LIMIT	LOW LIMIT	RUN TIME	FAILURE	SYSTEM ENABLE/DISABLE	TEMPERATURE SETPOINT	TEMPERATURE POINT	DRAWDOWN LIMITING	TEMPERATURE CONTROL	GLYCOL TEMPERATURE RESET	DISCLOSURE RESET	31 TANK HEAT	HOT WATER BOILER	CHILLED WATER RESET	SPEED DANGEROUS SETPOINT	COLOR GRAPHICS
BOILERS & PUMP																																			
POINT DESCRIPTION		⊗																																	
1. BOILER FIRING RATE STATUS																																			
2. LOOP SUPPLY TEMPERATURE SETPOINT																																			
3. ALARM																																			
4. BOILER OPERATION STATUS																																			
5. HOT WATER SUPPLY TEMPERATURE																																			
6. HOT WATER RETURN TEMPERATURE																																			
7. HEATING PLANT ENABLE/DISABLE																																			
8. EMERGENCY BOILER SHUT-OFF																																			
9. HOT WATER PRIMARY LOOP RETURN TEMPERATURE																																			
10. HOT WATER PRIMARY LOOP SUPPLY TEMPERATURE																																			
11. PUMP ALARM																																			
12. PUMP SPEED																																			
13. PUMP STATUS																																			
14. CARBON MONOXIDE SENSOR																																			

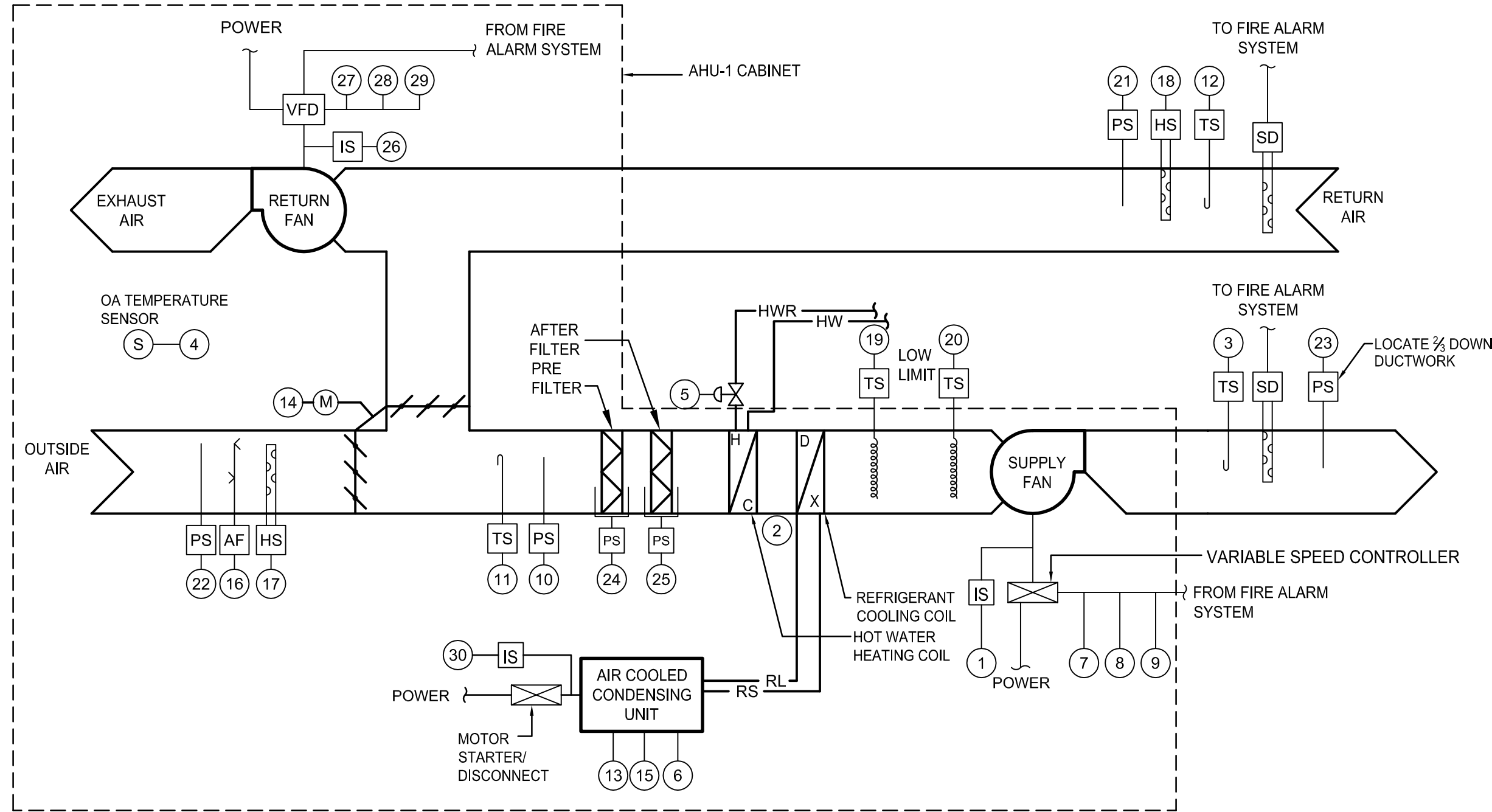
1 BOILER (B-1,2,3) & BOILER PUMPS (HWCP-3,4,5)  
SCALE: NTS



PROVIDE ALL REQUIRED CONTROL WIRING BETWEEN THE INDOOR UNIT, OUTDOOR UNIT, AND CONTROL UNIT

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2 SPLIT SYSTEM CONTROL POINTS LIST  
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3 AIR HANDLING UNIT CONTROL POINTS LIST (AHU-1)  
SCALE: NTS

## PARATRANSIT OPERATIONS & MAINTENANCE FACILITY

148 ROBERTS STREET  
EAST HARTFORD, CT 06118

## GREGG WIES & GARDNER ARCHITECTS, LLC

151 East Street | New Haven, CT 06511 | 1.203.468.1967 | 1.203.468.8662  
www.gwgarchitects.com

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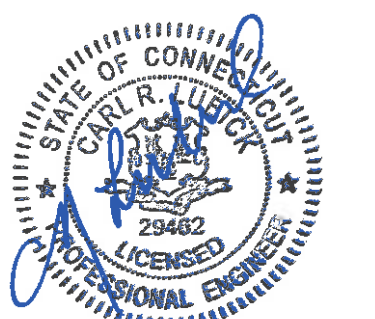


COMPREHENSIVE ENVIRONMENTAL INCORPORATED

1 HARTFORD SQUARE  
NEW BRITAIN, CT

### REVISION SCHEDULE

REV #	REVISION NAME & DATE
3	ADDENDUM #3 - 07-13-2015
4	ADDENDUM #4 - 07-17-2015
5	ADDENDUM #5 - 07-24-2015
6	ADDENDUM #6 - 07-28-2015
Δ	PRE-PERMIT COMMENTS - 07-31-2015



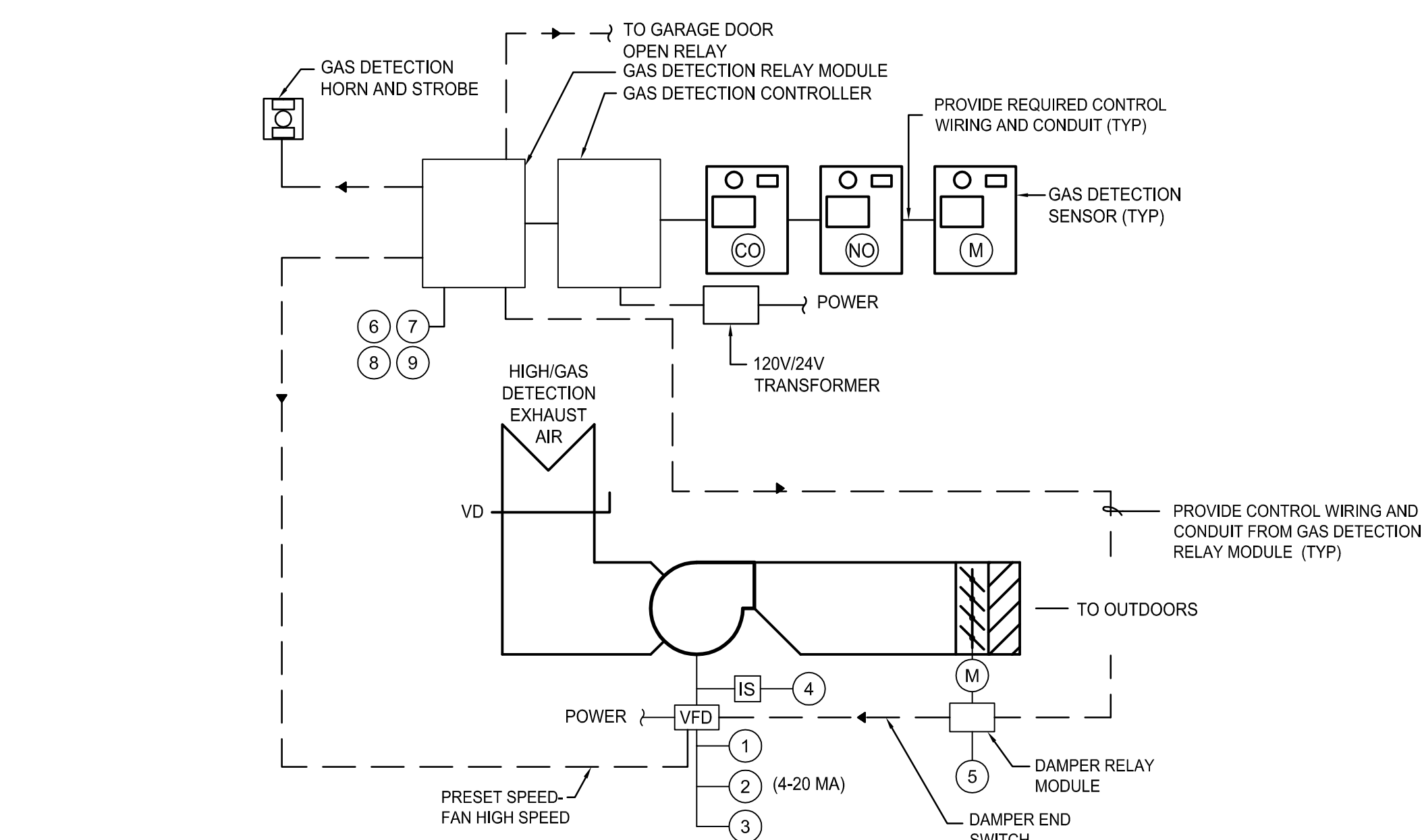
### PERMIT SET

JOB NUMBER:	1339.00
DRAWN BY:	MJB
CHECKED BY:	CRL
ISSUE DATE:	JUNE 18, 2015
REVISED DATE:	SEE SCHEDULE

## HVAC CONTROL POINTS LIST

M402



[illegible]

2 EXHAUST FAN (EF-2,3,6)  
SCALE: NTS



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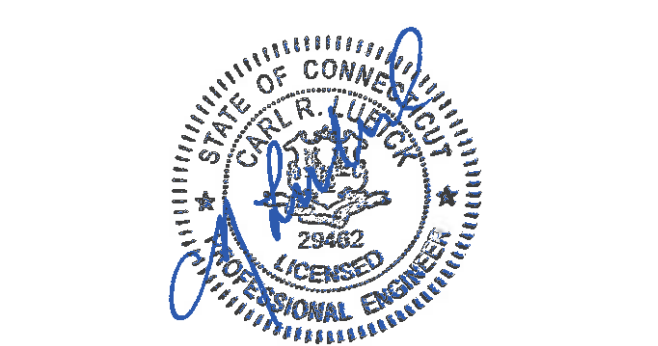
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5	ADDENDUM #5 - 07-24-2015
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A	PRE-PERMIT COMMENTS - 07-31-2015



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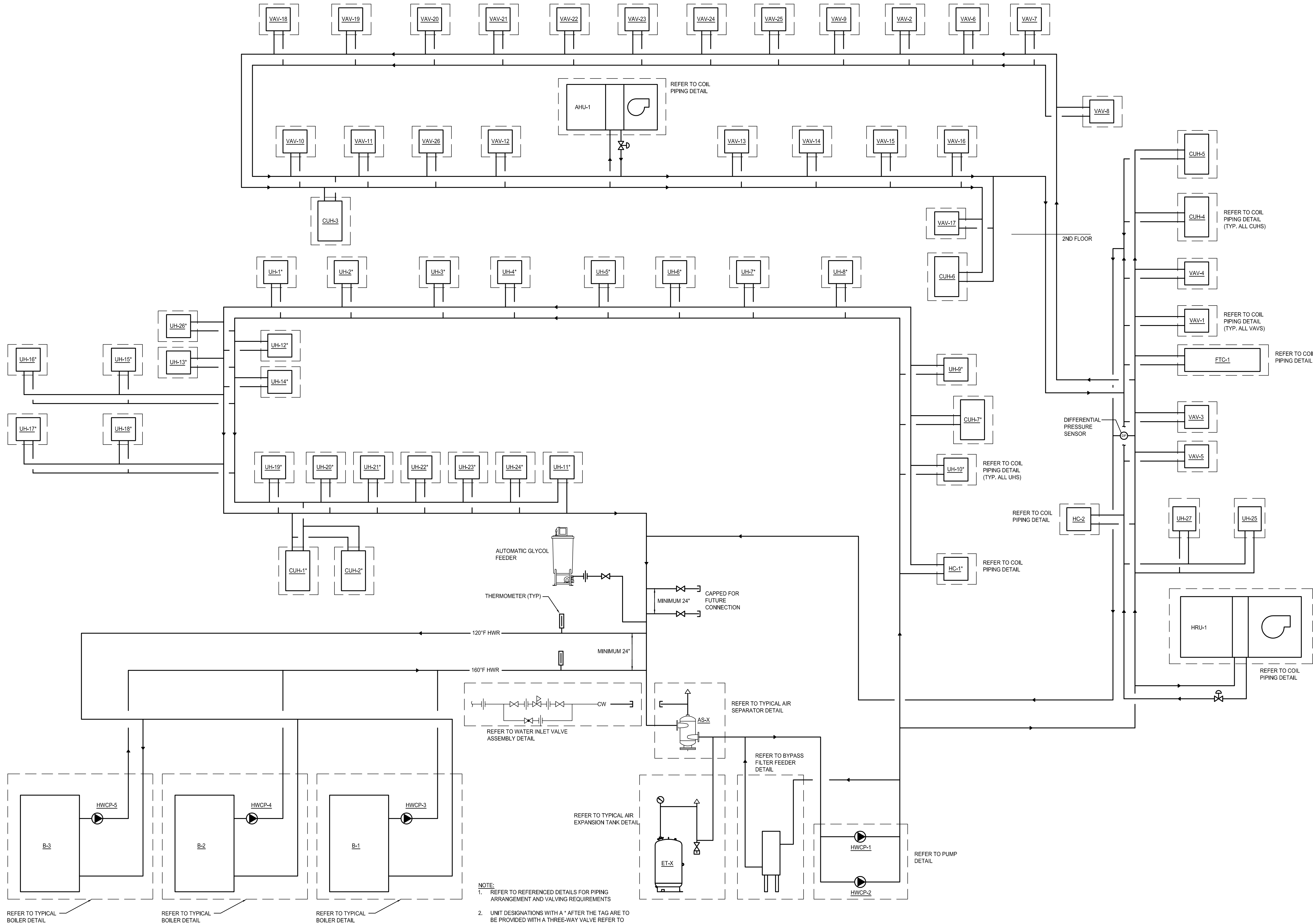
PERMIT SET

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ISSUE DATE:	JUNE 18, 2015
REVISED DATE:	SEE SCHEDULE

## HVAC CONTROL POINTS LIST

M403





1 HOT WATER SYSTEM PIPING SCHEMATIC  
SCALE: NOT TO SCALE

# PARATRANSIT OPERATIONS & MAINTENANCE FACILITY

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HVAC SCHEMATICS

M501