

## DUCTWORK & PIPING SYMBOL

	VAV TERMINAL W/ REHEAT COIL		2-WAY CONTROL VALVE
	VAV TERMINAL SHUTOFF TYPE		3-WAY CONTROL VALVE
	UNIT HEATER		SAFETY RELIEF VALVE (WATER)
	SUPPLY DIFFUSER W/SHEET METAL OR FLEXIBLE DUCT		GLOBE VALVE
	RETURN OR EXHAUST GRILLE		BALL VALVE
	RETURN OR EXHAUST AIR REGISTER		PLUG VALVE
	LINEAR DIFFUSER W/PLENUM & FLEX. DUCT		BUTTERFLY VALVE
	DUCT MOUNTED HOT WATER REHEAT COIL		BUTTERFLY VALVE IN VERTICAL RISER
	ELECTRIC DUCT HEATER		CHECK VALVE W/FLOW DIRECTION
	DUCTWORK (RECTANGULAR)		Y - STRAINER WITH BLOWDOWN VALVE
	DUCTWORK (ROUND OR FLAT OVAL)		CIRCUIT SETTER
	DUCT ELBOW W/TURNING VANES		BALANCING VALVE
	DUCT CONNECTION (DBL & SINGL. LINE) (ROUND TO RECTANGULAR)		UNION, FLANGE
	DUCT CONNECTION (DBL & SINGL. LINE) (RECTANGULAR TO RECTANGULAR)		FLEXIBLE PIPE CONNECTION
	INCLINED DUCT RISE IN DIRECTION OF AIR FLOW		AUTOMATIC AIR VENT
	INCLINED DUCT DROP, IN DIRECTION OF AIR FLOW		MANUAL AIR VENT
	DUCT SECTION (SUPPLY UP OR DOWN)		THERMOMETER
	DUCT (SUPPLY) DOWN DUCT SECTION (EXHAUST OR RETURN UP)		PRESSURE GAUGE W/GAUGE COCK
	OR DOWN		CAPPED PIPE
	DUCT (EXHAUST OR RETURN) DOWN		PIPE GUIDE
	MANUAL VOLUME DAMPER		PIPE ANCHOR
	GRAVITY BACKDRAFT DAMPER		FLOW (IN DIRECTION OF ARROW)
	FLEXIBLE DUCT CONNECTION		REDUCER (ECCENTRIC)
	FIRE DAMPER WITH ACCESS DOOR		REDUCER (CONCENTRIC)
	DUCT MOUNTED SMOKE DETECTOR		PIPE TURNING DOWN IN PLAN
	DUCT MOUNTED SMOKE DAMPER		PIPE TURNING UP IN PLAN
	AUTOMATIC (MOTORIZED) DAMPER		RISE OR DROP IN PLAN
			TEE DOWN - IN PLAN
			TEE UP - IN PLAN

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## ABBREVIATIONS

ACU	SELF-CONTAINED, AIR COOLED, AIR-CONDITIONING UNIT	LAT	LEAVING AIR TEMPERATURE
ACC	AIR COOLED CHILLER	LBS	POUNDS
A.C.T.	ACOUSTICAL CEILING TILE	LD	LINEAR DIFFUSER
ACCU	AIR COOLED CONDENSER UNIT	LF	LINEAR FOOT
ADA	ACCESS DOOR	LOC	LOCATION
ADJ	ADJUSTABLE	LRA	LOCKED ROTOR AMPERE
AF	ABOVE FINISHED FLOOR	LOC	LOCATION
AFS	AIR FLOW SWITCH	LRA	LOCKED ROTOR AMPERE
AHU	AIR HANDLING UNIT	LVG	LEAVING
APD	AIR PRESSURE DROP	LWT	LEAVING WATER TEMPERATURE
APPROX	APPROXIMATE	MCA	MINIMUM CIRCUIT AMPACITY
ARCH	ARCHITECTURAL	MAT	MIXED AIR TEMPERATURE
AS	AIR SEPARATOR	MAX	MAXIMUM
ATC	AUTOMATIC TEMPERATURE CONTROL	MBH	THOUSAND BTU PER HOUR
AUX	AUXILIARY	MD	MOTORIZED DAMPER
AV	AIR VENT	ME	MECHANICAL EQUIPMENT ROOM
B	BOILER	MIN	MINIMUM
B.D.D.	BACKDRAFT DAMPER	MISC	MISCELLANEOUS
BG	BOTTOM GRILLE	MOCP	MAXIMUM OVER CURRENT PROTECTION
BIDS	BUILDING	MTD	MOUNTED
BTU	BRITISH THERMAL UNIT	NO.	NUMBER
CAP.	CAPACITY	NOM	NOMINAL
C/B	CIRCUIT BREAKER	NTS	NOT TO SCALE
CD	CEILING DIFFUSER	OA	OUTSIDE AIR
CFM	CUBIC FEET PER MINUTE	OAD	OUTSIDE AIR DAMPER
CG	CEILING GRILLE	O.S.&Y	OUTSIDE SCREW & YOKE
CLG	CEILING	P	PUMP
COL	COLUMN	PD	PRESSURE DROP
CONC	CONCRETE	PDU	POOL DEHUMIDIFICATION UNIT
COND	CONDENSATE/CONDENSING	PH	PHASE
CONN	CONNECTION	PRESS	PRESSURE
CONST.	CONSTANT	PROP	PROPELLER
CONT	CONTINUATION	PSIG	POUNDS PER SQUARE INCH, GAUGE
CR	CEILING REGISTER	PNEU	PNEUMATIC
CTR	CENTER	RA	RETURN AIR
CUH	CABINET UNIT HEATER	RD	ROOF DRAIN
CW	COLD WATER (DOMESTIC)	REFG	REFRIGERANT/REFRIGERATION
CWS	CHILLED WATER SUPPLY	REQD	REQUIRED
CWR	CHILLED WATER RETURN	REV	REVISION
DB	DRY BULB	RF	RETURN FAN
DBL	DOUBLE WALL	RHC	HOT WATER REHEAT COIL
DET	DETAIL	RL	REFRIGERANT LIQUID
D	COLD CONDENSATE DRAIN	RLA	RATED LOAD AMPERE
DIA	DIAMETER	RM	ROOM
DIFF	DIFFERENTIAL	RPM	REVOLUTION PER MINUTE
DN	DOWN	RS	REFRIGERANT SUCTION
DR	DOOR	SA	SUPPLY AIR
DWG	DRAWING	SCHED	SCHEDULE
D/X	DIRECT EXPANSION	SD	SMOKE DETECTOR
EA	EACH/EXHAUST AIR	SDPR	SMOKE DAMPER
EAD	EXHAUST AIR DAMPER	SECT	SECTION
EAT	ENTERING AIR TEMPERATURE	SENS.	SENSIBLE
EER	ENERGY EFFICIENCY RATIO	SG	SUPPLY GRILLE
EDH	ELECTRIC DUCT HEATER	SP	STATIC PRESSURE
EF	EXHAUST FAN	SPD	STATIC PRESSURE DROP
EG	EXHAUST/RETURN/TRANSFER GRILLE	SPECS	SPECIFICATION
EH	EXHAUST HOOD	SQ	SQUARE
EL	ELEVATION	SR	SUPPLY REGISTER
ELEC	ELECTRIC/ELECTRONIC	STD	STANDARD
EMG.	EMERGENCY	STRUC	STRUCTURE
ENT	ENTERING	SUCT	SUCTION
EQUIP	EQUIPMENT	T	THERMOSTAT
ER	EXHAUST REGISTER	TEMP	TEMPERATURE
ESP	EXTERNAL STATIC PRESSURE	TF	TRANSFER FAN
ET	EXPANSION TANK	TG	TRANSFER GRILLE
EWT	ENTERING WATER TEMPERATURE	TR	TRANSFER REGISTER
EX	EXISTING	TSP	TOTAL STATIC PRESSURE
EXH	EXHAUST	TYP	TYPICAL
EXT	EXTERNAL	UNO	UNLESS NOTED OTHERWISE
FC	FORWARD CURVED	UV	UNIT VENTILATOR
FCU	FAN COIL UNIT	V	VOLT
FD	FIRE DAMPER	VAR	VARIABLE
FH	FIRE HYDRANT	VAV	VARIABLE AIR VOLUME
FL, D	FLOOR DRAIN	VD	VOLUME DAMPER
FLA	FULL LOAD AMPERE	VEL	VELOCITY
FLEX	FLEXIBLE	VFD	VARIABLE FREQUENCY DRIVE
FLR	FLOOR	VOL	VOLUME
FPM	FEET PER MINUTE	W	WATT
FS	FLOW SWITCH	W/	WITH
F & T	FLOAT & THERMOSTATIC	WB	WET BULB
FT	FEET	WC	WATER COLUMN
GAL	GALLON	WG	WATER GAUGE
GALV.	GALVANIZED	WMS	WIRE MESH SCREEN
GN	GOOSENECK	WPD	WATER PRESSURE DROP
GPM	GALLON PER MINUTE	WT	WEIGHT
GV	GRAVITY VENTILATOR		
HE	HEAT EXCHANGER		
HORIZ	HORIZONTAL		
HP	HORSEPOWER		
HR	HOUR		
HRTG	HEATING		
HUH	HOT WATER UNIT HEATER		
HXU	HEAT EXCHANGE UNIT		
HWR	HOT WATER RETURN		
HWS	HOT WATER SUPPLY		
HZ	HERTZ		
IN	INCHES		
KE	KITCHEN EXHAUST		
KW	KILOWATT		

NOTE: FOR CONTROL ABBREVIATIONS REFER TO CONTROL DRAWINGS.

## GENERAL NOTES

- 1 - SYMBOL AND ABBREVIATION LISTS ARE COMPOSITE. ALL SYMBOLS AND ABBREVIATIONS MIGHT NOT BE USED ON THIS PROJECT.
- 2 - CONTRACTOR SHALL THOROUGHLY EXAMINE PREMISES AND OBSERVE ALL CONDITIONS AND CIRCUMSTANCES UNDER WHICH THE WORK SHALL BE PERFORMED. NO ALLOWANCES WILL BE MADE FOR ERRORS OR NEGLIGENCE IN THIS RESPECT.
- 3 - DUCTWORK DIMENSIONS SHOWN INSIDE DIMENSIONS. IF DUCT LINER IS APPLIED CONTRACTOR SHALL INCREASE DUCT SIZE TO MAINTAIN NET DIMENSION AS INDICATED ON FLOOR PLANS.
- 4 - COORDINATE INSTALLATION OF ALL SUPPLY, RETURN & EXHAUST, REGISTERS, GRILLES, AND DIFFUSERS WITH LIGHTING FIXTURES, SPRINKLER HEADS, SMOKE AND HEAT DETECTORS, AND ARCHITECTURAL REFLECTED CEILING PLAN.
- 5 - THE MECHANICAL DRAWINGS ARE DIAGRAMMATIC. EXACT MEASUREMENTS SHALL BE ESTABLISHED AT THE JOB SITE.
- 6 - VALVES SHALL BE INSTALLED IN THE PIPELINES WITHOUT SPRINGS OR FORCS. VALVE STEMS SHALL BE INSTALLED VERTICALLY OR UPWARD FROM THE PIPE WHEN POSSIBLE. INSTALL ALL VALVES IN A MANNER THAT ALLOWS FUTURE REMOVAL AND SERVICE OF THE VALVES.
- 7 - REFER TO MECHANICAL SPECIFICATIONS FOR PIPE SLEEVES, HANGERS AND SUPPORTS. PROVIDE SLEEVED SEALABLE OPENINGS WHERE REQUIRED TO RUN PIPES AND DUCTS THROUGH SLABS, WALLS, BRIDGING AND ROOF EXCEPT WHERE OTHERWISE INDICATED. OPENING SIZES SHALL BE KEPT AT A MINIMUM.
- 8 - WHERE "VICTAULIC" COUPLINGS ARE USED, PLACE A HANGER WITHIN 2 FT. EACH SIDE OF FITTINGS OR REFER TO MANUFACTURER'S PIPE SUPPORT AND ANCHORAGE GUIDE.
- 9 - INSTALL THERMOSTATS AT 4"-6" FROM FINISH FLOOR, COORDINATE LOCATION OF THERMOSTATS WITH ARCHITECT/ENGINEER AND THE OWNER.
- 10 - PROVIDE FIRE DAMPER WITH ACCESS DOOR FOR ALL DUCT PENETRATIONS THROUGH 2-HOUR FIRE RATED WALL.
- 11 - BEFORE INSTALLATION OF ANY HVAC PIPING OR DUCTWORK, COORDINATED SHOP DRAWINGS MUST BE REVIEWED TO ASSURE PROPER INSTALLATION OF ALL SERVICES IN AVAILABLE SPACES.
- 12 - SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR CEILING HEIGHTS AND TYPES, EQUIPMENT LAYOUT, STRUCTURAL SLAB AND COLUMN DIMENSIONS, AND ARCHITECTURAL ENCLOSURES.
- 13 - IN MECHANICAL EQUIPMENT ROOM, AND ALL OTHER ROOMS WITH NO SUSPENDED CEILING, MAINTAIN A MINIMUM OF 7 FEET HEADROOM, UNLESS SPECIFICALLY INDICATED OTHERWISE.
- 14 - IN GENERAL, ALL PIPING AND DUCTWORK SHALL BE RUN CONCEALED IN SUSPENDED CEILING AND PIPE SPACES PROVIDED, UNLESS SPECIFICALLY INDICATED OTHERWISE.
- 15 - CEILING ACCESS IS REQUIRED AT ALL TERMINAL UNITS, COILS, VALVES, FIRE DAMPERS, MANUAL OR MOTORIZED DAMPERS, AND THE THERMOSTATS INSTALLED ABOVE THE CEILING AS WELL AS OTHER ITEMS REQUIRING ROUTINE INSPECTION AND MAINTENANCE AND LOCATED IN CEILING SPACES ABOVE ROOMS HAVING SUSPENDED CEILINGS. THE MECHANICAL CONTRACTOR IS TO COORDINATE LOCATION OF ACCESS PANELS REQUIRED IN GYPSUM BOARD CEILING WITH GENERAL CONTRACTOR. MARK THE CEILING FOR LOCATION OF THE CEILING MOUNTED THERMOSTATS AND OTHER ITEMS TO BE ACCESSED.
- 16 - DUCT ACCESS PANELS ARE REQUIRED AT ALL DUCT MOUNTED EQUIPMENT SUCH AS FIRE DAMPERS, MOTORIZED DAMPERS AND BACKDRAFT DAMPERS.
- 17 - THERMOSTATS LOCATED ON OUTSIDE WALLS SHALL BE MOUNTED ON INSULATED BACKING TO MINIMIZE WALL EFFECT.
- 18 - PROVIDE DRAIN VALVES AT ALL PIPING LOW POINTS AND AIR VENTS AT ALL PIPING HIGH POINTS.
- 19 - ALL CURVED ELBOWS SHALL HAVE THROAT RADIUS EQUAL TO DUCT WIDTH. CONSTRUCT ALL SQUARE TURN ELBOWS WITH TURNING VANES. PROVIDE SQUARE TURN ELBOWS ONLY WHERE LIMITED SPACE PROHIBITS USE OF CURVED (FULL RADIUS TURN) ELBOWS.
- 20 - BLANK OFF ALL UNUSED PORTIONS OF ARCHITECTURAL LOUVERS WITH INSULATED SHEET METAL PANELS.
- 21 - LINE ALL DUCTWORK FULL LENGTH DOWNSTREAM OF VAV TERMINAL UNITS.
- 22 - FOR CONNECTING DUCTWORK TO EQUIPMENT, AND FOR INSTALLATION OF COILS, DAMPERS, ETC., MAKE TRANSITIONS AS REQUIRED.
- 23 - LOCATION AND SIZES OF ALL PIPING AND DUCTWORK CONNECTIONS TO EQUIPMENT SHALL BE VERIFIED WITH THE EQUIPMENT MANUFACTURER.
- 24 - SLOPE BOTTOM OF ALL SHEET METAL PLENUMS TOWARD THE LOUVER TO PREVENT ACCUMULATION OF WATER.
- 25 - FOLLOW MANUFACTURER'S INSTRUCTIONS IN INSTALLING ALL SYSTEMS AND ASSURE SERVICEABILITY OF ALL EXISTING TO REMAIN AND NEW ITEMS. NOTIFY THE CONTRACTING OFFICER OF EXISTENCE OF ANY UNSERVICEABLE ITEMS AS SOON AS THEY ARE DISCOVERED.

### REVISED CONSTRUCTION DOCUMENT

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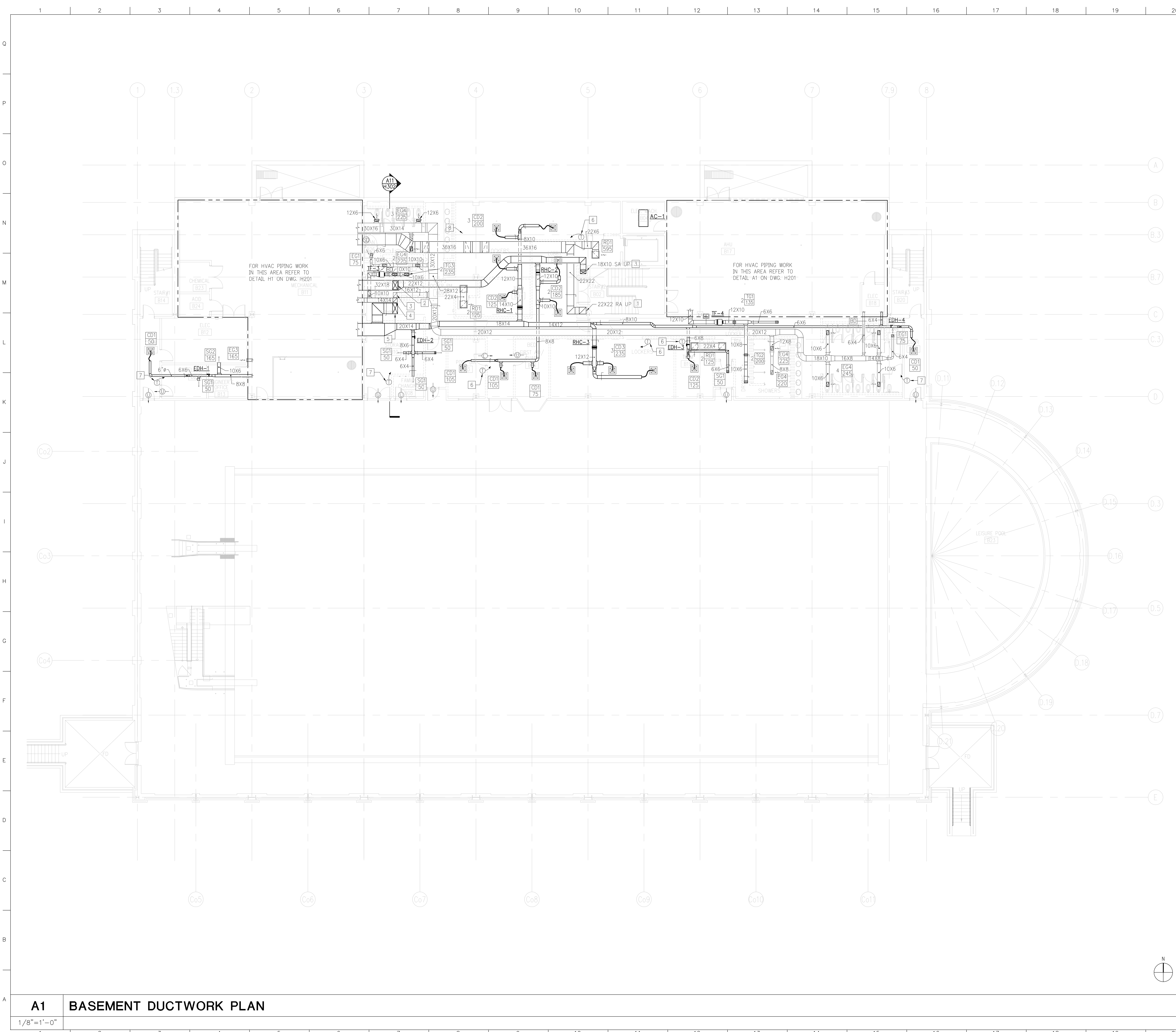
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drawing title  
**HVAC SYMBOLS AND ABBREVIATIONS**

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	drawn by GN	CAD file no. HVAC/PLOT/H001.DWG
	checked by KE	drawing no. <b>H001</b>
	date 02/10/2003	scale 1/8"=1'-0"





- KEYED NOTES**
- 1 FOR CONTINUATION SEE DWG. H102.
  - 2 16X28 SA UP. FOR CONTINUATION SEE DWG. H102.
  - 3 12X16 EA UP. FOR CONTINUATION SEE DWG. H102.
  - 4 16X16 RA UP. FOR CONTINUATION SEE DWG. H102.
  - 5 16X34 SA UP. FOR CONTINUATION SEE DWG. H102.
  - 6 INTERLOCK WALL MOUNTED THERMOSTAT/SENSOR WITH DUCT MOUNTED HOT WATER REHEAT COIL.
  - 7 INTERLOCK WALL MOUNTED THERMOSTAT/SENSOR WITH ELECTRIC DUCT HEATER.
  - 8 ALL RETURN DUCTWORK FROM THIS POINT BACK TO RETURN FAN RF-1 SHALL BE LINED WITH 1" LINER.
  - 9 SPLIT SYSTEM EVAPORATOR UNIT.

- GENERAL NOTES**
1. FOR SYMBOLS AND ABBREVIATIONS SEE DWG. H001.
  2. RIGID AND FLEXIBLE DUCT CONNECTIONS TO DIFFUSERS SHALL BE THE SAME SIZE AS DIFFUSERS NECK.
  3. ALL DUCTWORK DOWNSTREAM OF TRANSFER FANS TF-3 AND TF-4 SHALL BE LINED WITH 1" LINER.
  4. ALL TRANSFER DUCTWORK SHALL BE LINED WITH 1" LINER.

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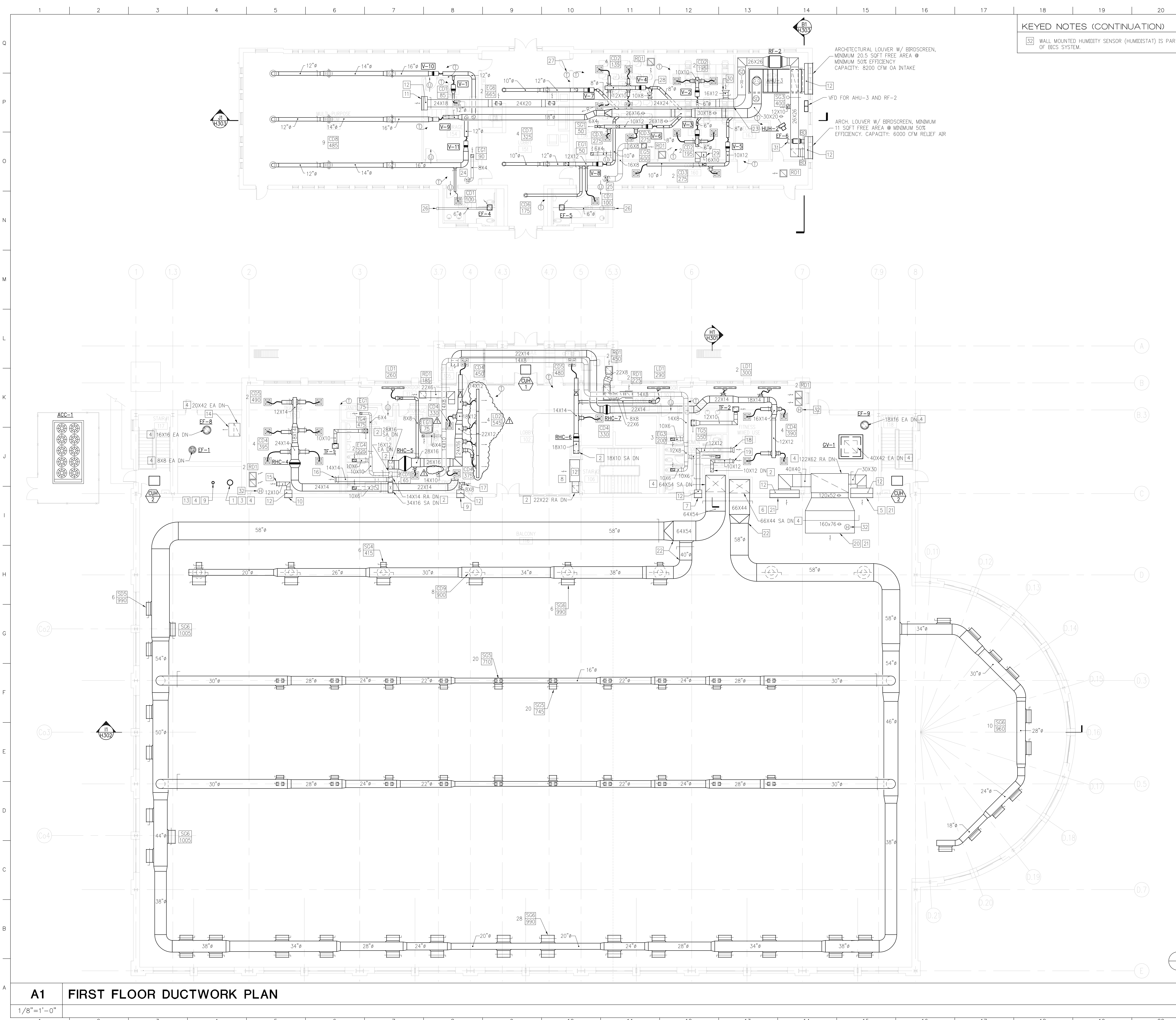
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**BASEMENT DUCTWORK PLAN**

seal	designed by GN	project no. 2001038.00
	drawn by GN	CAD file no. HVAC/PL01/H101.DWG
	checked by KE	drawing no.
	date 02/10/2003	<b>H101</b>
	scale 1/8"=1'-0"	of

**A1 BASEMENT DUCTWORK PLAN**

1/8"=1'-0"





**KEYED NOTES (CONTINUATION)**

32 WALL MOUNTED HUMIDITY SENSOR (HUMIDISTAT) IS PART OF BICS SYSTEM.

- KEYED NOTES**
- 18" DOUBLE WALL INSULATED FLUE STACK FROM BOILERS UP AND DN.
  - FOR CONTINUATION SEE DWG. H101.
  - FOR CONTINUATION SEE DWG. H103.
  - FOR CONTINUATION SEE DWG. H201.
  - ARCHITECTURAL ALUMINUM INTAKE LOUVER, MINIMUM 15 SOFT FREE AREA @ MINIMUM 50% EFFICIENCY. CAPACITY: 9000 CFM. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SIZE.
  - ARCHITECTURAL ALUMINUM INTAKE LOUVER, MINIMUM 24 SOFT FREE AREA @ MINIMUM 50% EFFICIENCY. CAPACITY: 14000 CFM. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SIZE.
  - ARCHITECTURAL ALUMINUM DISCHARGE LOUVER, MINIMUM 2.5 SOFT FREE AREA @ MINIMUM 50% EFFICIENCY. CAPACITY: 725 CFM. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SIZE.
  - ARCHITECTURAL INTAKE LOUVER, MINIMUM 6.0 SOFT FREE AREA @ MINIMUM 50% EFFICIENCY. CAPACITY: 3935 CFM. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SIZE.
  - ARCHITECTURAL ALUMINUM DISCHARGE LOUVER, MINIMUM 2.0 SOFT FREE AREA @ MINIMUM 50% EFFICIENCY. CAPACITY: 185 CFM. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SIZE.
  - ARCHITECTURAL ALUMINUM DISCHARGE LOUVER, MINIMUM 2.0 SOFT FREE AREA @ MINIMUM 50% EFFICIENCY. CAPACITY: 625 CFM. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SIZE.
  - ARCHITECTURAL INTAKE LOUVER, MINIMUM 6.3 SOFT FREE AREA @ MINIMUM 50% EFFICIENCY. CAPACITY: 3775 CFM. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SIZE.
  - 12" DEEP PLENUM OVER ENTIRE FACE OF LOUVER.
  - 8" DOUBLE WALL INSULATED FLUE STACK FROM WATER HEATERS UP AND DN.
  - 42X20 GOOSENECK WITH WIRE MESH SCREEN. REFER TO ARCHITECTURAL DRAWINGS FOR ROOF CURB DETAIL.
  - 14X14 OPEN END DUCT WITH WIRE MESH SCREEN. BALANCE DUCT TO 625 CFM.
  - 18X18 OPEN END DUCT WITH WIRE MESH SCREEN. BALANCE DUCT TO 1205 CFM.
  - 10X10 OPEN END DUCT WITH WIRE MESH SCREEN. BALANCE DUCT TO 185 CFM.
  - 14X14 OPEN END DUCT WITH WIRE MESH SCREEN. BALANCE DUCT TO 725 CFM.
  - 14X12 OPEN END DUCT WITH WIRE MESH SCREEN. BALANCE DUCT TO 670 CFM.
  - OPEN END DUCT WITH ALUMINUM WIRE MESH SCREEN. BALANCE DUCT TO 6900 CFM.
  - ALL RETURN DUCTWORK FROM THIS POINT BACK TO PDU-1 AND PDU-2 SHALL BE LINED WITH 1" LINER.
  - ALL SUPPLY DUCTWORK FROM THIS POINT BACK TO PDU-1 AND PDU-2 SHALL BE LINED WITH 1" LINER.
  - ALL RETURN DUCTWORK FROM THIS POINT BACK TO RETURN FAN RF-2 SHALL BE LINED WITH 1" LINER.
  - 8X8 EXHAUST AIR DUCT UP TO EXHAUST FAN EF-2 ON ROOF.
  - 10X10 EXHAUST AIR DUCT UP TO EXHAUST FAN EF-3 ON ROOF.
  - 6" OPEN END DUCT WITH WIRE MESH SCREEN AND RAIN CAP.
  - INTERLOCK WALL MOUNTED THERMOSTAT/SENSOR WITH VAV TERMINAL (TYPICAL FOR 11).
  - 16X10 OPEN END DUCT WITH WIRE MESH SCREEN. BALANCE DUCT TO 490 CFM.
  - 16X10 OPEN ENDS TRANSFER DUCT.
  - 24X14 OPEN END DUCT WITH WIRE MESH SCREEN. BALANCE DUCT TO 1050 CFM.
  - 12X12 OPEN END DUCT WITH WIRE MESH SCREEN.

- GENERAL NOTES**
- FOR SYMBOLS AND ABBREVIATIONS SEE DWG. H001.
  - RIGID AND FLEXIBLE DUCT CONNECTIONS TO DIFFUSERS SHALL BE THE SAME SIZE AS DIFFUSERS NECK.
  - ALL SUPPLY DUCTWORK UPSTREAM OF VAV BOXES SERVING CLASSROOMS BLDG. SHALL BE DOUBLE WALL WITH PERFORATED INNER SHELL.
  - ALL LOW PRESSURE SUPPLY DUCTWORK DOWNSTREAM OF VAV BOXES SHALL BE LINED WITH 1" LINER.
  - ALL TRANSFER DUCTWORK SHALL BE LINED WITH 1" LINER.
  - FLEXIBLE CONNECTION TO VAV BOXES SHALL NOT EXCEED 12".

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drawing title: **FIRST FLOOR DUCTWORK PLAN**

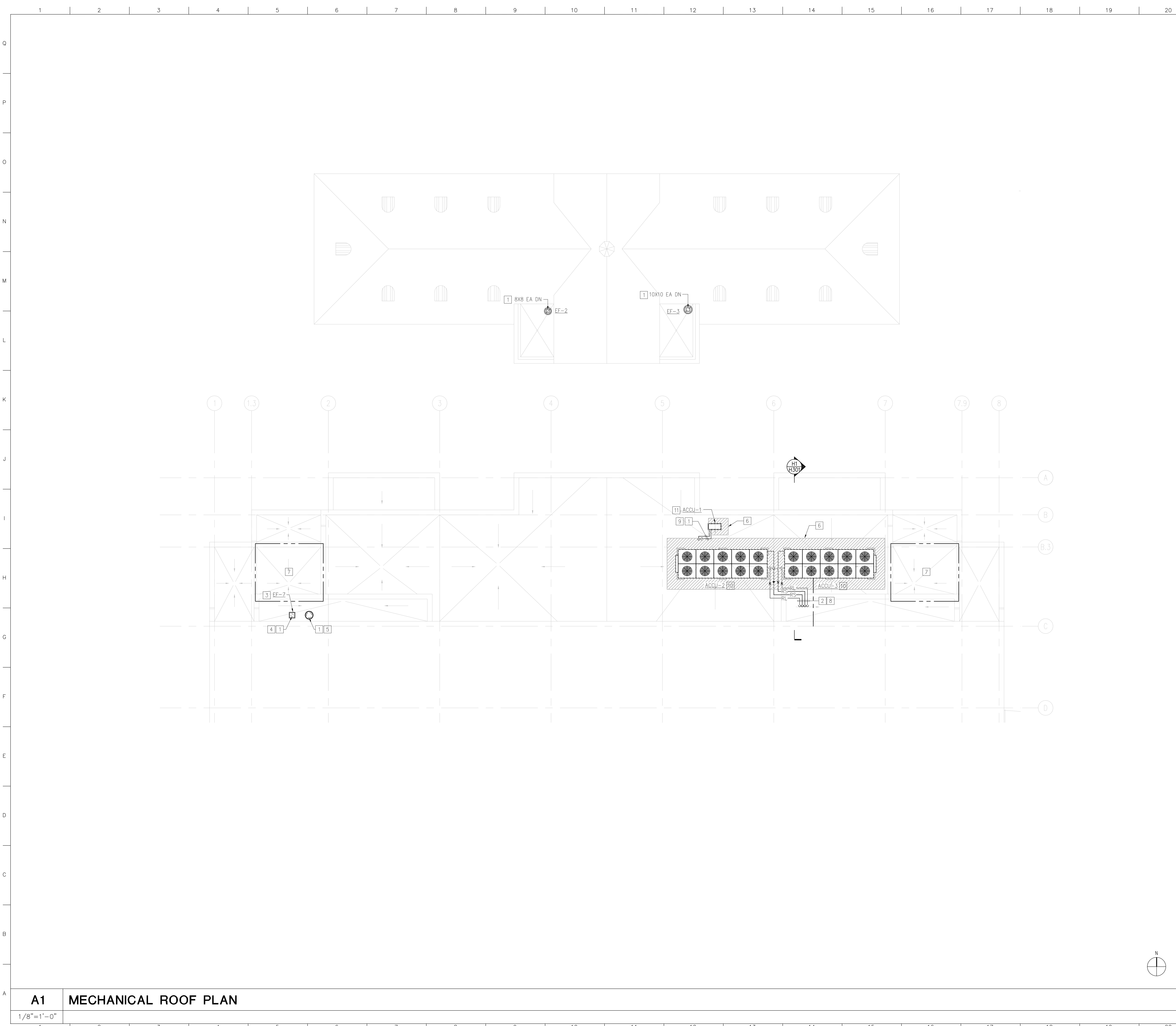
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date	02/10/2003		
scale	1/8"=1'-0"		

**H102**

**A1 FIRST FLOOR DUCTWORK PLAN**

1/8"=1'-0"





- KEYED NOTES**
- 1 FOR CONTINUATION SEE DWG. H102.
  - 2 FOR CONTINUATION SEE DWG. H111.
  - 3 CHIMNEY EXHAUST FAN SERVING DOMESTIC WATER HEATER FLUE EXHAUST SYSTEM.
  - 4 6" DOUBLE WALL FLUE STACK FROM DOMESTIC WATER HEATERS DOWN.
  - 5 18" DOUBLE WALL FLUE STACK WITH ROUND CAP FROM BOILERS DOWN.
  - 6 HATCHED AREA IS DEDICATED SPACE FOR PROPER OPERATION, SERVICE AND MAINTENANCE OF AIR COOLED CONDENSERS AND SHALL NOT BE BLOCKED.
  - 7 REFER TO DWG. H102 FOR MECHANICAL WORK ON LOWER ROOF.
  - 8 RS AND RL REFRIGERANT PIPING SERVING PDU-1 AND PDU-2. SIZE PIPES PER MANUFACTURER RECOMMENDATIONS.
  - 9 RS AND RL REFRIGERANT PIPING SERVING AC-1 SPLIT SYSTEM INDOOR UNIT. SIZE PIPES PER MANUFACTURER RECOMMENDATIONS.
  - 10 ROOF MOUNTED AIR COOLED CONDENSER UNIT. REFER TO STRUCTURAL DRAWINGS FOR STRUCTURAL SUPPORT DETAILS.
  - 11 ROOF MOUNTED SPLIT SYSTEM AIR COOLED CONDENSER UNIT MOUNTED ON ROOF CURB. REFER TO ARCHITECTURAL DRAWINGS FOR ROOF CURB DETAIL.

**GENERAL NOTES**

1. FOR SYMBOLS AND ABBREVIATIONS SEE DWG. H001.

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6	V.E. BID SET	11/22/02

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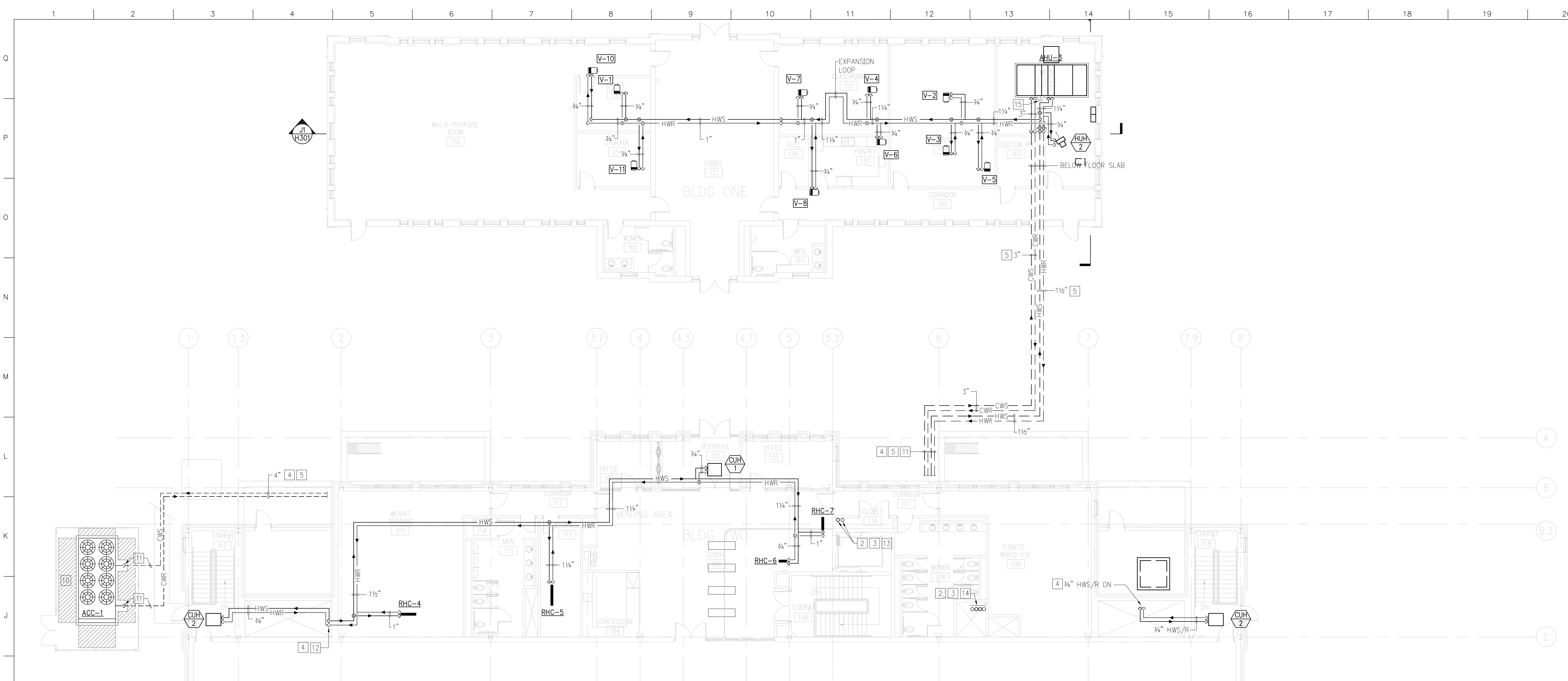
**TAKOMA RECREATION CENTER**  
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 THE JAIR LYNCH COMPANIES ALPHA CORPORATION  
 1508 U Street, NW 3700 Koppers Street Washington, DC 20009 Baltimore, MD 21227 (202) 462-1092 (410) 646-3044

drawing title  
**ROOF MECHANICAL PLAN**

seal	designed by GN	project no. 2001038.00
	drawn by GN	CAD file no. HVAC/PLOT/H103.DWG
	checked by KE	drawing no.
	date 02/10/2003	<b>H103</b>
	scale 1/8"=1'-0"	of

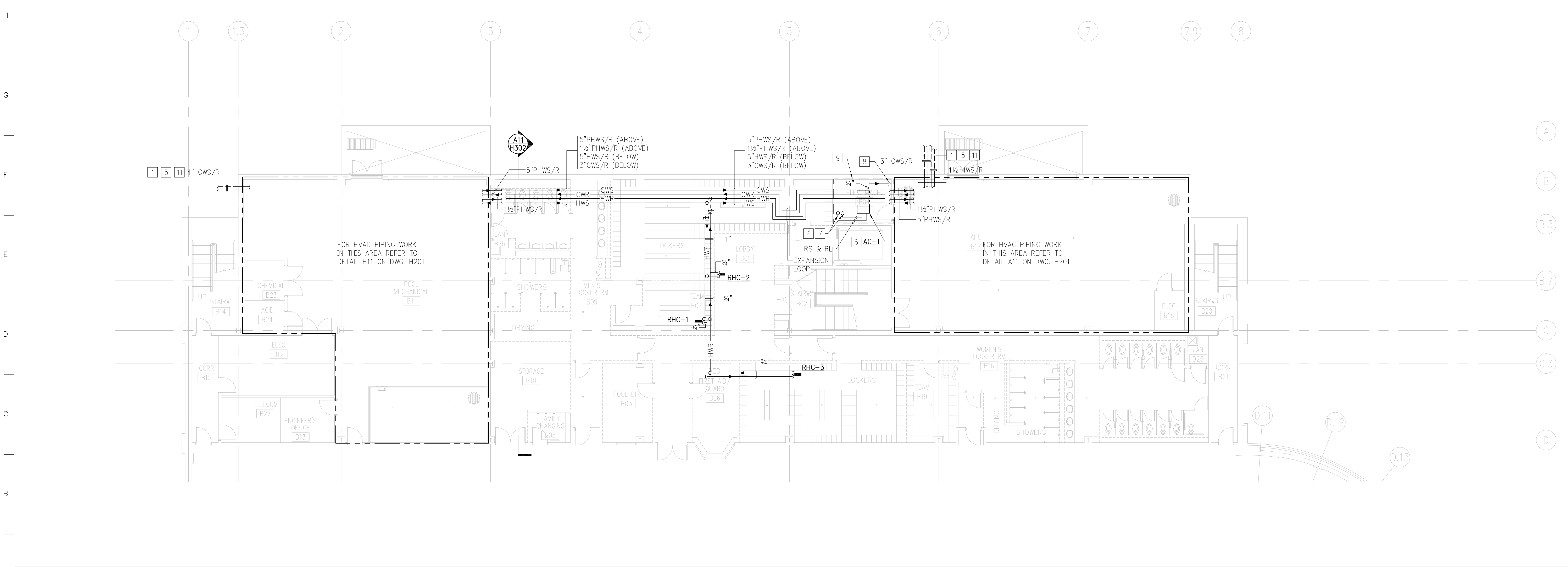
**A1 MECHANICAL ROOF PLAN**





**11 FIRST FLOOR PIPING PLAN**

1/8"=1'-0"



**A1 BASEMENT PIPING PLAN**

1/8"=1'-0"

- KEYED NOTES**
- FOR CONTINUATION SEE DETAIL I1 ON THIS DRAWING.
  - FOR CONTINUATION SEE DETAIL A1 ON THIS DRAWING.
  - FOR CONTINUATION SEE DWG. H103.
  - FOR CONTINUATION SEE DWG. H201.
  - DIRECT BURIED PREINSULATED PIPING. REFER TO CIVIL DRAWINGS FOR EXACT LOCATION AND DETAILS.
  - SPLIT SYSTEM EVAPORATOR UNIT.
  - RL AND RL REFRIGERANT PIPING UP. SIZE PIPES PER MANUFACTURERS RECOMMENDATIONS.
  - SPLLL 3/4" CONDENSATE DRAIN TO FLOOR DRAIN. REFER TO PLUMBING DWGS. FOR FLOOR DRAIN LOCATION.
  - ALL PIPING IN THIS AREA SHALL RUN BETWEEN LOUVER AND UPPER SLABS.
  - HATCHED AREA IS SPACE REQUIRED FOR MAINTENANCE, SERVICE AND PROPER CHILLER OPERATION SHALL NOT BE BLOCKED.
  - PROVIDE SELF-REGULATING HEATING ELEMENT 4 WATT/FT AT 120 VAC/50° F (UL LISTED) FOR ALL CHILLED WATER PIPING LOCATED OUTSIDE OF THE BUILDINGS AND ALL PIPING BURIED BELOW FREEZING LEVEL.
  - 1 1/2" HWS/R PIPING DOWN.
  - RL AND RL REFRIGERANT PIPING UP AND DOWN SERVING AC-1/ACU-1. SIZE PIPES PER MANUFACTURERS RECOMMENDATIONS.
  - RL AND RS REFRIGERANT PIPING UP AND DOWN SERVING PDU-1 AND PDU-2. SIZE PIPES PER MANUFACTURERS RECOMMENDATIONS.
  - SPLLL 1" CONDENSATE DRAIN TO NEAREST FLOOR DRAIN. REFER TO PLUMBING DRAWINGS FOR FLOOR DRAIN LOCATION.

- GENERAL NOTES**
- FOR SYMBOLS AND ABBREVIATIONS SEE DWG. H001.
  - THIS DRAWING SHOWS ONLY MAIN SHUTOFF VALVES. REFER TO PIPING FLOW DIAGRAMS (DWGS. H401 AND H402) AND DETAILS DRAWINGS FOR COMPLETE VALVING AND ACCESSORIES OF HVAC PIPING SYSTEM.

**REVISED CONSTRUCTION DOCUMENT**

no.	revisions/submissions/last update	date
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2	Design Development Submission	02/01/02
3	Permit Set	04/29/02
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5	Construction Document	06/21/02
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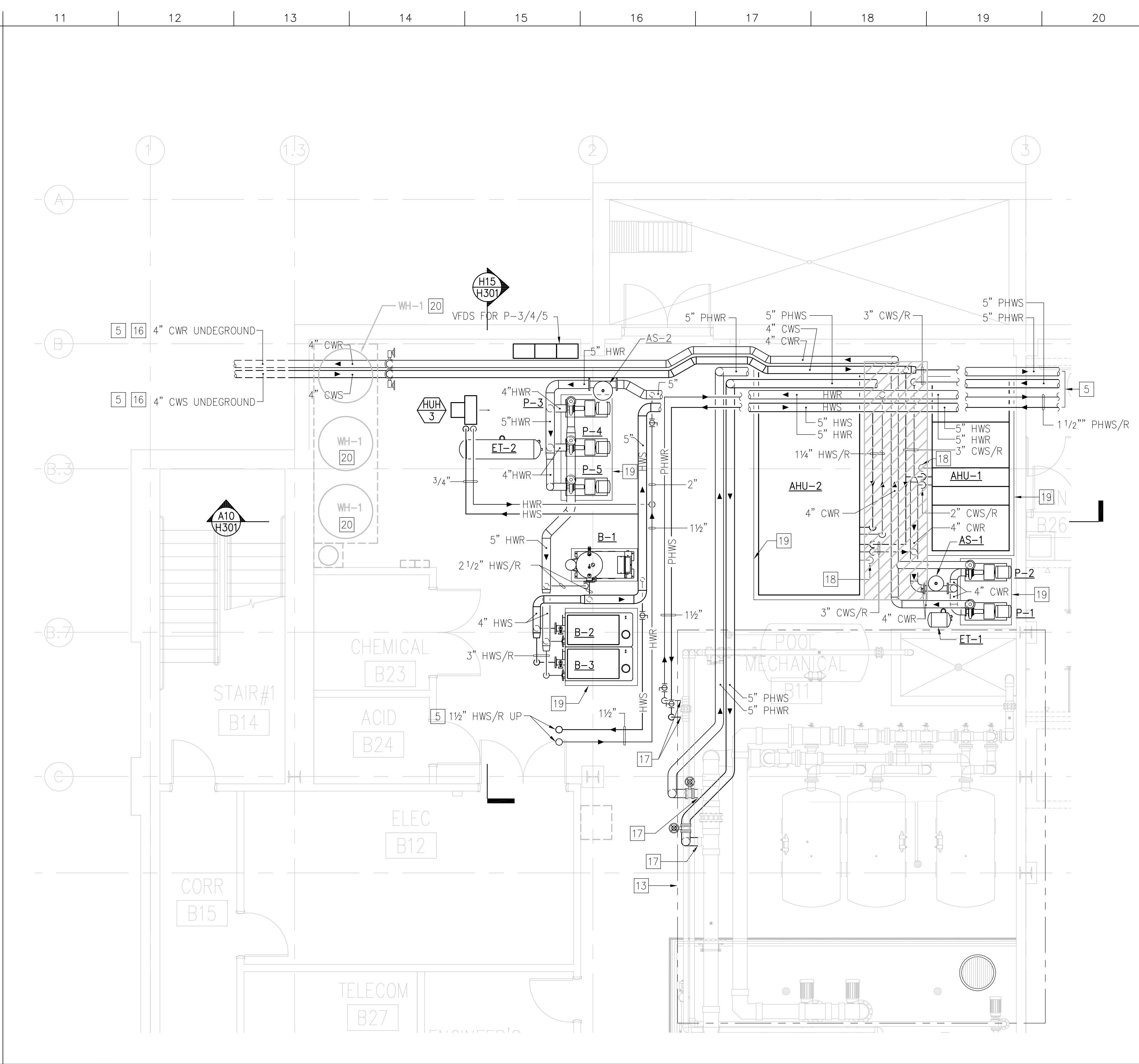
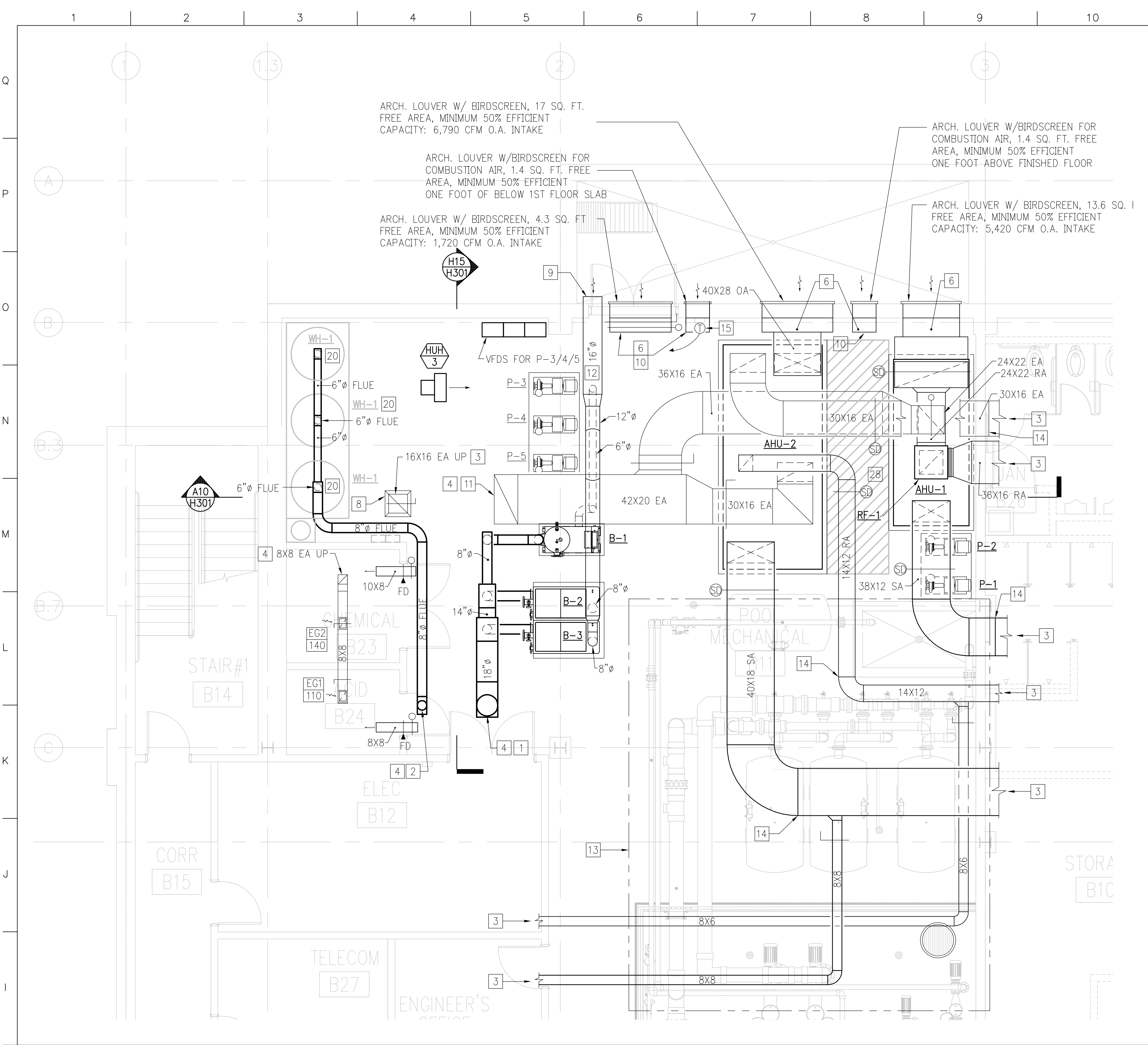
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 (202) 673-7647

**THE JAIR LYNCH COMPANIES** ALPHA CORPORATION  
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drawing title: **BASEMENT AND FIRST FLOOR PIPING PLANS**

designed by: GN	project no.: 2010138.00
drawn by: GN	CAD file no.: HVAC/PL07/H111.DWG
checked by: KE	drawing no.: H111
date: 02/10/2003	scale: 1/8"=1'-0"



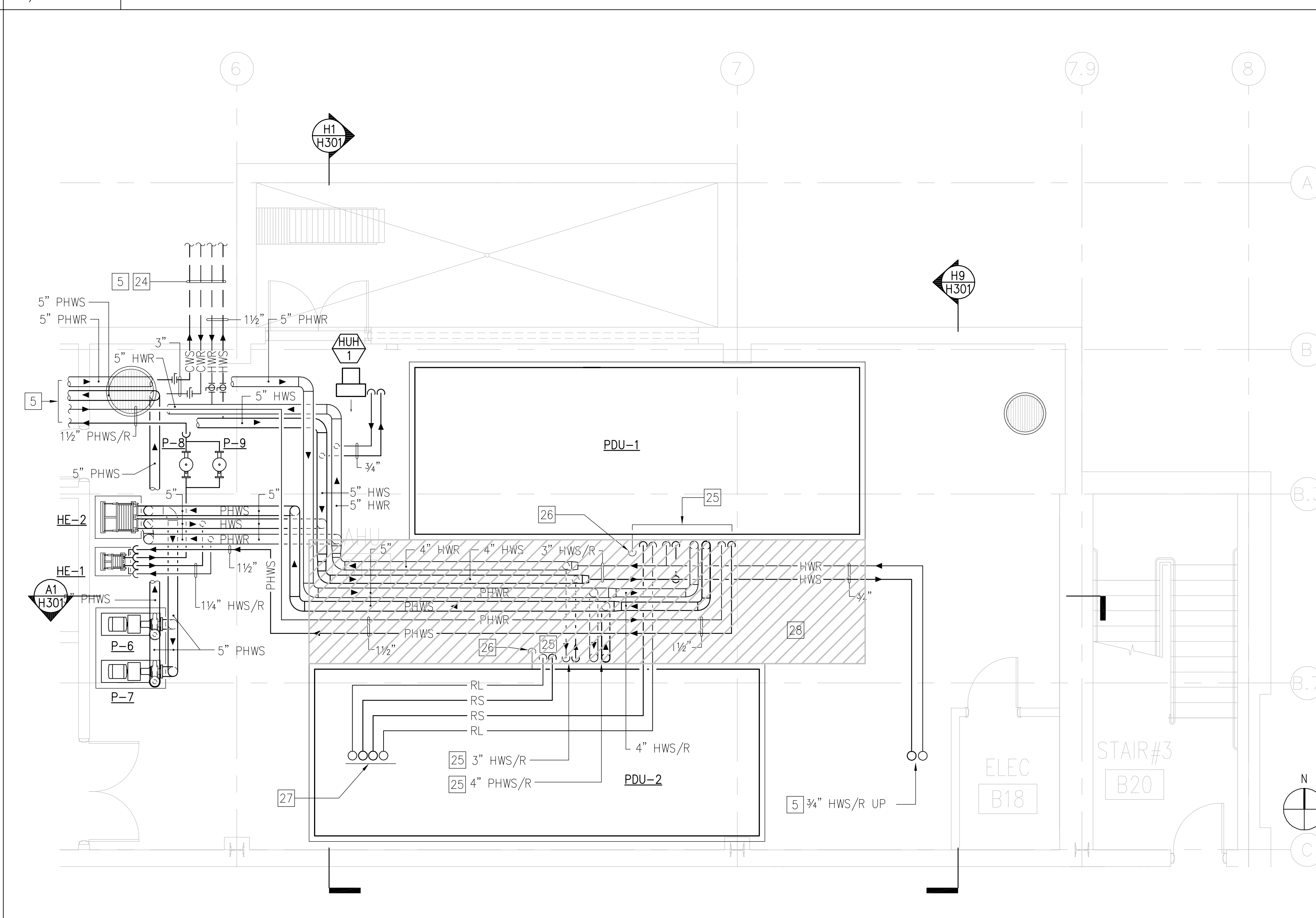
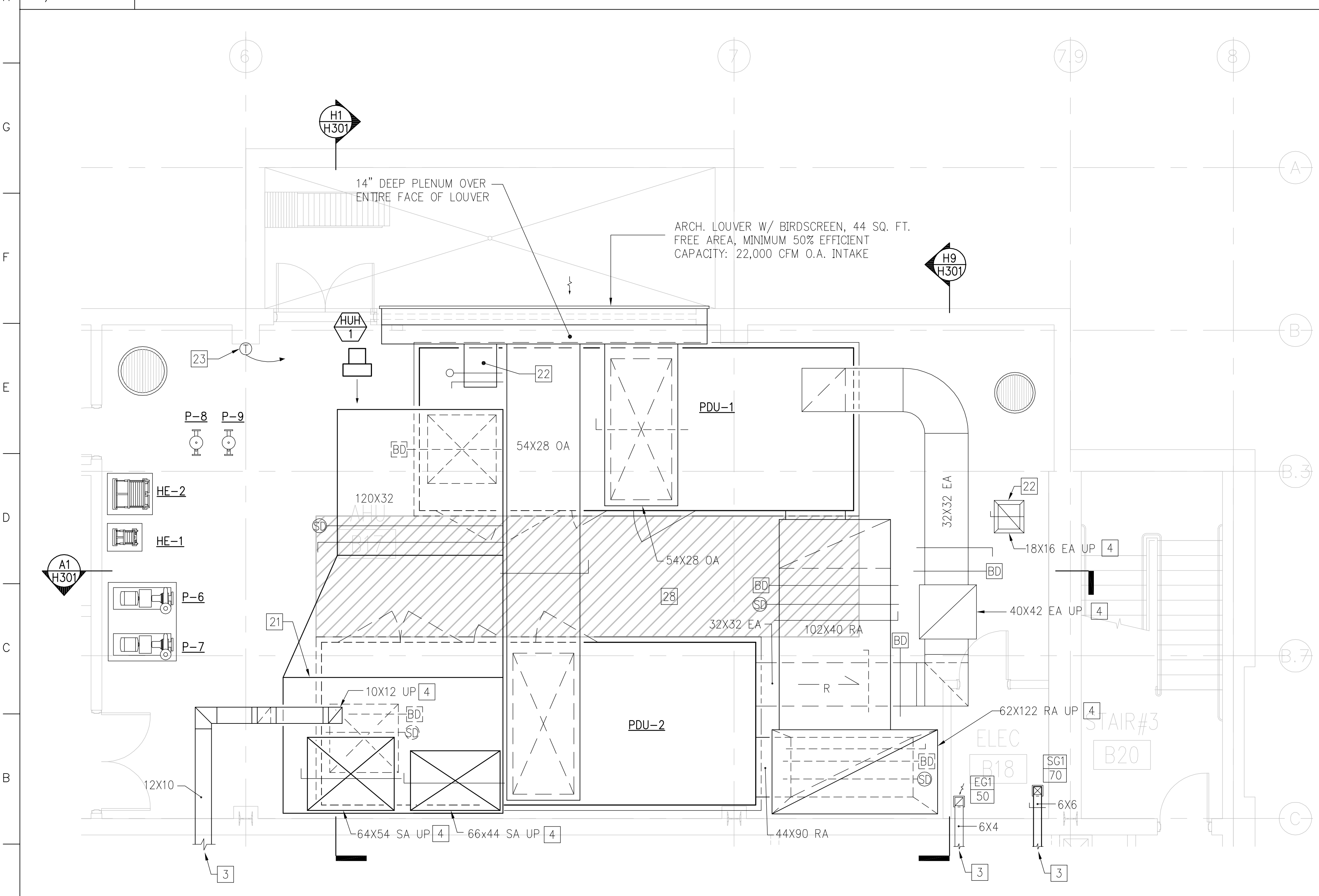


- KEYED NOTES**
- 18" BOILERS FLUE STACK UP.
  - 8" WATER HEATERS FLUE STACK UP.
  - FOR CONTINUATION SEE DWG. H101.
  - FOR CONTINUATION SEE DWG. H102.
  - 12" DEEP OA PLENUM OVER ENTIRE FACE OF LOUVER. FOR EXACT LOUVER SIZE REFER TO ARCHITECTURAL DRAWINGS.
  - 22X22 OPEN END DUCT WITH WIRE MESH SCREEN. BALANCE DUCT TO 1720 CFM.
  - OPEN END COMBUSTION AIR DUCT WITH ALUMINUM WIRE MESH SCREEN. TERMINATE DUCT 6" FROM FACE OF EXTERIOR WALL.
  - OPEN END OA DUCT WITH WIRE MESH SCREEN.
  - 42X20 EA UP.
  - DIRECT DUCTED TO BOILERS COMBUSTION AIR DUCT.
  - POOL EQUIPMENT SHALL BE INSTALLED BY POOL CONTRACTOR SHOWN FOR REFERENCE ONLY. REFER TO SERIES SP POOL CONSULTANT DRAWINGS FOR DETAILS.
  - ALL DUCTWORK FROM THIS POINT BACK TO AIR HANDLING UNIT SHALL BE LINED WITH 1" SOUND LINER.
  - INTERLOCK WALL MOUNTED THERMOSTAT WITH HOT WATER UNIT HEATER HUH-3.
  - 4" DIRECT BURIED PREINSULATED CWS AND CWR PIPING. REFER TO CIVIL DRAWINGS FOR EXACT LOCATION AND DETAILS.
  - CONNECT PHWS AND PHWR PIPING TO POOL WATER CIRCULATION PIPING. REFER TO SERIES SP POOL CONSULTANT DWGS. FOR DETAILS.
  - SPILL 1" CONDENSATE DRAIN TO NEAREST FLOOR DRAIN. REFER TO PLUMBING DRAWINGS FOR FLOOR DRAIN EXACT LOCATION.
  - 4" DEEP HOUSEKEEPING CONCRETE PAD.
  - GAS FIRED DOMESTIC HOT WATER HEATER. REFER TO PLUMBING DWGS. FOR DETAILS.
  - 162"(W)X100"(L)X36"(H) SUPPLY AIR PLENUM LINED WITH 1" SOUND LINER.
  - 24X22 OPEN END DUCT WITH WIRE MESH SCREEN. BALANCE DUCT TO 2000 CFM.
  - INTERLOCK WALL MOUNTED THERMOSTAT WITH HOT WATER UNIT HEATER HUH-1.
  - DIRECT BURIED PREINSULATED CWS/R AND HWS/R PIPING. REFER TO CIVIL DRAWINGS FOR EXACT LOCATION AND DETAILS.
  - CONNECT ALL PIPING TO PDU-1 AND PDU-2 PER MANUFACTURER'S RECOMMENDATIONS.
  - SPILL 2" CONDENSATE DRAIN TO NEAREST FLOOR DRAIN. FOR CONTINUATION SEE PLUMBING DWGS.
  - RS AND RL REFRIGERANT PIPING UP TO AIR COOLED CONDENSERS ACQU-2 AND ACQU-3 ON THE ROOF. SIZE PIPING PER MANUFACTURER RECOMMENDATIONS.
  - HATCHED AREA DEDICATED FOR AHUS SERVICE AND MAINTENANCE AND SHALL NOT BE BLOCKED.

**H1 MECHANICAL ROOM #B11 PARTIAL PLAN (DUCTWORK)**  
1/4"=1'-0"

**H11 MECHANICAL ROOM #B11 PARTIAL PLAN (PIPING)**  
1/4"=1'-0"

**GENERAL NOTES**



- FOR SYMBOLS AND ABBREVIATIONS SEE DWG. H001.
- DUCT CONNECTIONS TO DIFFUSERS AND GRILLES SHALL BE THE SAME SIZE AS DIFFUSERS/GRILLES NECK.
- ALL FLUE STACK BREECHING SHALL BE DOUBLE WALL WITH 1" INSULATION.
- ALL SUPPLY AND RETURN DUCTWORK ASSOCIATED WITH PDU-1 AND PDU-2 SHOWN ON DETAIL AT OF THIS DRAWING SHALL BE LINED WITH 1" LINER.
- REFER TO MANUFACTURER RECOMMENDATIONS FOR CLEARANCES REQUIRED TO MAINTAIN AND SERVICE HVAC EQUIPMENT.
- THIS DRAWING SHOWS ONLY MAIN SHUTOFF VALVES. REFER TO PIPING FLOW DIAGRAMS (DWGS. H401 AND H402) AND DETAILS DRAWINGS FOR COMPLETE VALVING AND ACCESSORIES OF HVAC SYSTEM.

**REVISED CONSTRUCTION DOCUMENT**

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**ALPHA CORPORATION**  
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**A1 MECHANICAL ROOM #B17 PARTIAL PLAN (DUCTWORK)**  
1/4"=1'-0"

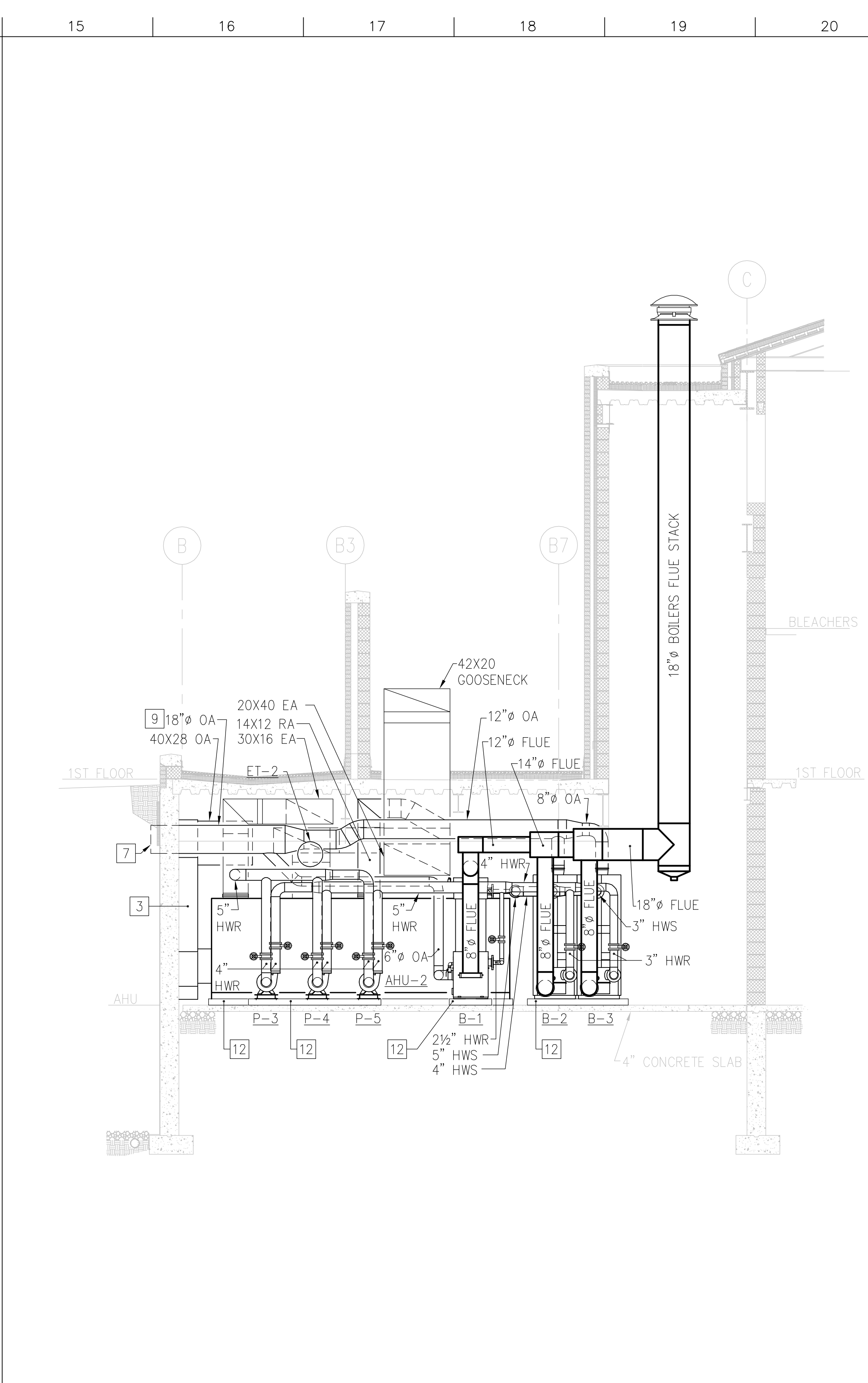
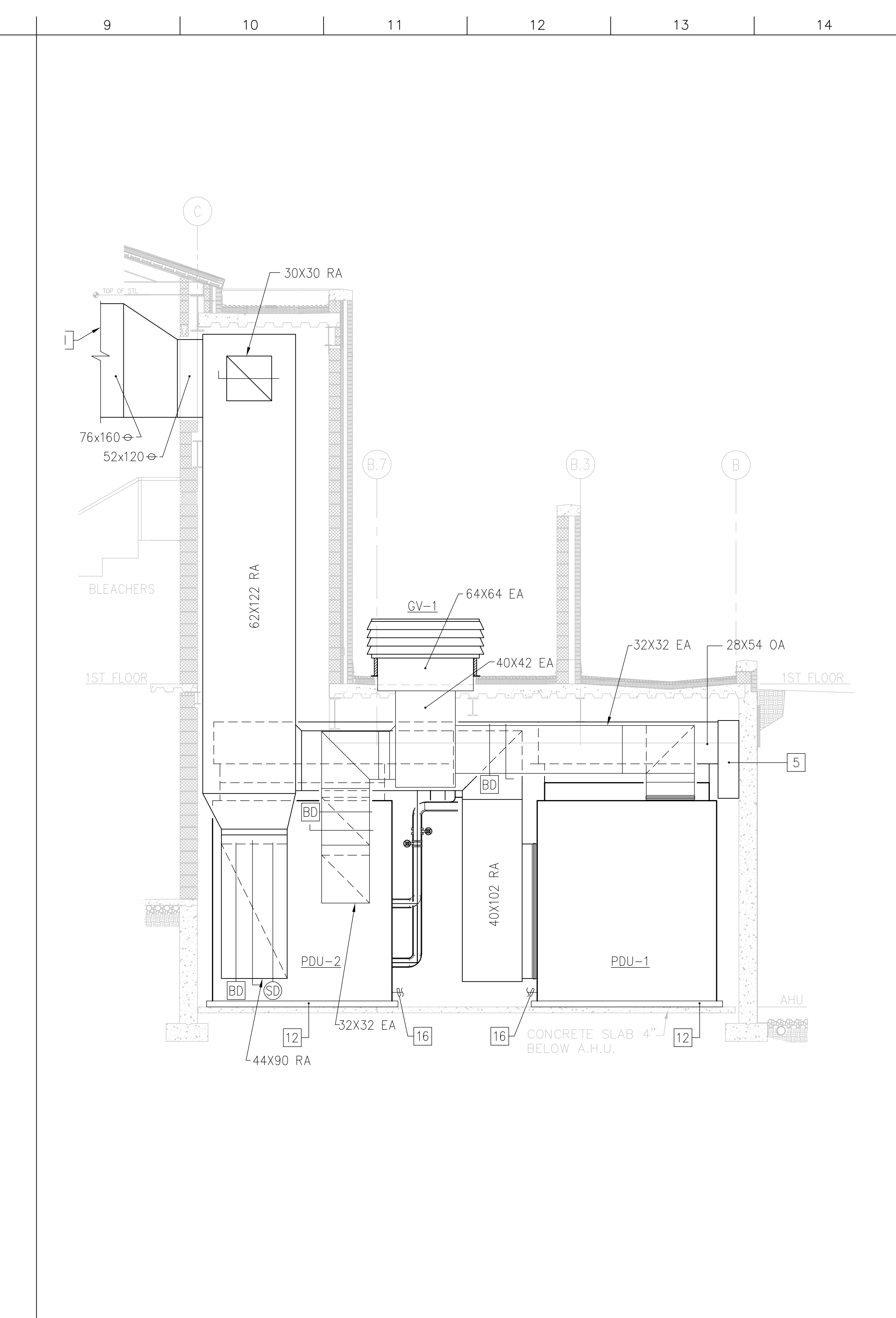
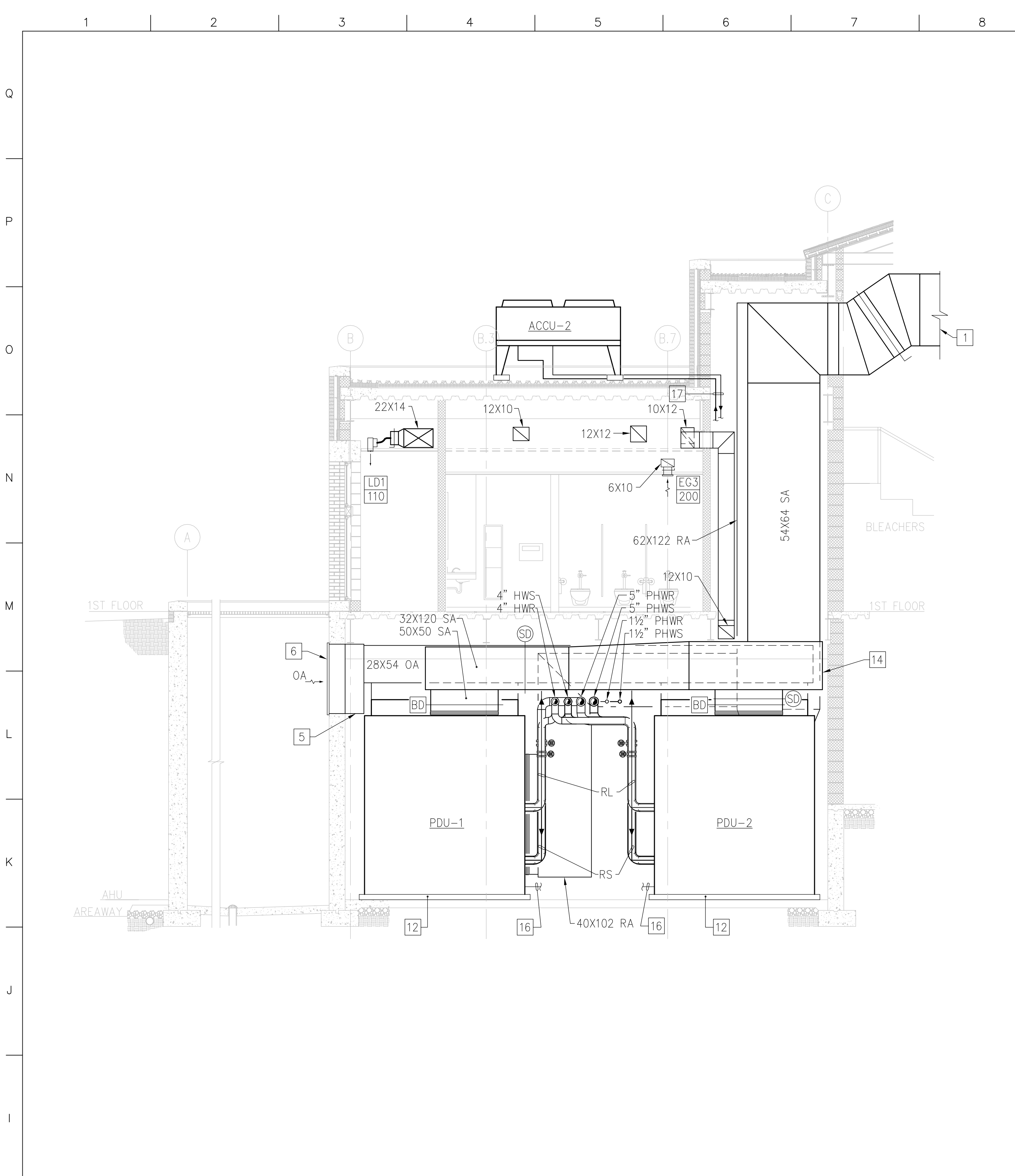
**A11 MECHANICAL ROOM #B17 PARTIAL PLAN (PIPING)**  
1/4"=1'-0"

drawing title  
**MECHANICAL ROOMS (L1)**  
**PARTIAL PLANS**

seal  
designed by GN  
drawn by GN  
checked by KE  
date 02/10/2003  
scale AS SHOWN

project no. 2010138.00  
CAD file no. HVAC/PL01/H201.DWG  
drawing no.  
H201  
of





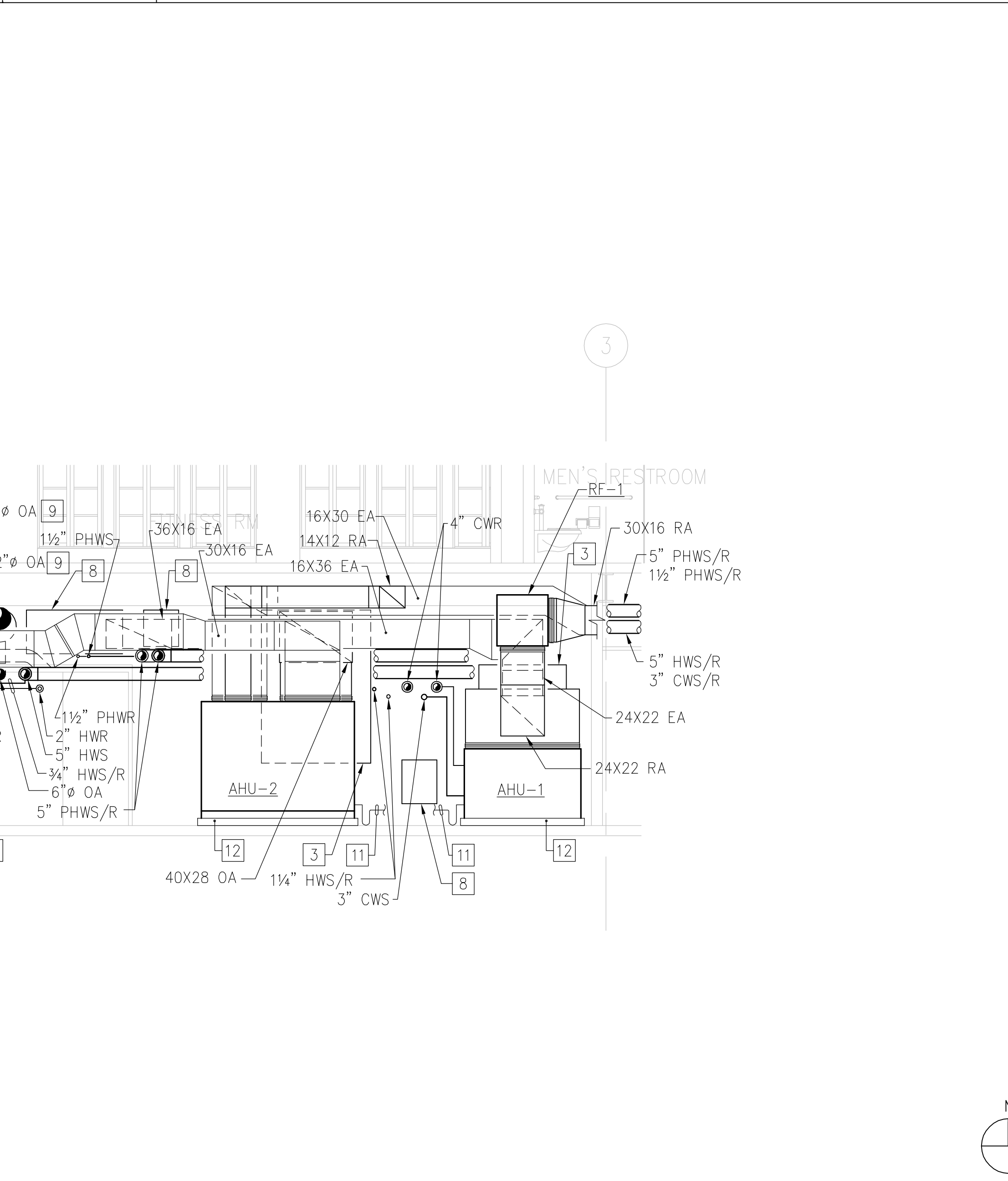
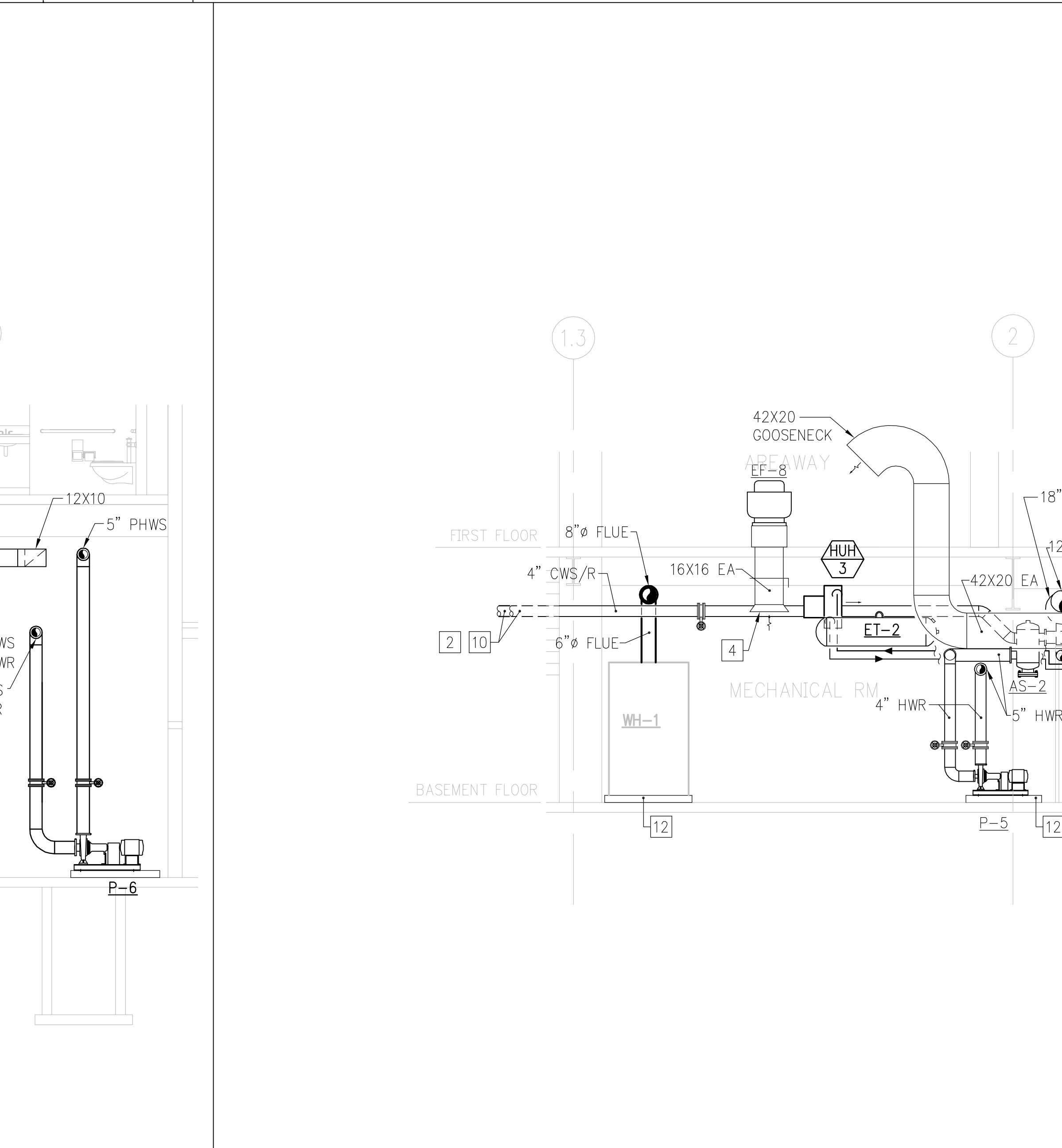
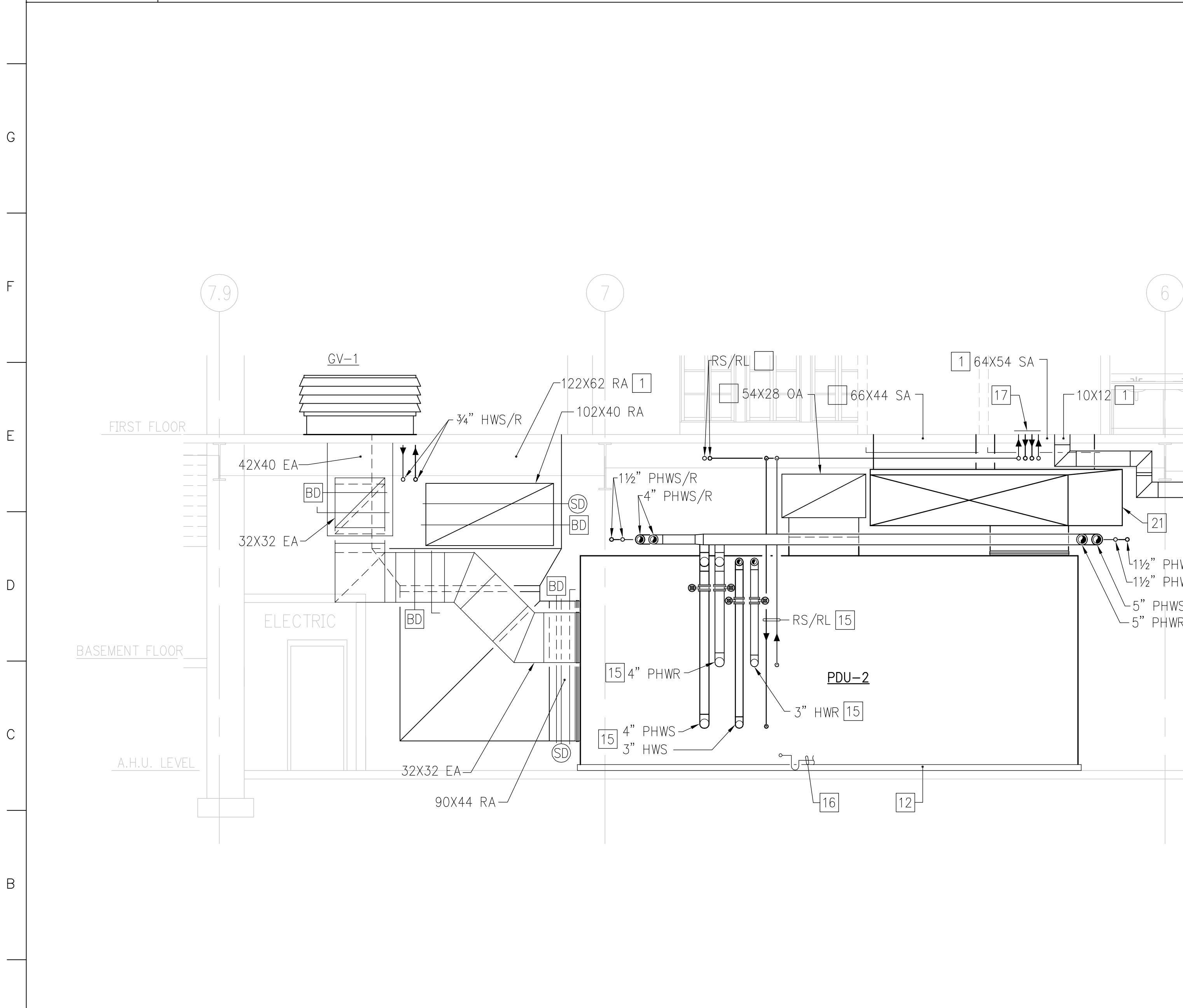
- ### KEYED NOTES
- FOR CONTINUATION SEE DWG. H102.
  - FOR CONTINUATION SEE DWG. H111.
  - 12" DEEP OA PLENUM OVER ENTIRE FACE OF LOUVER. FOR EXACT LOUVER SIZE REFER TO ARCHITECTURAL DRAWINGS.
  - 22X22 OPEN END DUCT WITH WIRE MESH SCREEN. BALANCE DUCT TO 1720 CFM.
  - 14" DEEP OA PLENUM OVER ENTIRE FACE OF LOUVER. FOR EXACT LOUVER SIZE REFER TO ARCHITECTURAL DRAWINGS.
  - ARCH. LOUVER W/BROSCREEN, 44 SQ. FT. FREE AREA, MINIMUM 50% EFFICIENT, CAPACITY: 22000 CFM OA INTAKE.
  - OPEN END COMBUSTION AIR DUCT WITH ALUMINUM WIRE MESH SCREEN. TERMINATE DUCT 6" FROM FACE OF EXTERIOR WALL.
  - OPEN END OA DUCT OVER ENTIRE FACE OF LOUVER WITH WIRE MESH SCREEN.
  - DIRECT DUCTED TO BOILERS COMBUSTION AIR DUCT.
  - 4" DIRECT BURIED PREINSULATED CWS AND CHR PIPING. REFER TO CIVIL DRAWINGS FOR EXACT LOCATION AND DETAILS.
  - SPILL 1" CONDENSATE DRAIN TO NEAREST FLOOR DRAIN. REFER TO PLUMBING DRAWINGS FOR FLOOR DRAIN EXACT LOCATION.
  - 4" DEEP HOUSEKEEPING CONCRETE PAD.
  - GAS FIRED DOMESTIC HOT WATER HEATER. REFER TO PLUMBING DWGS. FOR DETAILS.
  - 162"(W)X100"(L)X36"(H) SUPPLY AIR PLENUM LINED WITH 1" SOUND LINER.
  - SPILL 2" CONDENSATE DRAIN TO NEAREST FLOOR DRAIN. FOR CONTINUATION SEE PLUMBING DWGS.
  - RS AND RL REFRIGERANT PIPING UP TO AIR COOLED CONDENSERS ACCU-2 AND ACCU-3 ON THE ROOF. SIZE PIPING PER MANUFACTURER RECOMMENDATIONS.

**H1 MECHANICAL ROOM #B17 SECTION**  
1/4"=1'-0" H102, H201

**H9 MECHANICAL ROOM #B17 SECTION**  
1/4"=1'-0" H201

**H15 MECHANICAL ROOM #B11 SECTION**  
1/4"=1'-0" H201

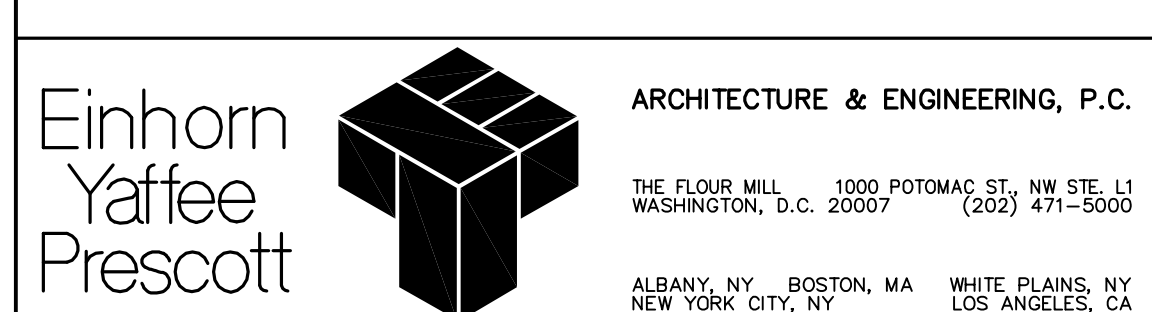
**GENERAL NOTES**



- FOR SYMBOLS AND ABBREVIATIONS SEE DWG. H001.
- DUCT CONNECTIONS TO DIFFUSERS AND GRILLES SHALL BE THE SAME SIZE AS DIFFUSERS/GRILLES NECK.
- ALL FLUE STACK BREACHING SHALL BE DOUBLE WALL WITH 1" INSULATION.
- ALL SUPPLY AND RETURN DUCTWORK ASSOCIATED WITH PDU-1 AND PDU-2 SHOWN ON DETAIL. AT OF THIS DRAWING SHALL BE LINED WITH 1" LINER.
- REFER TO MANUFACTURER RECOMMENDATIONS FOR CLEARANCES REQUIRED TO MAINTAIN AND SERVICE HVAC EQUIPMENT.
- THIS DRAWING SHOWS ONLY MAIN SHUTOFF VALVES. REFER TO PIPING FLOW DIAGRAMS (DWGS. H401 AND H402) AND DETAILS DRAWINGS FOR COMPLETE VALVING AND ACCESSORIES OF HVAC SYSTEM.

### REVISED CONSTRUCTION DOCUMENT

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2	Design Development Submission	02/01/02
3	Permit Set	04/29/02
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6	V.E. BID SET	11/22/02



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**A1 MECHANICAL ROOM #B17 SECTION**  
1/4"=1'-0" H201

**A10 MECHANICAL ROOM #B11 SECTION**  
1/4"=1'-0" H201

**A10 MECHANICAL ROOM #B11 SECTION**  
1/4"=1'-0" H201

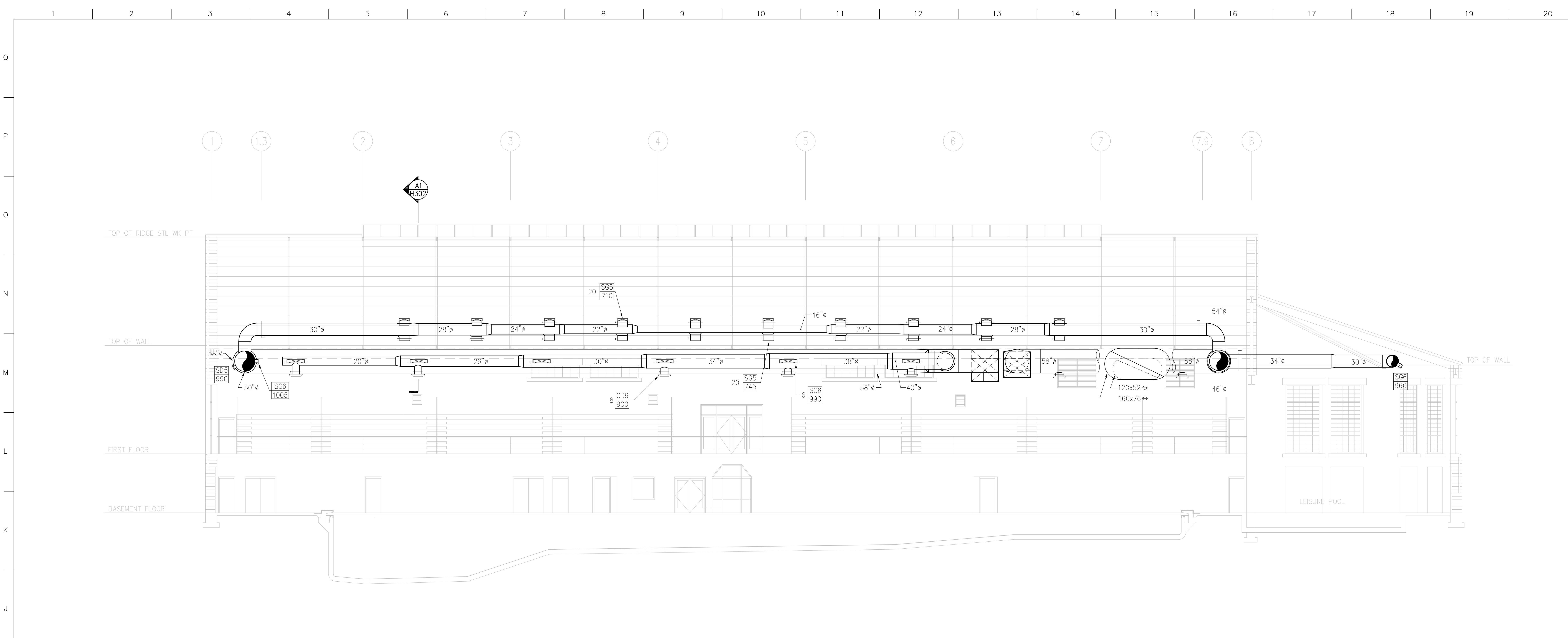
drawing title

**MECHANICAL SECTIONS**

designed by	GN	project no.	2010138.00
drawn by	GN	CAD file no.	HVAC/PLOT/H301.DWG
checked by	KE	drawing no.	
date	02/10/2003		
scale	AS SHOWN		

**H301**  
of





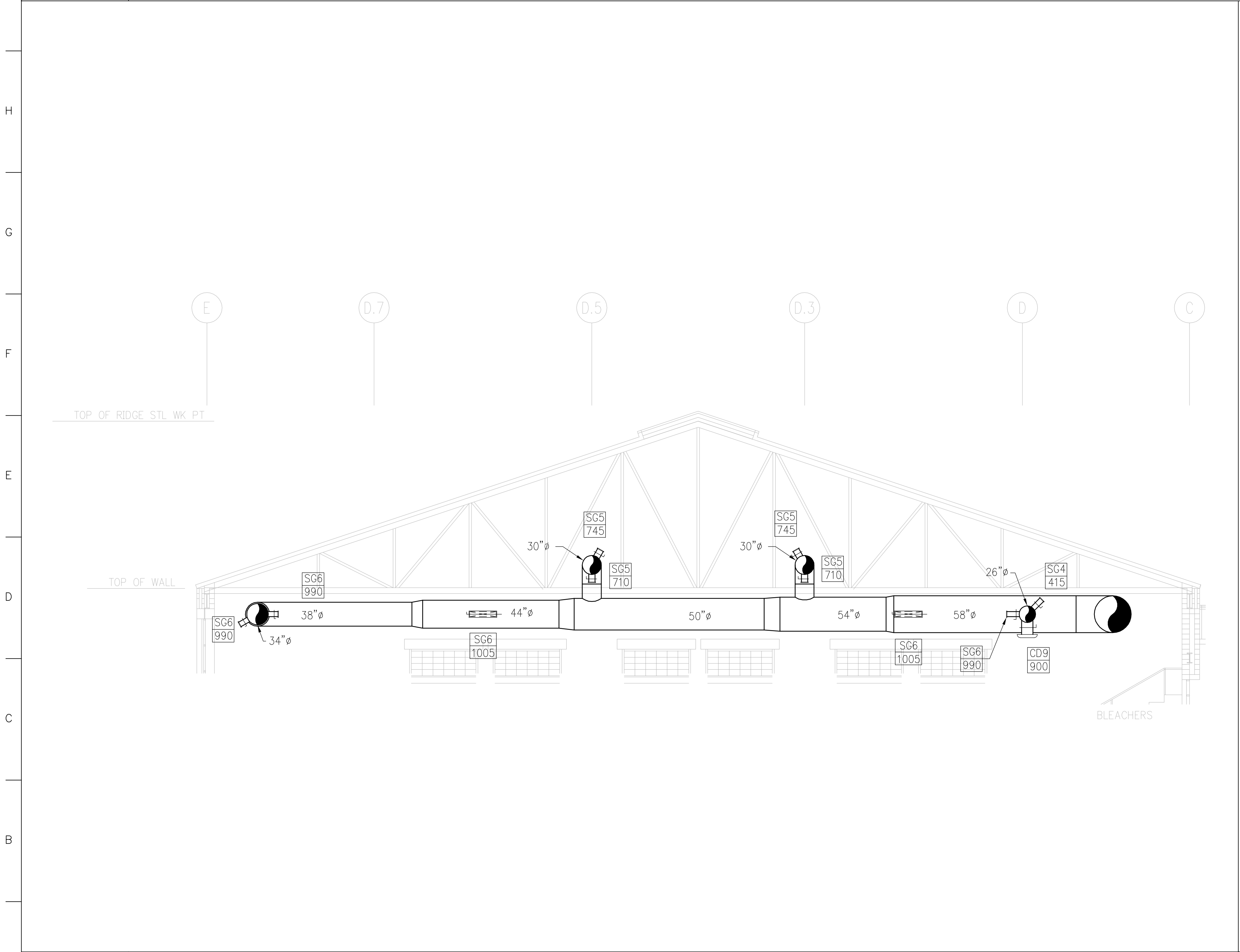
**KEYED NOTES**

- 1 FOR CONTINUATION SEE DWG. H102.

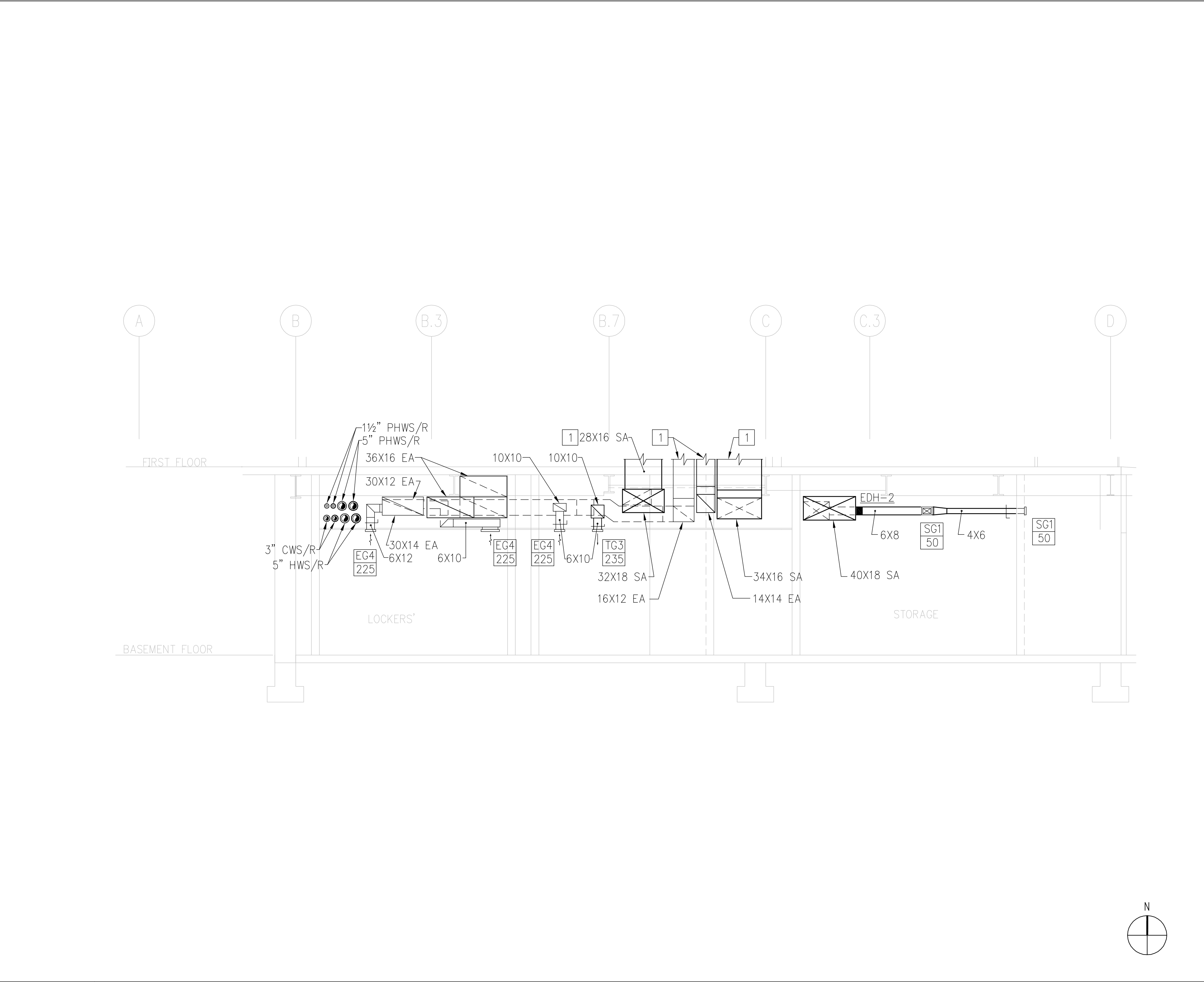
**GENERAL NOTES**

- FOR SYMBOLS AND ABBREVIATIONS SEE DWG. H001.
- DUCT CONNECTIONS TO DIFFUSERS AND GRILLES SHALL BE THE SAME SIZE AS DIFFUSERS/GRILLES NECK.
- ALL FLUE STACK BREECING SHALL BE DOUBLE WALL WITH 1" INSULATION.
- ALL SUPPLY AND RETURN DUCTWORK ASSOCIATED WITH PDU-1 AND PDU-2 SHOWN ON DETAIL A1 OF THIS DRAWING SHALL BE LINED WITH 1" LINER.
- REFER TO MANUFACTURER RECOMMENDATIONS FOR CLEARANCES REQUIRED TO MAINTAIN AND SERVICE HVAC EQUIPMENT.

**I1 POOL SECTION**  
1/8"=1'-0" H102



**A1 POOL SECTION**  
1/8"=1'-0" H302



**A11 BASEMENT SECTION**  
1/4"=1'-0" H101, H111

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ALBANY, NY, BOSTON, MA, WHITE PLAINS, NY, NEW YORK, CITY, NY, LOS ANGELES, CA

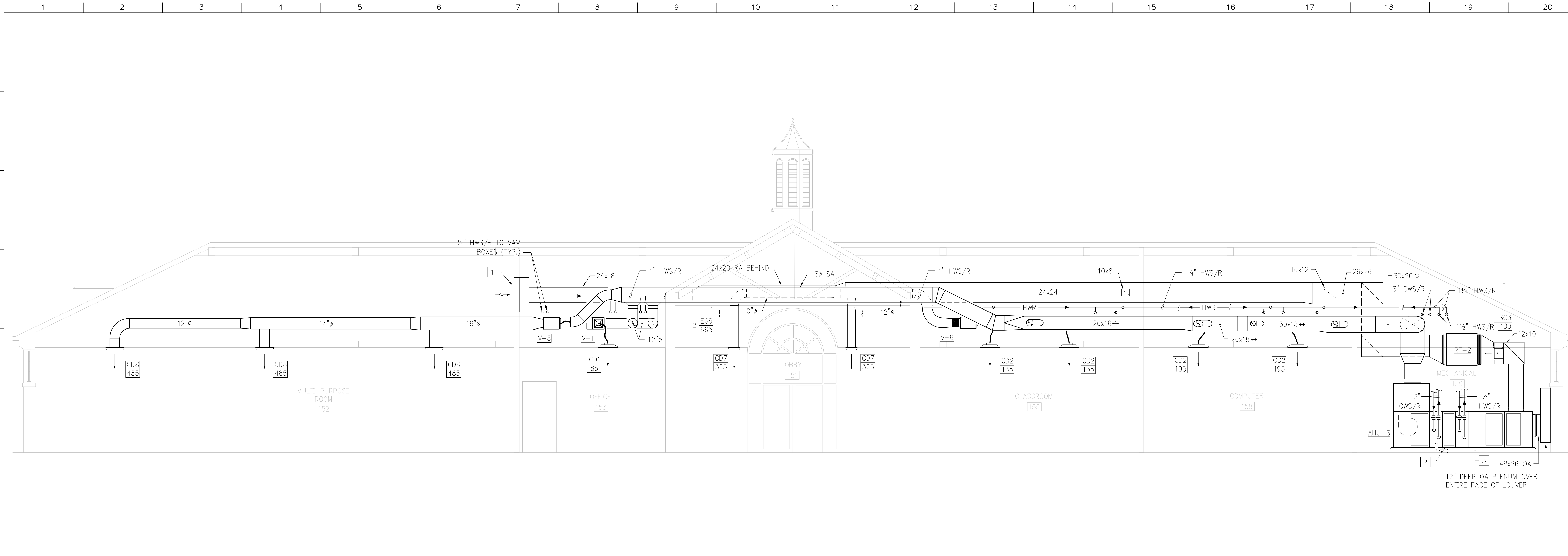
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**MECHANICAL SECTIONS**

seal	designed by GN	project no. 2001038.00
	drawn by GN	CAD file no. HVAC/PLOT/H302.DWG
	checked by KE	drawing no.
	date 02/10/2003	<b>H302</b>
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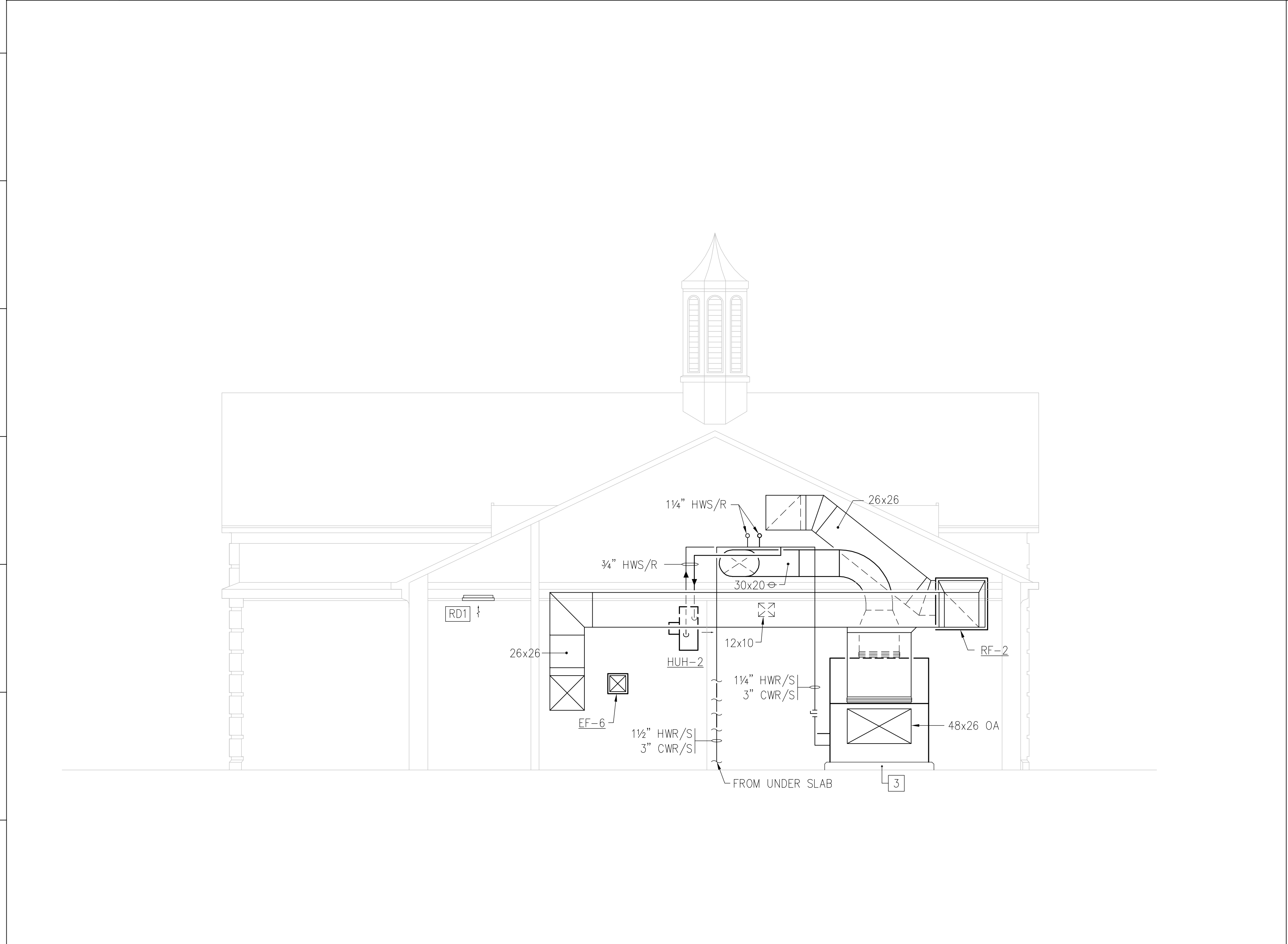




- ### KEYED NOTES
- 1 ARCH. LOUVER, 6.3 SQ. FT. FREE AREA, MINIMUM 50% EFFICIENT (FACE AREA ~ 3'-8" WIDE x 3'-6" HIGH) BALANCE DUCT TO 3,780 CFM
  - 2 1" CONDENSATE DRAIN. SPILL CONDENSATE DRAIN TO NEAREST FLOOR DRAIN. FOR LOCATION SEE PLUMBING DRAWINGS.
  - 3 4" DEEP HOUSEKEEPING PAD.

- ### GENERAL NOTES
1. FOR SYMBOLS AND ABBREVIATIONS SEE DWG. H001.
  2. DUCT CONNECTIONS TO DIFFUSERS AND GRILLES SHALL BE THE SAME SIZE AS DIFFUSERS/GRILLES NECK.
  3. REFER TO MANUFACTURER RECOMMENDATIONS FOR CLEARANCES REQUIRED TO MAINTAIN AND SERVICE HVAC EQUIPMENT.
  4. THIS DRAWING SHOWS ONLY MAIN SHUTOFF VALVES. REFER TO PIPING FLOW DIAGRAMS (DWGS. H401 AND H402) AND DETAILS DRAWINGS FOR COMPLETE VALVING AND ACCESSORIES OF HVAC SYSTEM.

**J1** EXISTING BUILDING SECTION VIEW  
1/4"=1'-0"



**B1** EXISTING BUILDING SECTION VIEW  
1/4"=1'-0"

**B11** NOT USED  
1/4"=1'-0"

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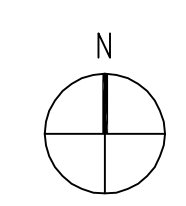
**Einhorn Yaffee Prescott** ARCHITECTURE & ENGINEERING, P.C.  
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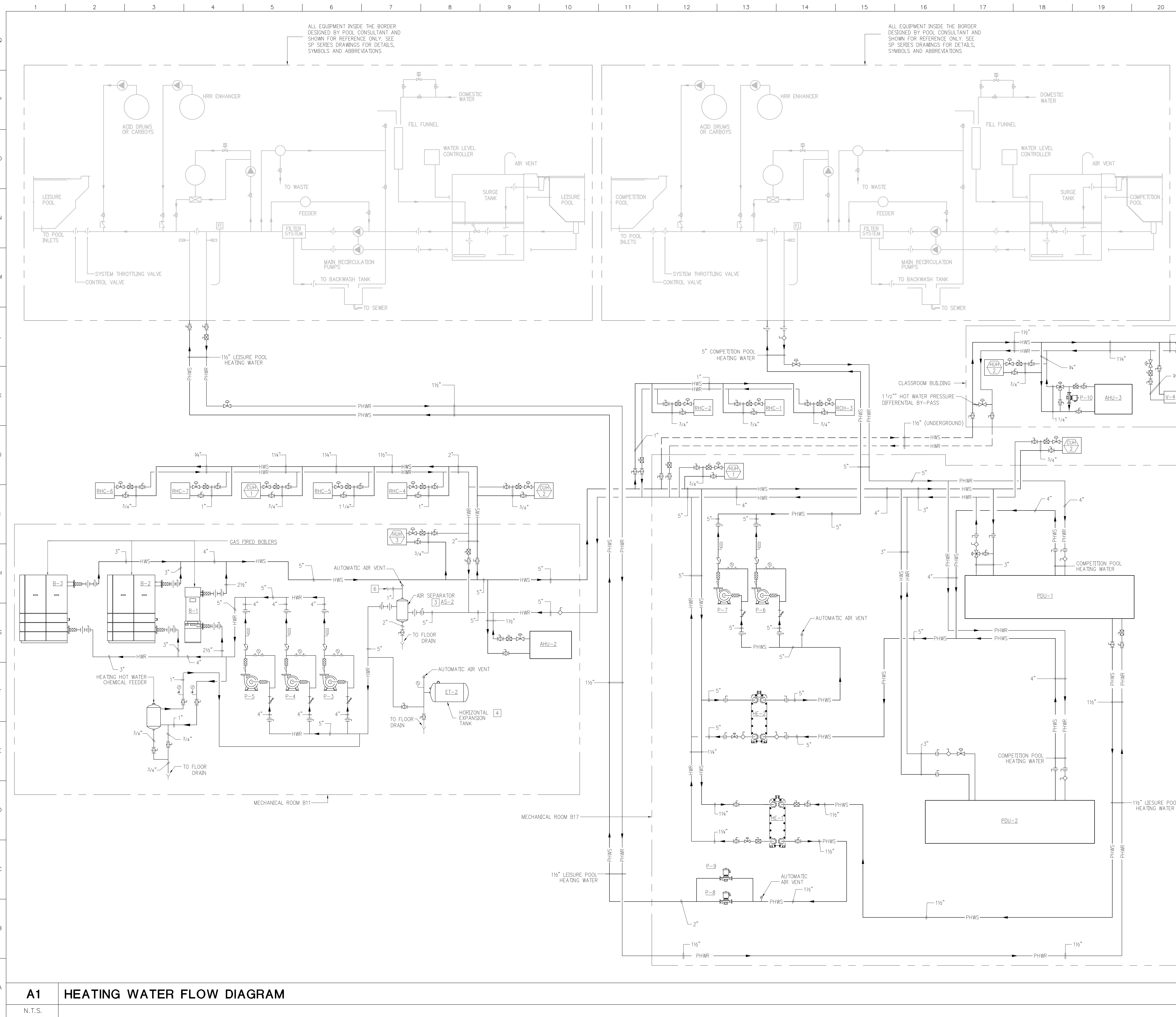
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drawing title: **MECHANICAL SECTIONS**

seal	designed by GN	project no. 2001038.00
	drawn by GN	CAD file no. HVAC/PLOT/H303.DWG
	checked by KE	drawing no.
	date 02/10/2003	<b>H303</b>
	scale AS SHOWN	of







KEYED NOTES

GENERAL NOTES

1. FOR SYMBOLS AND ABBREVIATIONS SEE DWG. H001.

REVISED CONSTRUCTION DOCUMENT

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HEATING WATER FLOW DIAGRAM

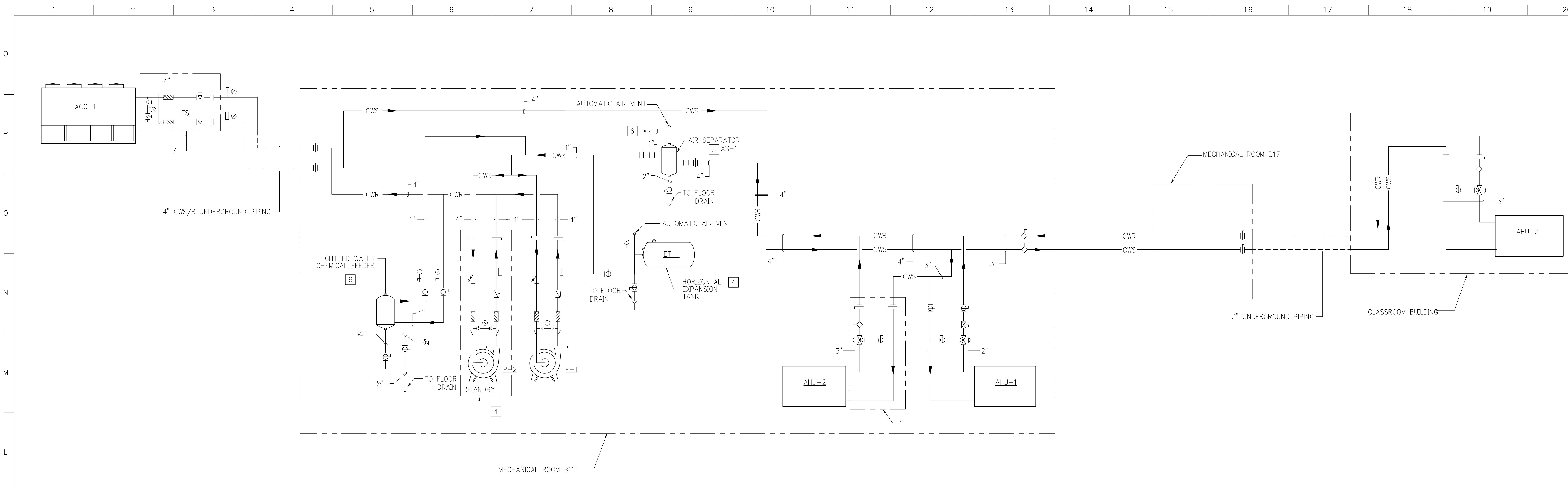
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drawn by	GN	CAD file no.	HVEC/PLOT/H401.DWG
checked by	KE	drawing no.	
date	02/10/2003		
scale	N.T.S.		

**A1 HEATING WATER FLOW DIAGRAM**

N.T.S.

**H401**





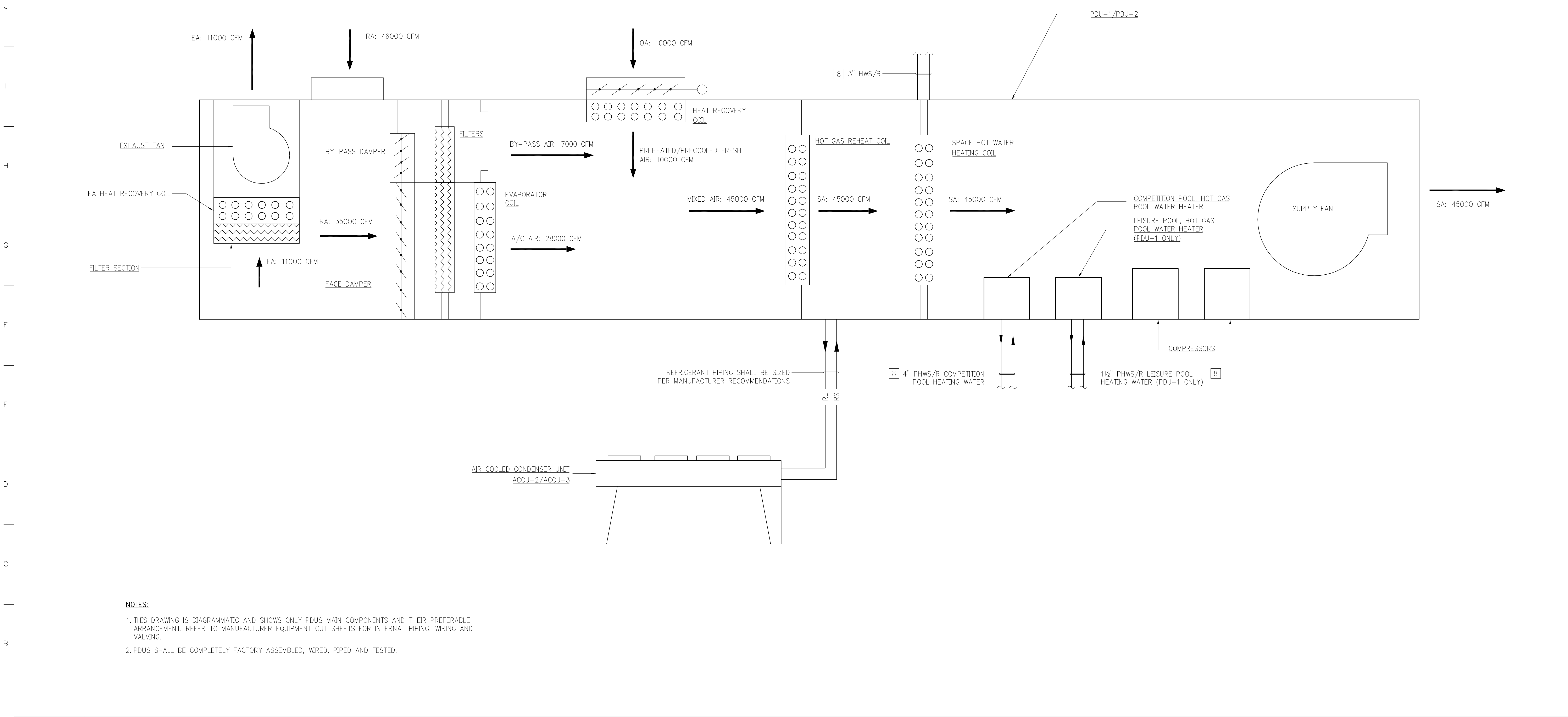
- KEYED NOTES**
- 1 FOR COMPLETE VALVE, PIPING AND ACCESSORIES ARRANGEMENT OF CHILLED WATER PIPING CONNECTION TO COOLING COIL SEE DETAIL XXX ON DWG. H50X.
  - 2 SEE DETAIL XXX ON DWG. H50X.
  - 3 SEE DETAIL XXX ON DWG. H50X.
  - 4 SEE DETAIL F1 ON DWG. H501.
  - 5 MAKE-UP WATER CONNECTION, FOR CONTINUATION SEE PLUMBING DWGS. AND DETAIL A11 ON DWG. H501.
  - 6 SEE DETAIL K16 ON DWG. H504.
  - 7 SEE DETAIL K9 ON DWG. H504.
  - 8 FOR CONTINUATION SEE HEATING WATER FLOW DIAGRAM ON DWG. H401.

**K1 CHILLED WATER FLOW DIAGRAM**

N.T.S.

**GENERAL NOTES**

1. FOR SYMBOLS AND ABBREVIATIONS SEE DWG. H001.
2. FOR EQUIPMENT PERFORMANCE REFER TO EQUIPMENT SCHEDULES ON DWGS. H601, H602.
3. FOR EQUIPMENT LOCATION AND PIPING LAYOUT REFER TO FLOOR PLANS ON DWGS. H111, H103 AND H201.



- NOTES:**
1. THIS DRAWING IS DIAGRAMMATIC AND SHOWS ONLY PDUS MAIN COMPONENTS AND THEIR PREFERABLE ARRANGEMENT. REFER TO MANUFACTURER EQUIPMENT CUT SHEETS FOR INTERNAL PIPING, WIRING AND VALVING.
  2. PDUS SHALL BE COMPLETELY FACTORY ASSEMBLED, WIRED, PIPED AND TESTED.

**A1 POOL DEHUMIDIFICATION UNITS PDU-1 AND PDU-2 SCHEMATIC DIAGRAM**

N.T.S.

**REVISED CONSTRUCTION DOCUMENT**

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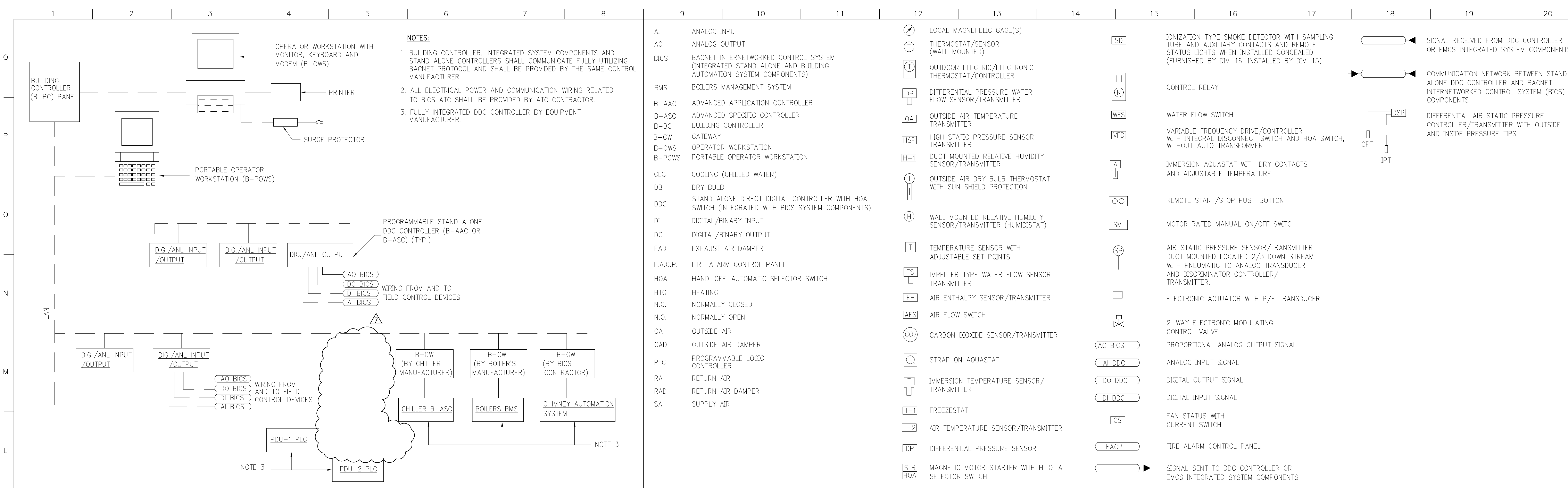
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**CHILLED WATER FLOW DIAGRAM**

seal	designed by GN	project no. 2010138.00
drawn by GN	CAD file no. HVEC/PLOT/H402.DWG	
checked by KE	drawing no.	
date: 02/10/2003		<b>H402</b>
scale: N.T.S.		of





**K1 BACNET ICS ARCHITECTURE**  
N.T.S.

**NOTES:**

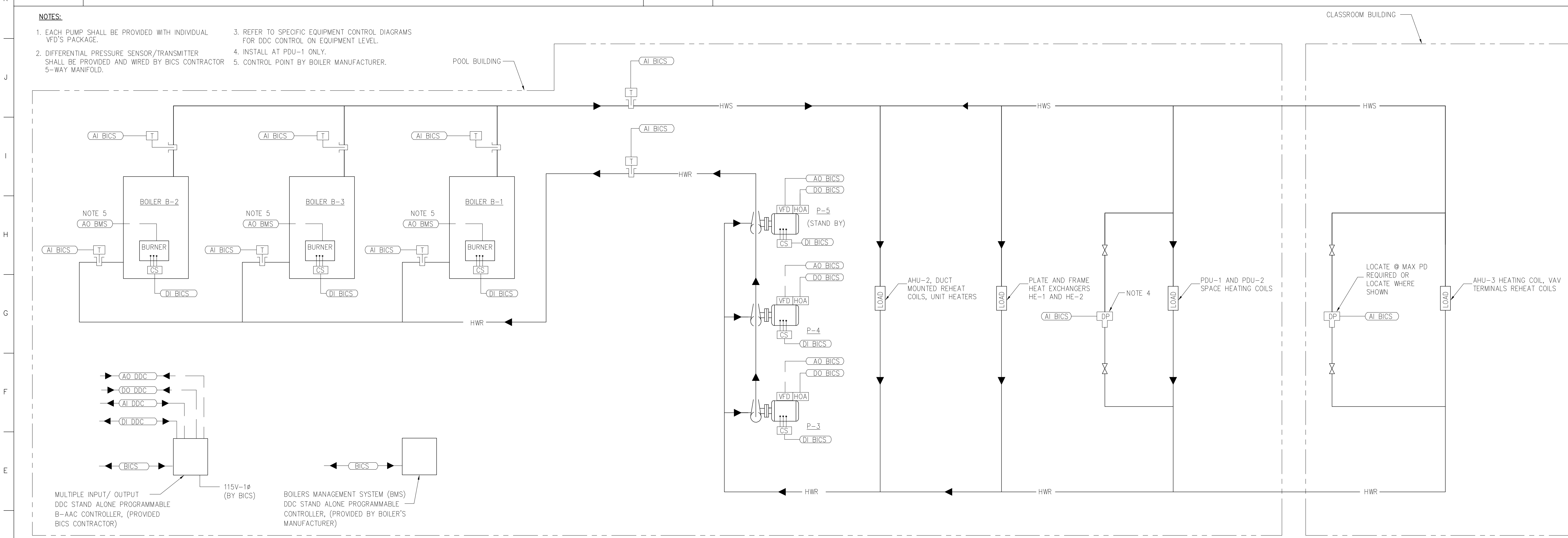
- BUILDING CONTROLLER, INTEGRATED SYSTEM COMPONENTS AND STAND ALONE CONTROLLERS SHALL COMMUNICATE FULLY UTILIZING BACNET PROTOCOL AND SHALL BE PROVIDED BY THE SAME CONTROL MANUFACTURER.
- ALL ELECTRICAL POWER AND COMMUNICATION WIRING RELATED TO BICS ATC SHALL BE PROVIDED BY ATC CONTRACTOR.
- FULLY INTEGRATED DDC CONTROLLER BY EQUIPMENT MANUFACTURER.

**CONTROL SYMBOLS AND ABBREVIATIONS**

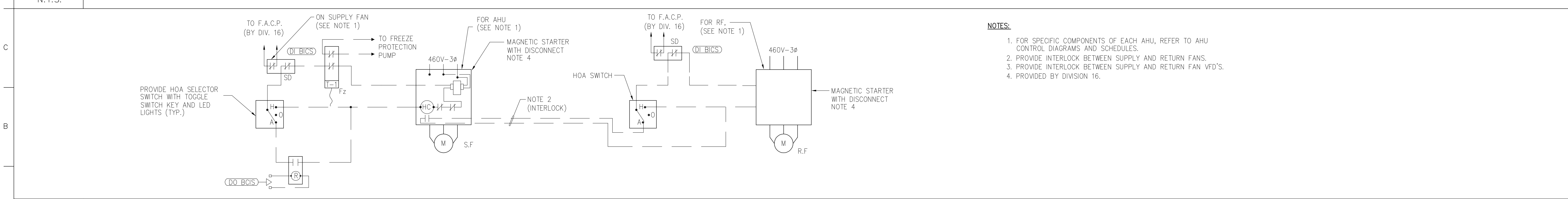
AI	ANALOG INPUT	LOCAL MAGNEHELIC GAGE(S)	IONIZATION TYPE SMOKE DETECTOR WITH SAMPLING TUBE AND AUXILIARY CONTACTS AND REMOTE STATUS LIGHTS WHEN INSTALLED CONCEALED (FURNISHED BY DIV. 16, INSTALLED BY DIV. 15)
AO	ANALOG OUTPUT	THERMOSTAT/SENSOR (WALL MOUNTED)	SIGNAL RECEIVED FROM DDC CONTROLLER OR EMCS INTEGRATED SYSTEM COMPONENTS
BICS	BACNET INTERNETWORKED CONTROL SYSTEM (INTEGRATED STAND ALONE AND BUILDING AUTOMATION SYSTEM COMPONENTS)	OUTDOOR ELECTRIC/ELECTRONIC THERMOSTAT/CONTROLLER	COMMUNICATION NETWORK BETWEEN STAND ALONE DDC CONTROLLER AND BACNET INTERNETWORKED CONTROL SYSTEM (BICS) COMPONENTS
BMS	BOILERS MANAGEMENT SYSTEM	DIFFERENTIAL PRESSURE WATER FLOW SENSOR/TRANSMITTER	DIFFERENTIAL AIR STATIC PRESSURE CONTROLLER/TRANSMITTER WITH OUTSIDE AND INSIDE PRESSURE TIPS
B-AAC	ADVANCED APPLICATION CONTROLLER	OUTSIDE AIR TEMPERATURE TRANSMITTER	
B-ASC	ADVANCED SPECIFIC CONTROLLER	HIGH STATIC PRESSURE SENSOR TRANSMITTER	
B-BC	BUILDING CONTROLLER	DUCT MOUNTED RELATIVE HUMIDITY SENSOR/TRANSMITTER	
B-GW	GATEWAY	OUTSIDE AIR DRY BULB THERMOSTAT WITH SUN SHIELD PROTECTION	
B-OWS	OPERATOR WORKSTATION	WALL MOUNTED RELATIVE HUMIDITY SENSOR/TRANSMITTER (HUMIDISTAT)	
B-POWS	PORTABLE OPERATOR WORKSTATION	TEMPERATURE SENSOR WITH ADJUSTABLE SET POINTS	
CLG	COOLING (CHILLED WATER)	IMPPELLER TYPE WATER FLOW SENSOR TRANSMITTER	
DB	DRY BULB	AIR ENTHALPY SENSOR/TRANSMITTER	
DDC	STAND ALONE DIRECT DIGITAL CONTROLLER WITH HOA SWITCH (INTEGRATED WITH BICS SYSTEM COMPONENTS)	AIR FLOW SWITCH	
DI	DIGITAL/BINARY INPUT	CARBON DIOXIDE SENSOR/TRANSMITTER	
DO	DIGITAL/BINARY OUTPUT	STRAP ON AQUASTAT	
EAD	EXHAUST AIR DAMPER	IMMERSION TEMPERATURE SENSOR/TRANSMITTER	
F.A.C.P.	FIRE ALARM CONTROL PANEL	FREEZE/STAT	
HOA	HAND-OFF-AUTOMATIC SELECTOR SWITCH	AIR TEMPERATURE SENSOR/TRANSMITTER	
HTG	HEATING	DIFFERENTIAL PRESSURE SENSOR	
N.C.	NORMALLY CLOSED	MAGNETIC MOTOR STARTER WITH H-O-A SELECTOR SWITCH	
N.O.	NORMALLY OPEN		
OA	OUTSIDE AIR		
OAD	OUTSIDE AIR DAMPER		
PLC	PROGRAMMABLE LOGIC CONTROLLER		
RA	RETURN AIR		
RAD	RETURN AIR DAMPER		
SA	SUPPLY AIR		

**GENERAL NOTES**

- FOR ADDITIONAL SYMBOLS & ABBREVIATIONS REFER TO DWG. H001.



**C1 HEATING HOT WATER SYSTEM SCHEMATIC CONTROL DIAGRAM**  
N.T.S.



**A1 AHUS AND PDUS SAFETY WIRING CONTROL DIAGRAM**  
N.T.S.

**REVISED CONSTRUCTION DOCUMENT**

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△	AFTER V.E. BID SET	

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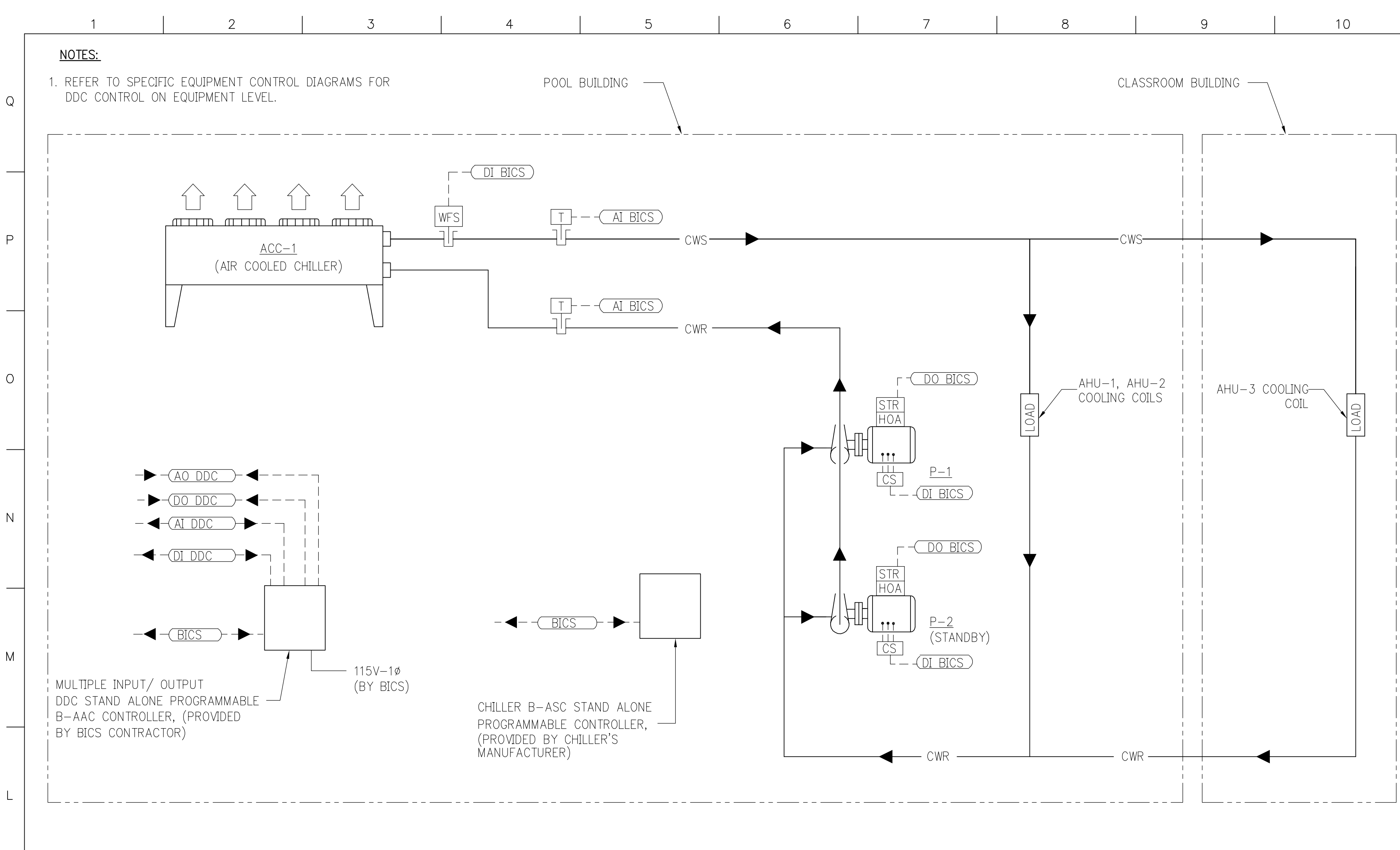
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drawing title: **CONTROL DRAWING SHEET # 1**

designed by: GN project no.: 2010138.00  
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checked by: KE drawing no.:  
date: 02/10/2003  
scale: N.T.S.

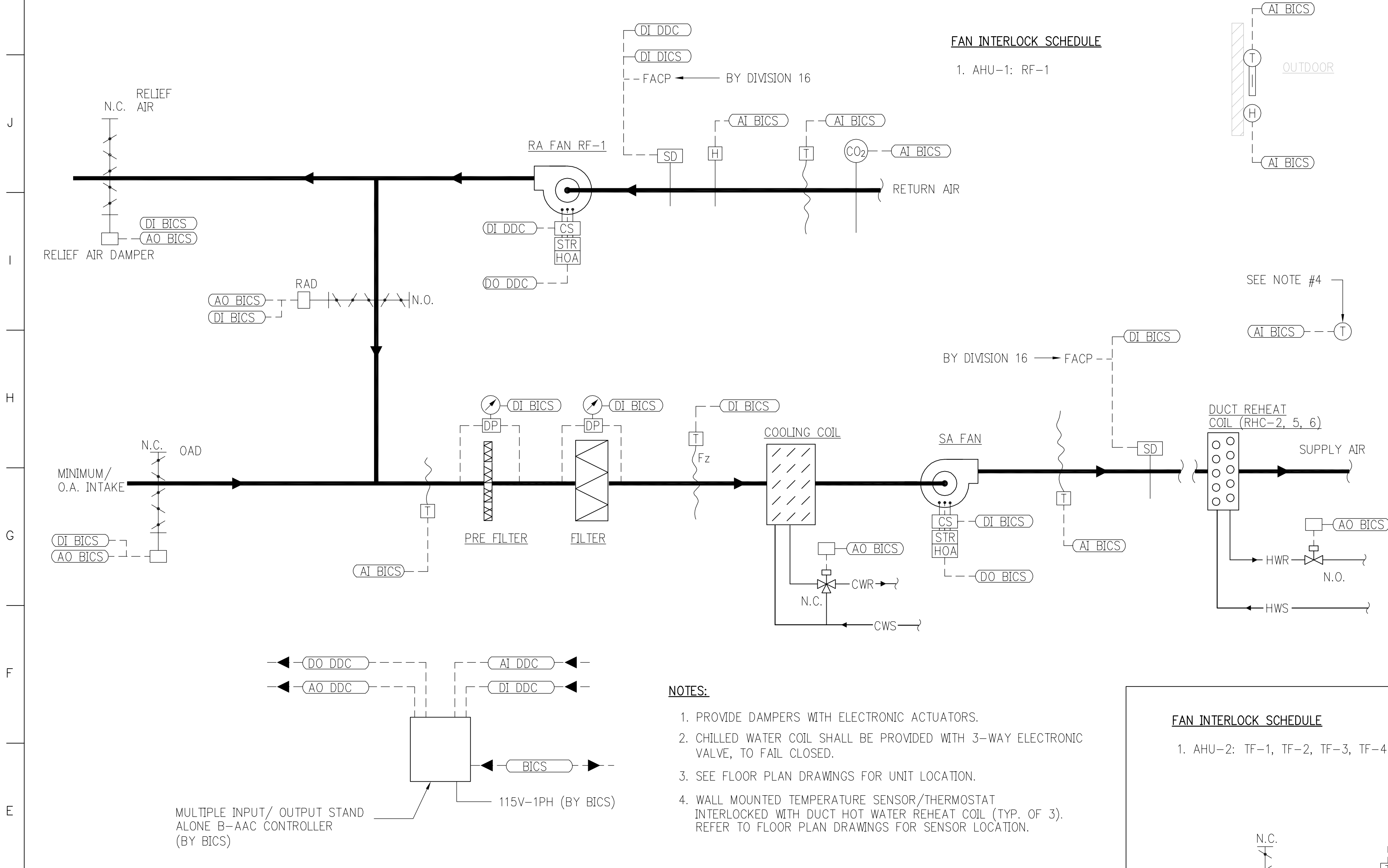
**H403**





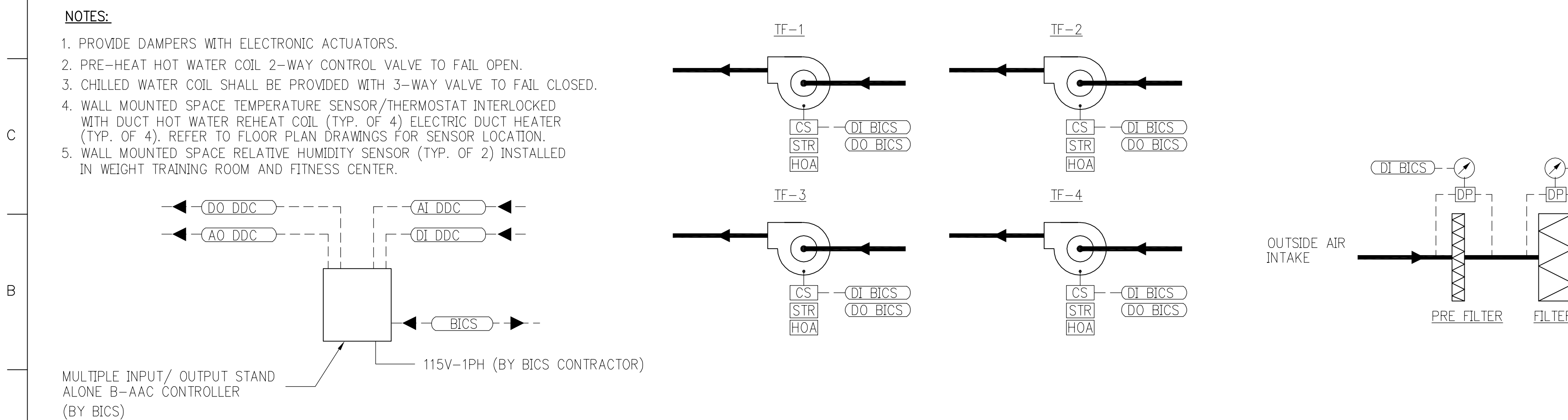
**K1 CHILLED WATER SYSTEM SCHEMATIC CONTROL DIAGRAM**

N.T.S.



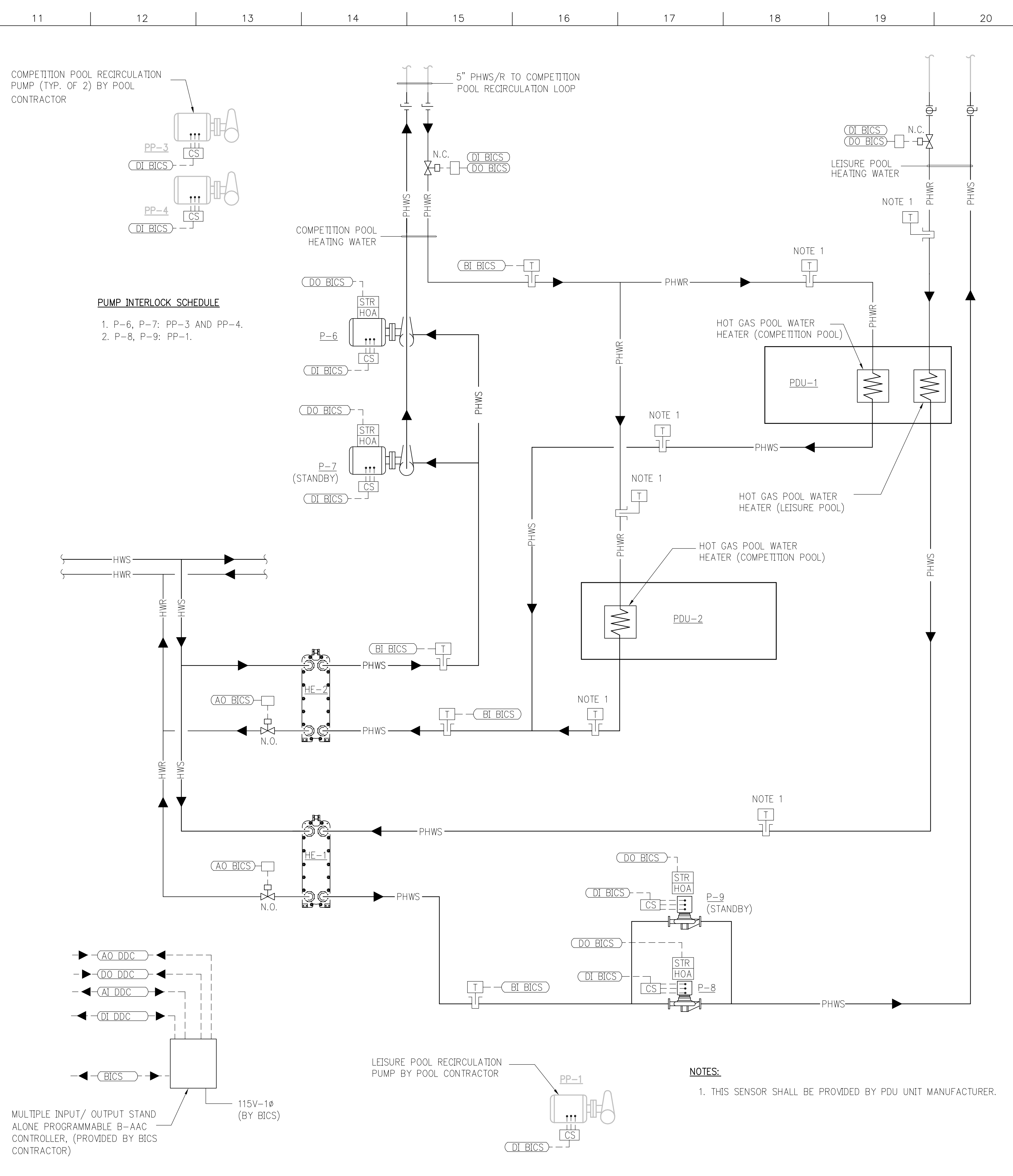
**D1 AHU-1 CONTROL FLOW DIAGRAM (CONSTANT AIR VOLUME)**

N.T.S.



**D1 AHU-2 CONTROL FLOW DIAGRAM (HEAT RECOVERY, CONSTANT AIR VOLUME)**

N.T.S.



**F1 POOL WATER HEATING SYSTEM SCHEMATIC CONTROL DIAGRAM**

N.T.S.

**GENERAL NOTES**

- FOR CONTROL SYMBOLS & ABBREVIATIONS REFER TO DWG. H403.
- FOR ADDITIONAL SYMBOLS & ABBREVIATIONS REFER TO DWG. H001.

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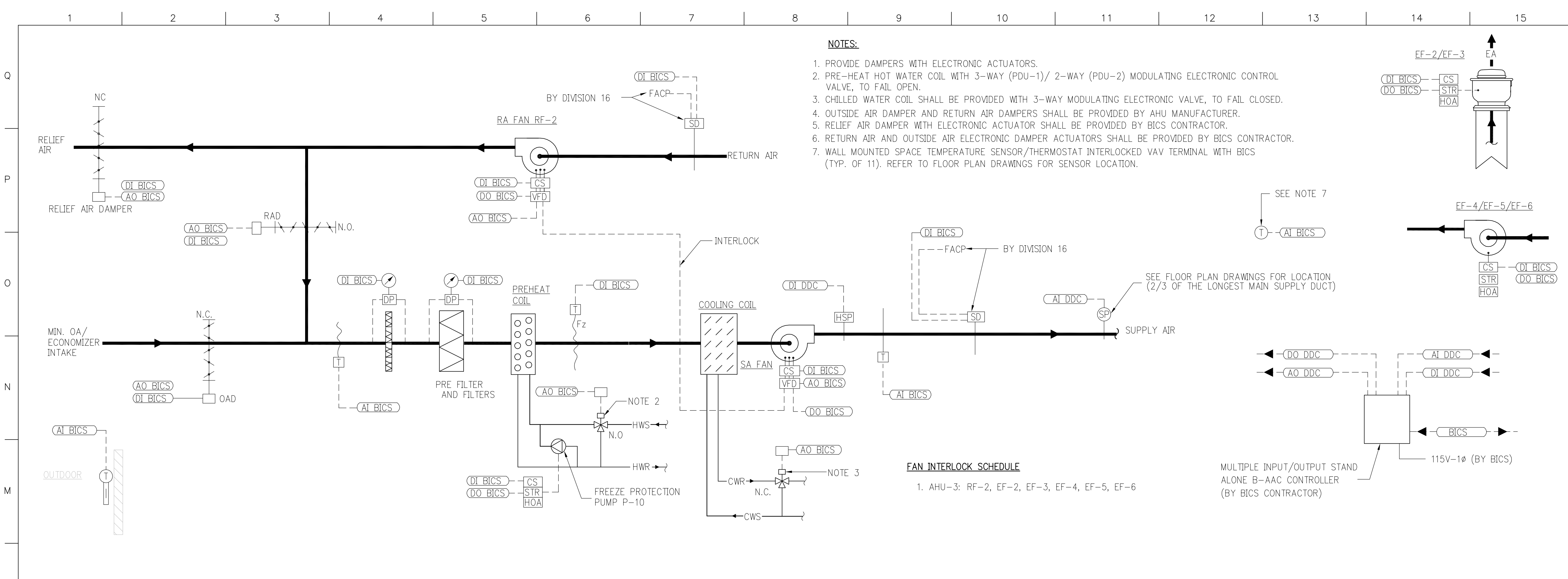
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drawing title: **CONTROL DRAWING SHEET # 2**

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drawn by	GN	CAD file no.	HVAC/PL01/H404.DWG
checked by	KE	drawing no.	
date	02/10/2003		
scale	N.T.S.		

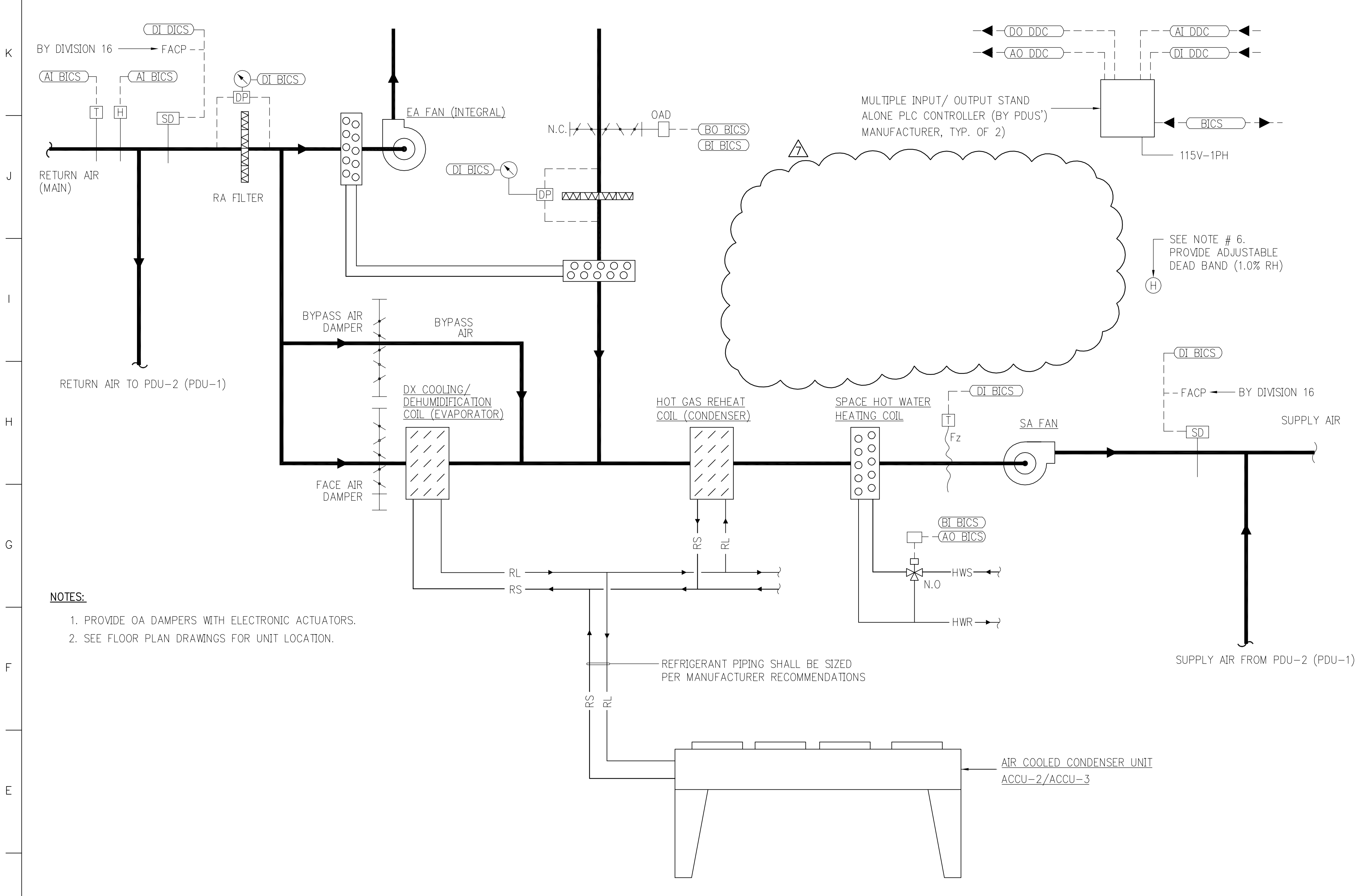
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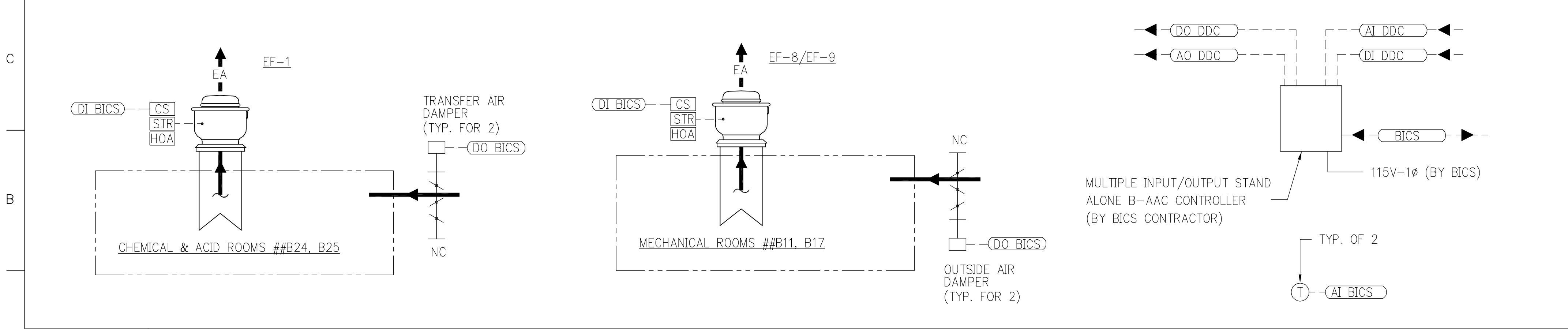
**F1 AHU-3 CONTROL FLOW DIAGRAM (VARIABLE AIR VOLUME)**

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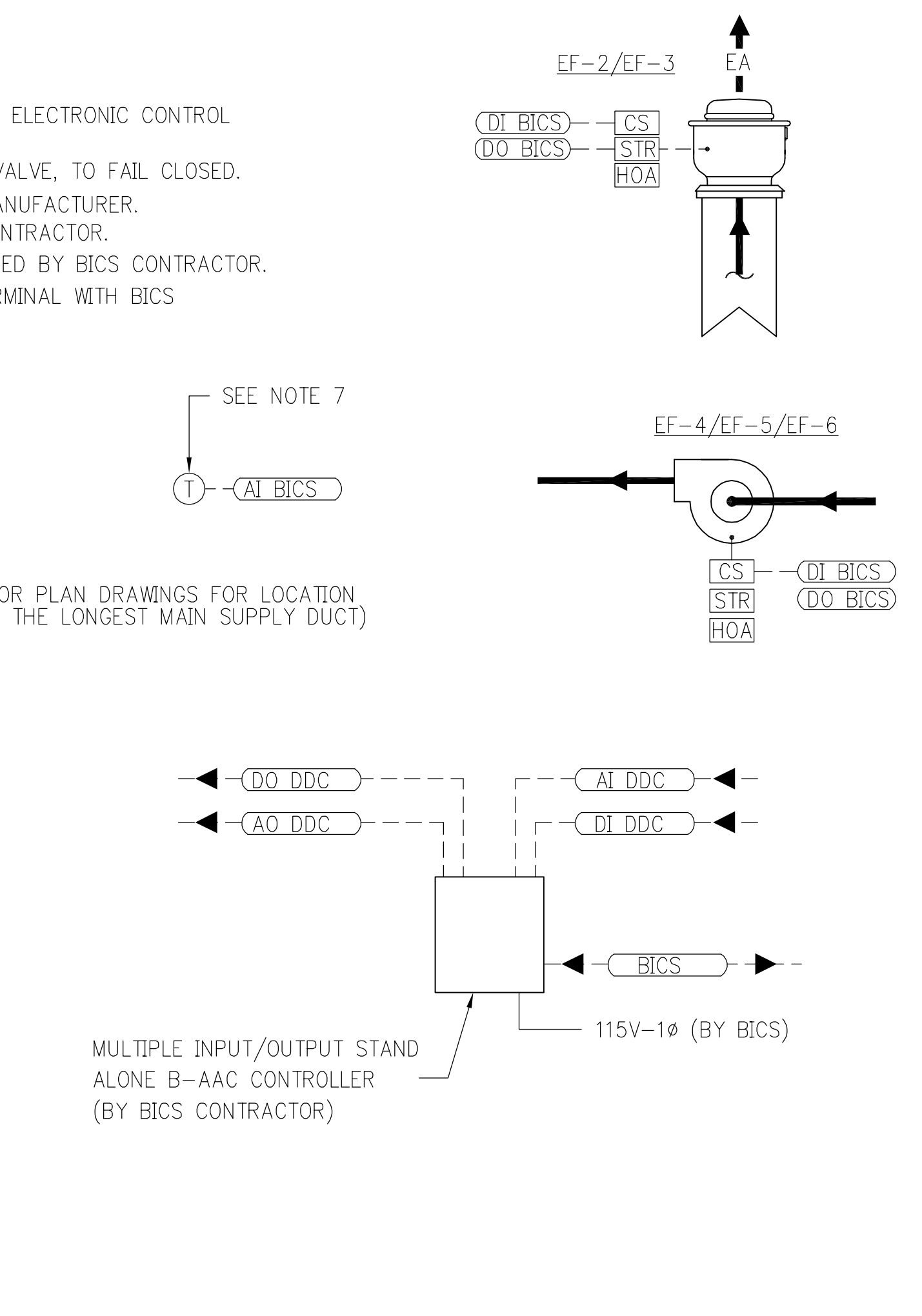
**D1 PDU-1/PDU-2 AIR SIDE REHUMIDIFICATION CONTROL FLOW DIAGRAM (CONSTANT AIR VOLUME)**

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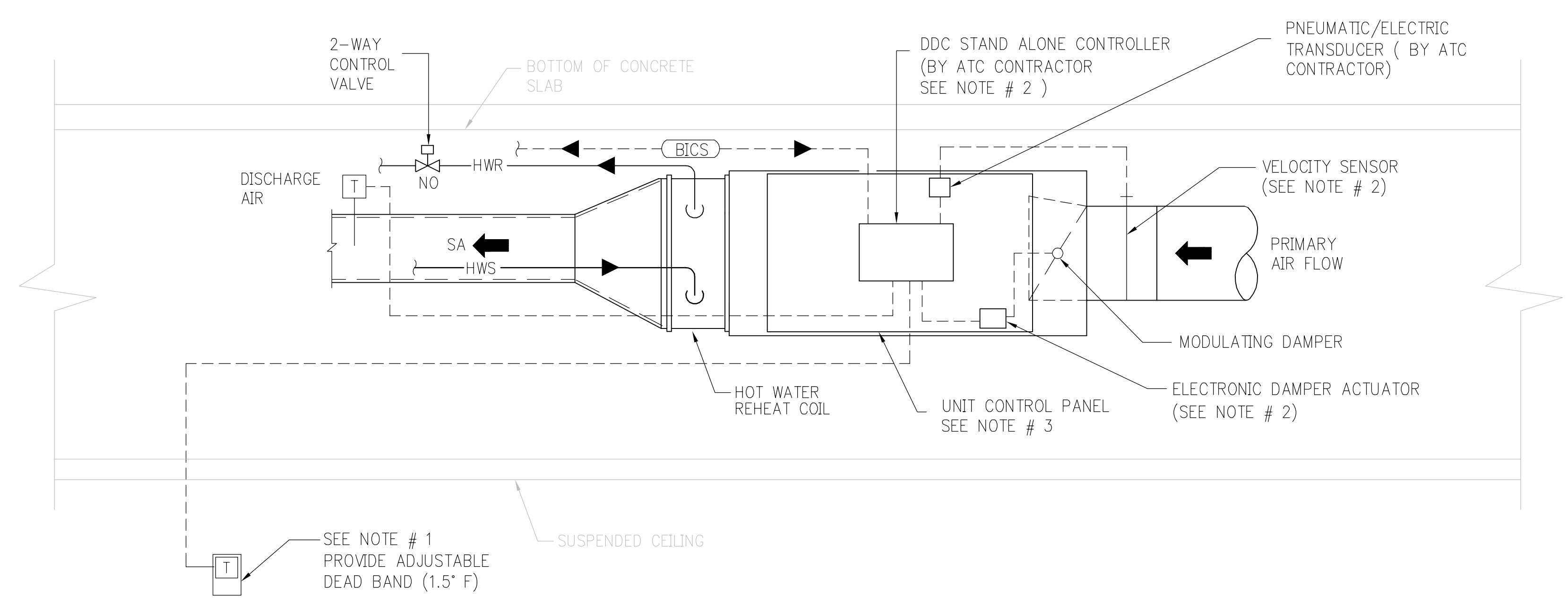
**A1 EXHAUST FANS CONTROL DIAGRAM**

N.T.S.



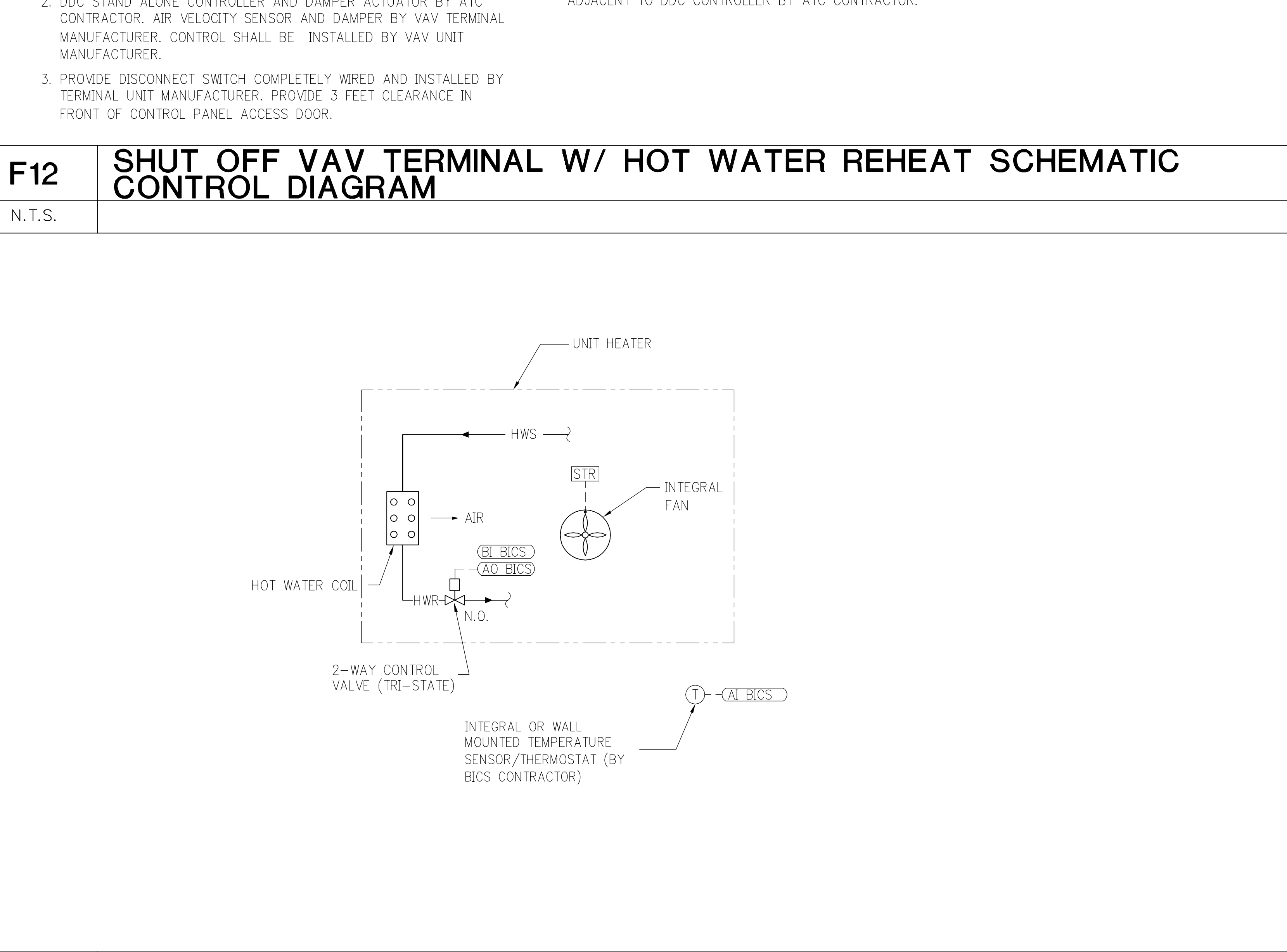
**F12 SHUT OFF VAV TERMINAL W/ HOT WATER REHEAT SCHEMATIC CONTROL DIAGRAM**

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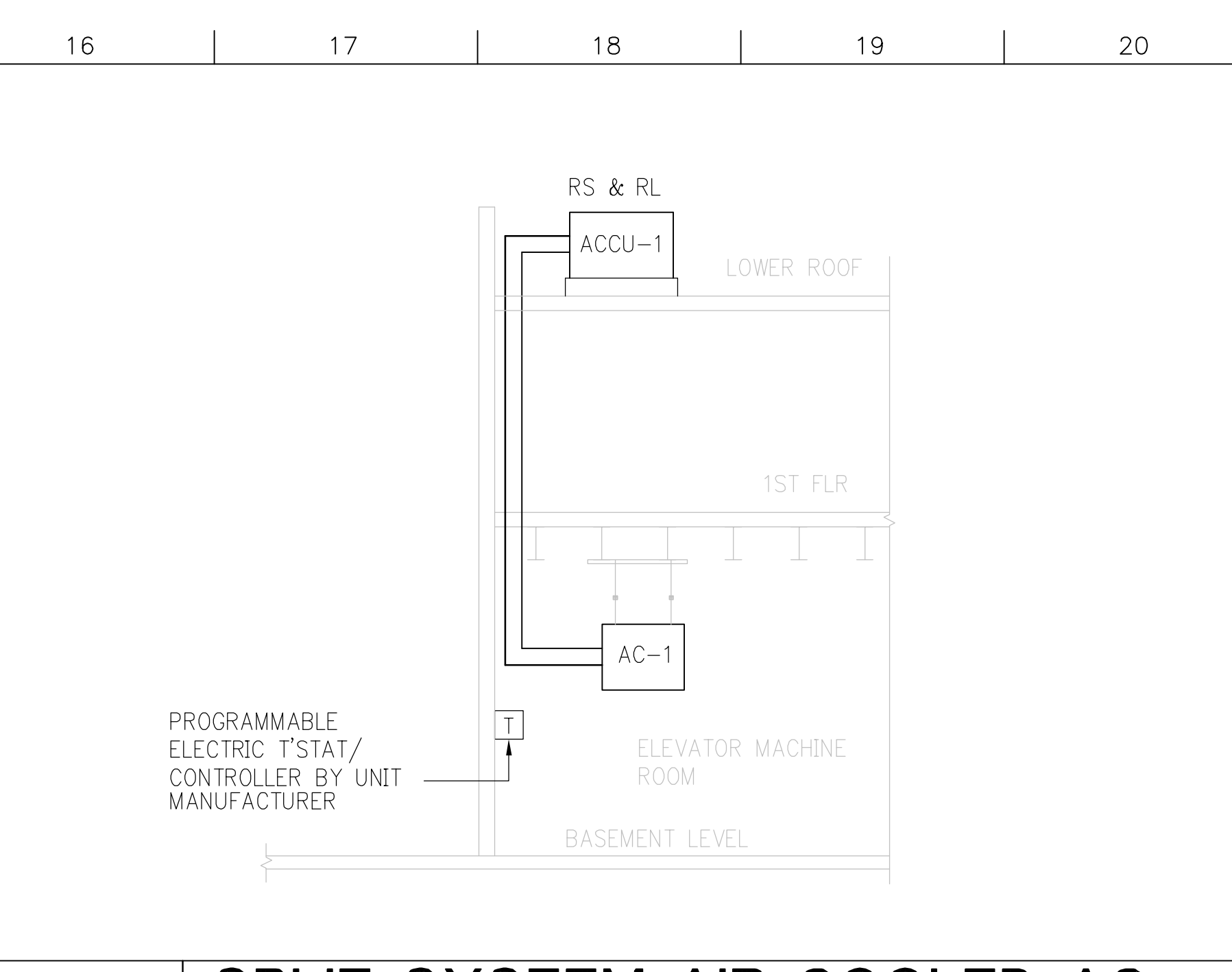
**F12 SHUT OFF VAV TERMINAL W/ HOT WATER REHEAT SCHEMATIC CONTROL DIAGRAM**

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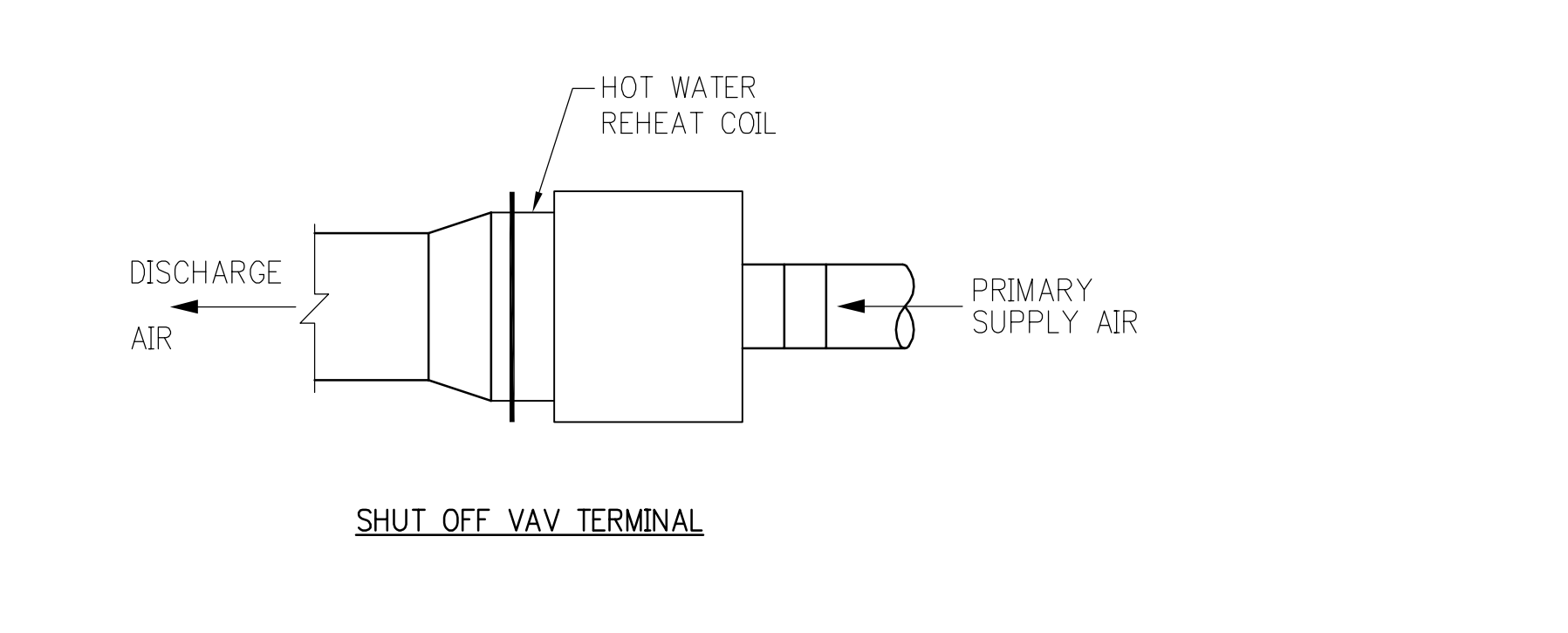
**A12 HOT WATER UNIT HEATER CONTROL DIAGRAM**

N.T.S.



**N16 SPLIT SYSTEM AIR COOLED AC UNIT CONTROL**

N.T.S.



**GENERAL NOTES**

- FOR CONTROL SYMBOLS & ABBREVIATIONS REFER TO DWG H403.
- FOR ADDITIONAL SYMBOLS & ABBREVIATIONS REFER TO DWG. H001.

**REVISED CONSTRUCTION DOCUMENT**

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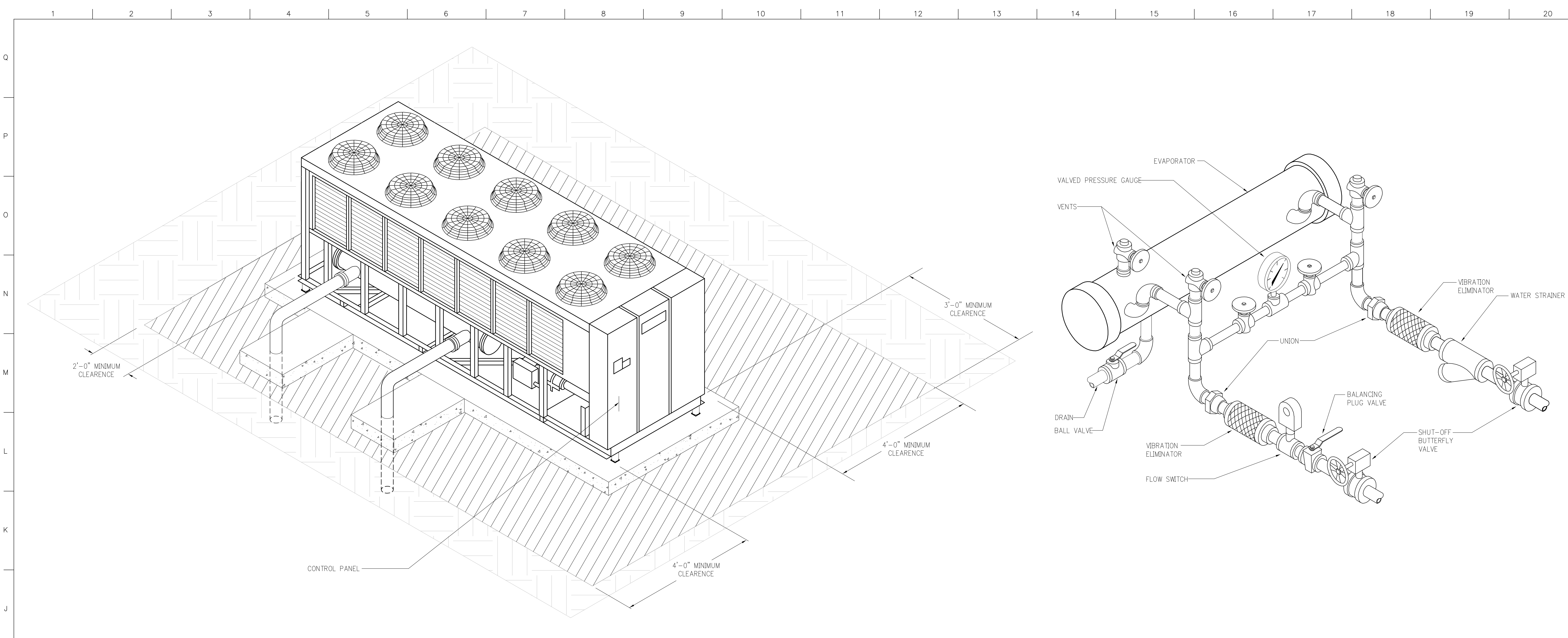
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drawing title: **CONTROL DRAWING SHEET # 3**

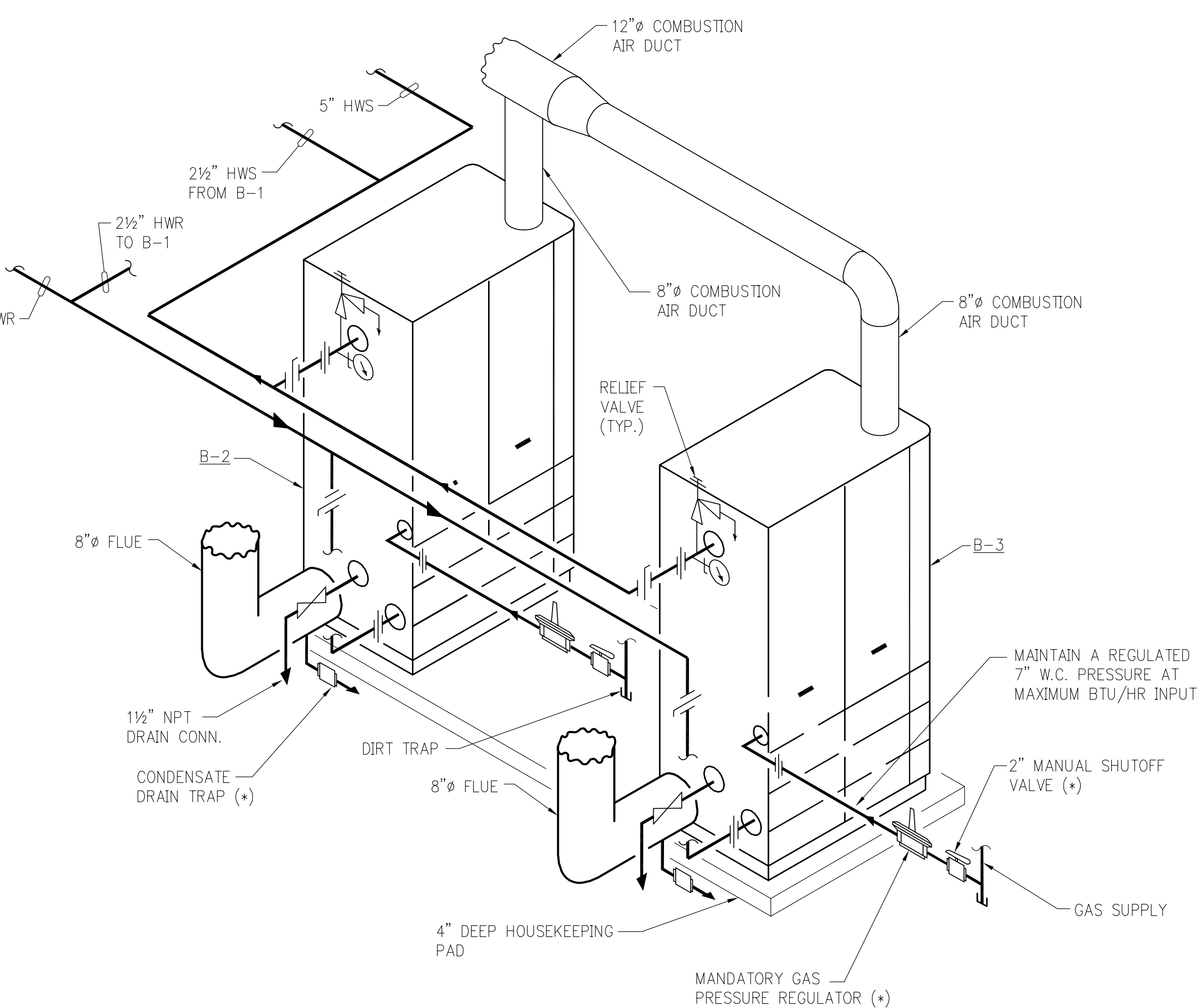
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checked by	KE	drawing no.	
date	02/10/2003	scale	<b>H405</b>
scale	N.T.S.		of





**11 AIR COOLED CHILLER DETAIL**

N.T.S.

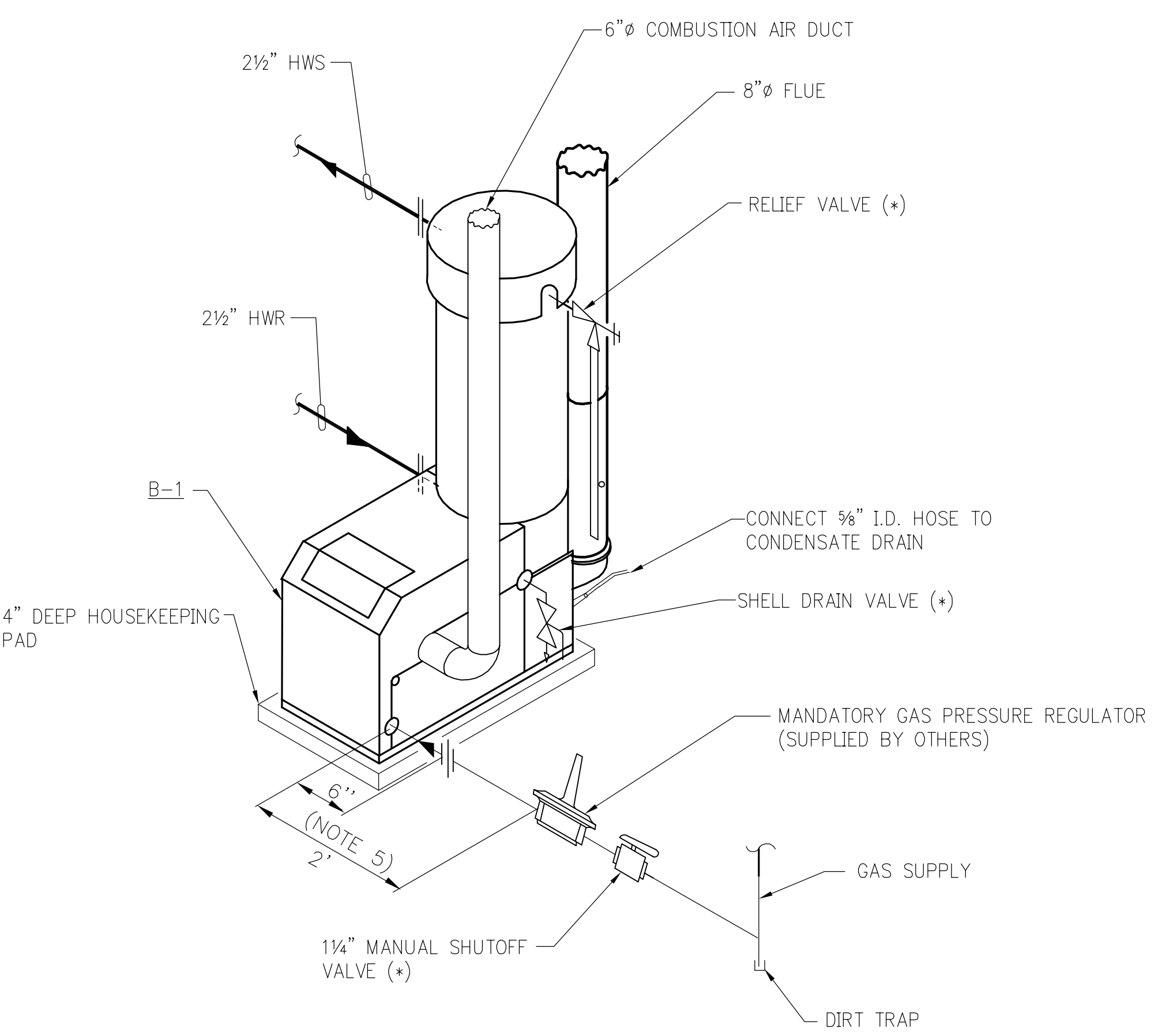


NOTES:

1. FOR ACTUAL SIZES AND LOCATIONS OF PIPING AND OTHER CONNECTIONS TO THE BOILER, SEE DWG H201.
2. SHELL DRAIN VALVE AND CONDENSATE DRAIN TRAP SHOULD BE ARRANGED TO PERMIT THE FLUIDS TO DRAIN FREELY, BY GRAVITY, TO A CONVENIENT FLOOR DRAIN. RELIEF VALVE SHOULD BE PIPED VERTICALLY TO A HEIGHT 18" ABOVE FLOOR.
3. ALL (+) ITEMS ARE INCLUDED SEPARATELY IN SHIPMENT FROM FACTORY.
4. LOCATE WATER INLET AND OUTLET FITTINGS (1/2-3/4" UNIONS, ELBOWS, ETC.) A MINIMUM OF 6" FROM BOILER FITTINGS TO PREVENT INTERFERENCE WITH REMOVAL OF BOILER PANELS AND COVERS. ALL PIPING AND ELECTRIC CONNECTIONS (SERVICE SWITCHES, CONDUIT BOXES) SHOULD LIKEWISE BE 6" AWAY FROM SIDE PANELS.
5. THIS IS A TYPICAL INSTALLATION DRAWING. LOCAL CODES AND AUTHORITIES SHOULD BE CONSULTED.

**A1 B-2 AND B-3 CONNECTION DETAIL**

N.T.S.

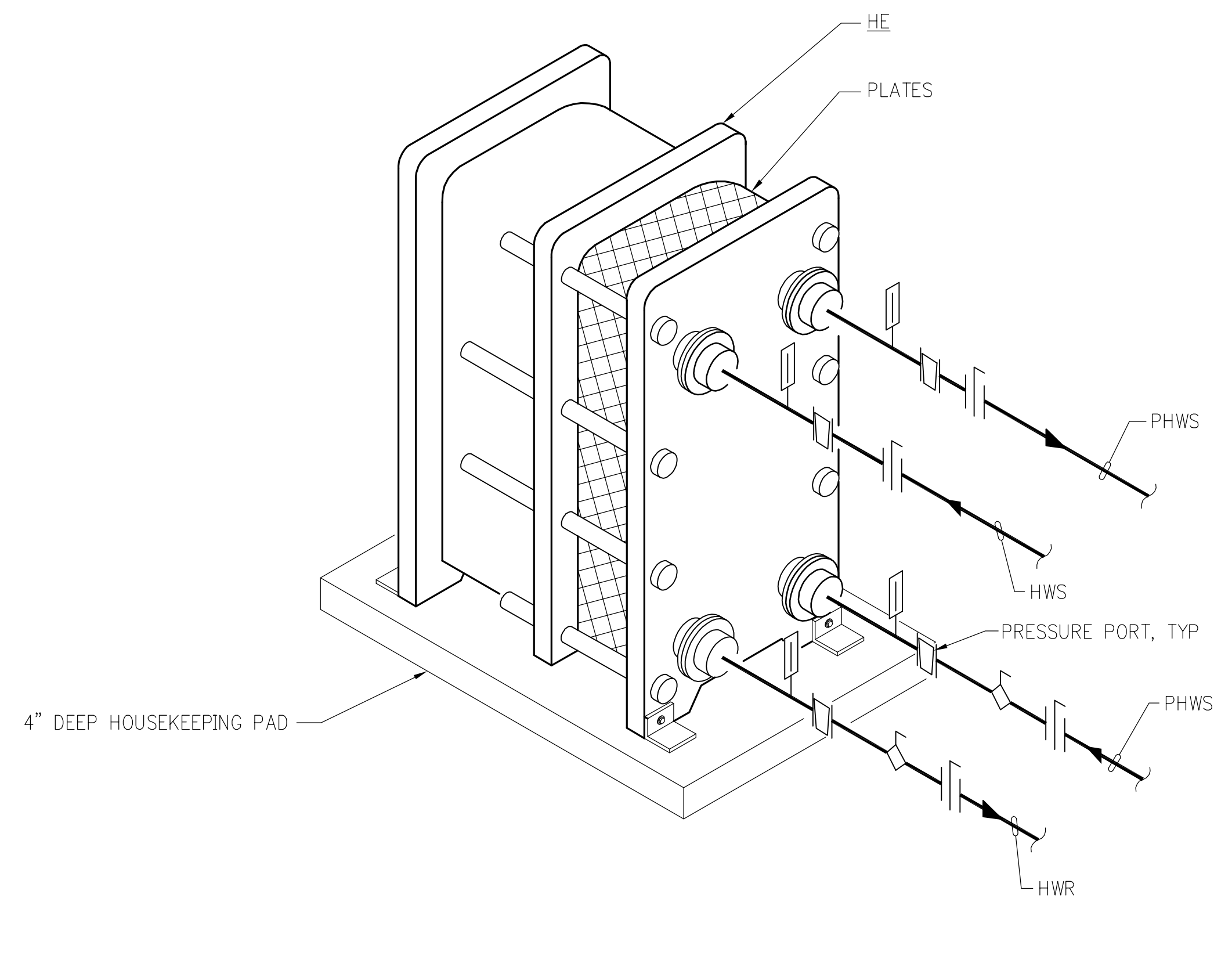


NOTES:

1. THIS IS A TYPICAL INSTALLATION DRAWING. LOCAL CODES AND AUTHORITIES SHOULD BE CONSULTED.
2. ALL (+) ITEMS ARE INCLUDED SEPARATELY IN SHIPMENT.
3. FOR ACTUAL SIZES AND LOCATIONS OF PIPING AND OTHER CONNECTIONS TO THE BOILER, SEE DWG H201.
4. SHELL DRAIN VALVE AND CONDENSATE HOSE SHOULD BE ARRANGED TO PERMIT THE FLUIDS TO DRAIN FREELY, BY GRAVITY, TO A CONVENIENT FLOOR DRAIN. RELIEF VALVE SHOULD BE PIPED VERTICALLY TO A HEIGHT 18" ABOVE FLOOR.
5. LOCATE WATER INLET AND OUTLET FITTINGS (1/2-3/4" UNIONS, ELBOWS, ETC.) AND ALL PIPING A MINIMUM OF 6" FROM BOILER FITTINGS TO PREVENT INTERFERENCE WITH REMOVAL OF BOILER PANELS AND COVERS. LOCATE GAS PRESSURE REGULATOR A MINIMUM OF 2' FROM BOILER.
6. SEE PRODUCT SPECIFICATION FOR PRESSURE DROPS AT VARIOUS FLOWS.

**A8 B-1 CONNECTION DETAIL**

N.T.S.



NOTES:

1. THIS IS A TYPICAL INSTALLATION DRAWING. LOCAL CODES AND AUTHORITIES SHOULD BE CONSULTED.
2. FOR ACTUAL SIZES AND LOCATIONS OF PIPING AND OTHER CONNECTIONS TO THE BOILER, SEE DWG H201 AND H401.
3. SEE PRODUCT SPECIFICATION FOR PRESSURE DROPS AT VARIOUS FLOWS.

**A14 HEAT EXCHANGER CONNECTION DETAIL**

N.T.S.

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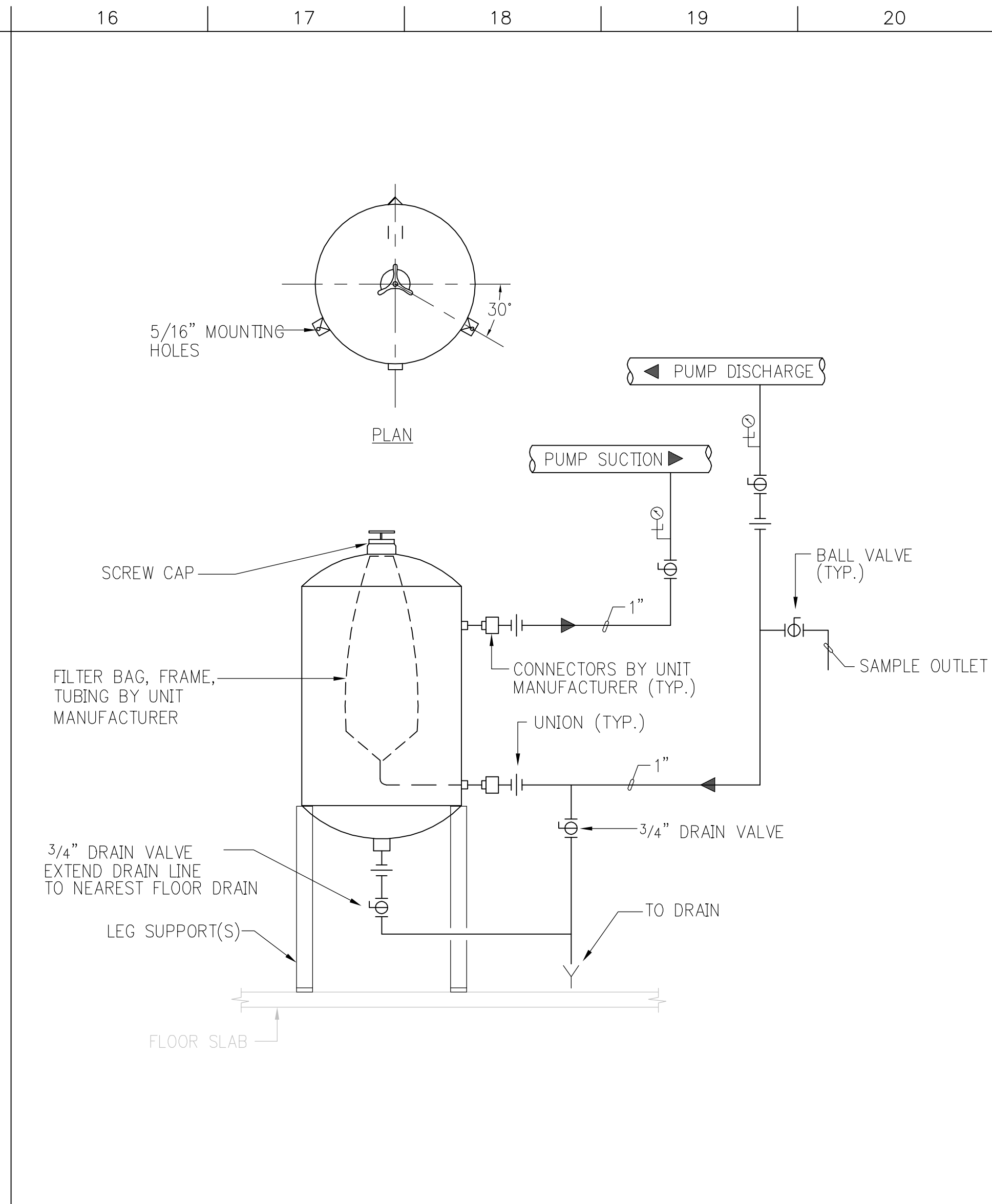
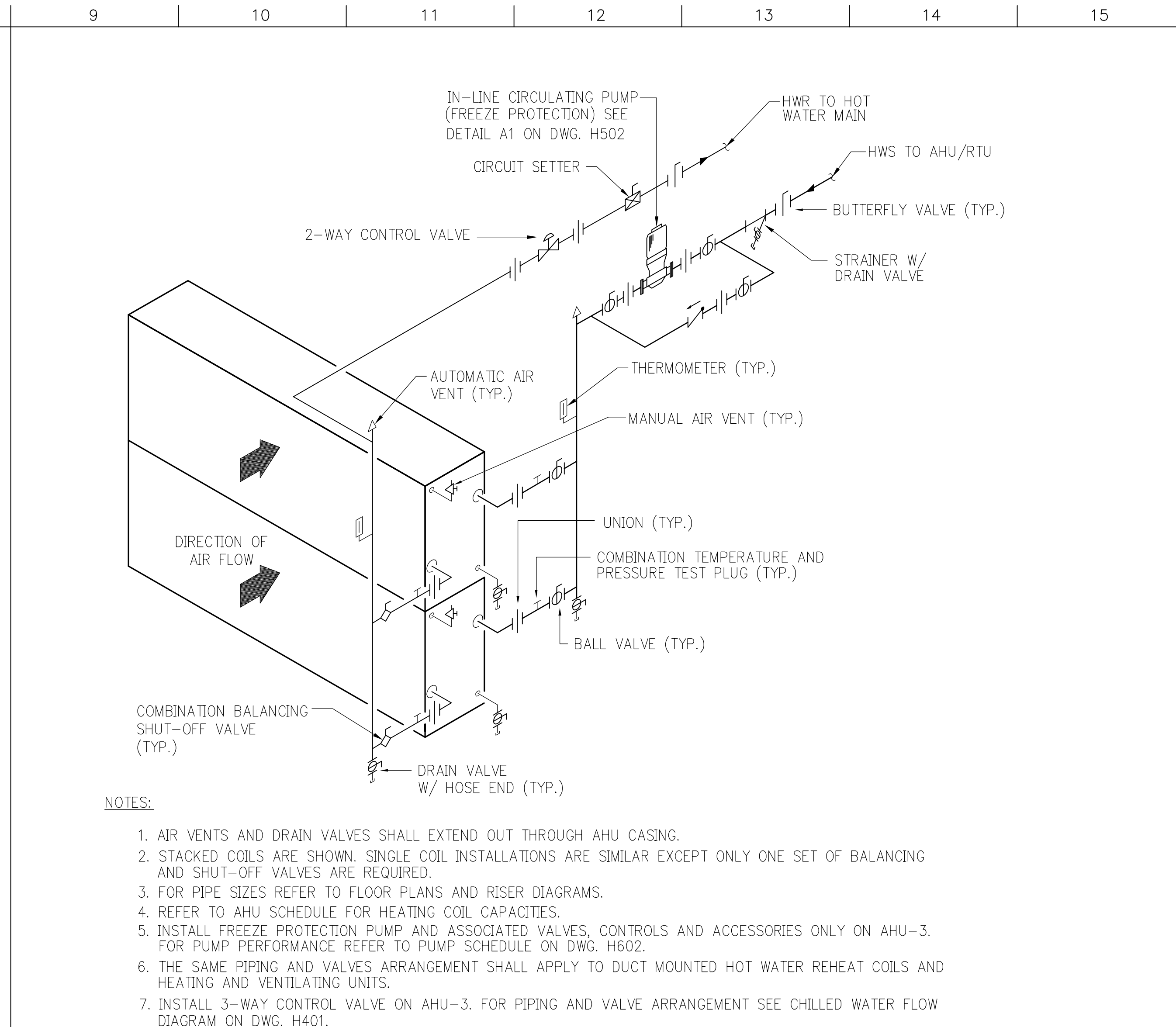
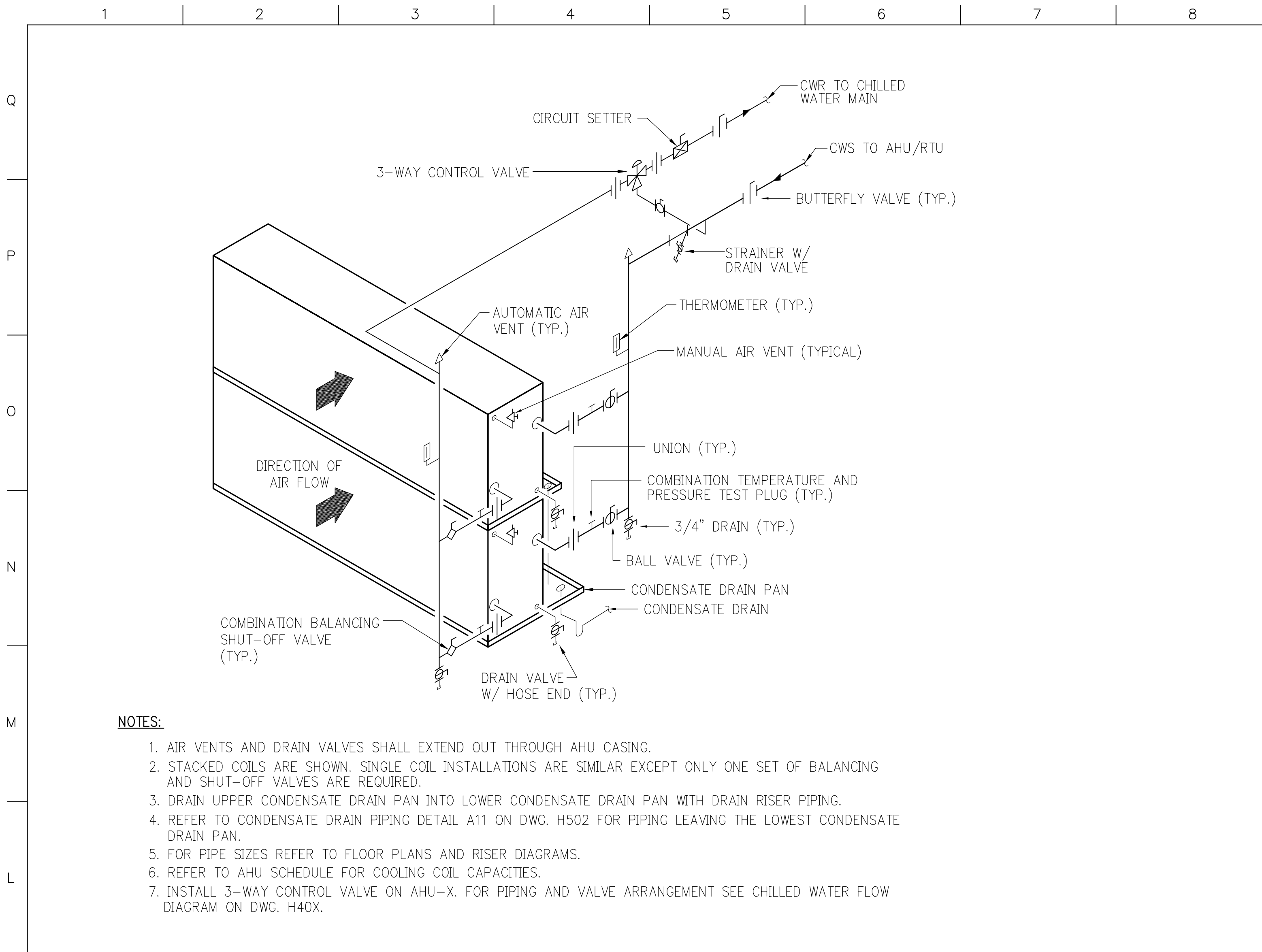
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drawing title	<b>DETAIL</b>
designed by	GN
drawn by	GN
checked by	KE
date	02/10/2003
scale	N.T.S.
project no.	2001038.00
CAD file no.	HVEC/PLOT/H501.DWG
drawing no.	
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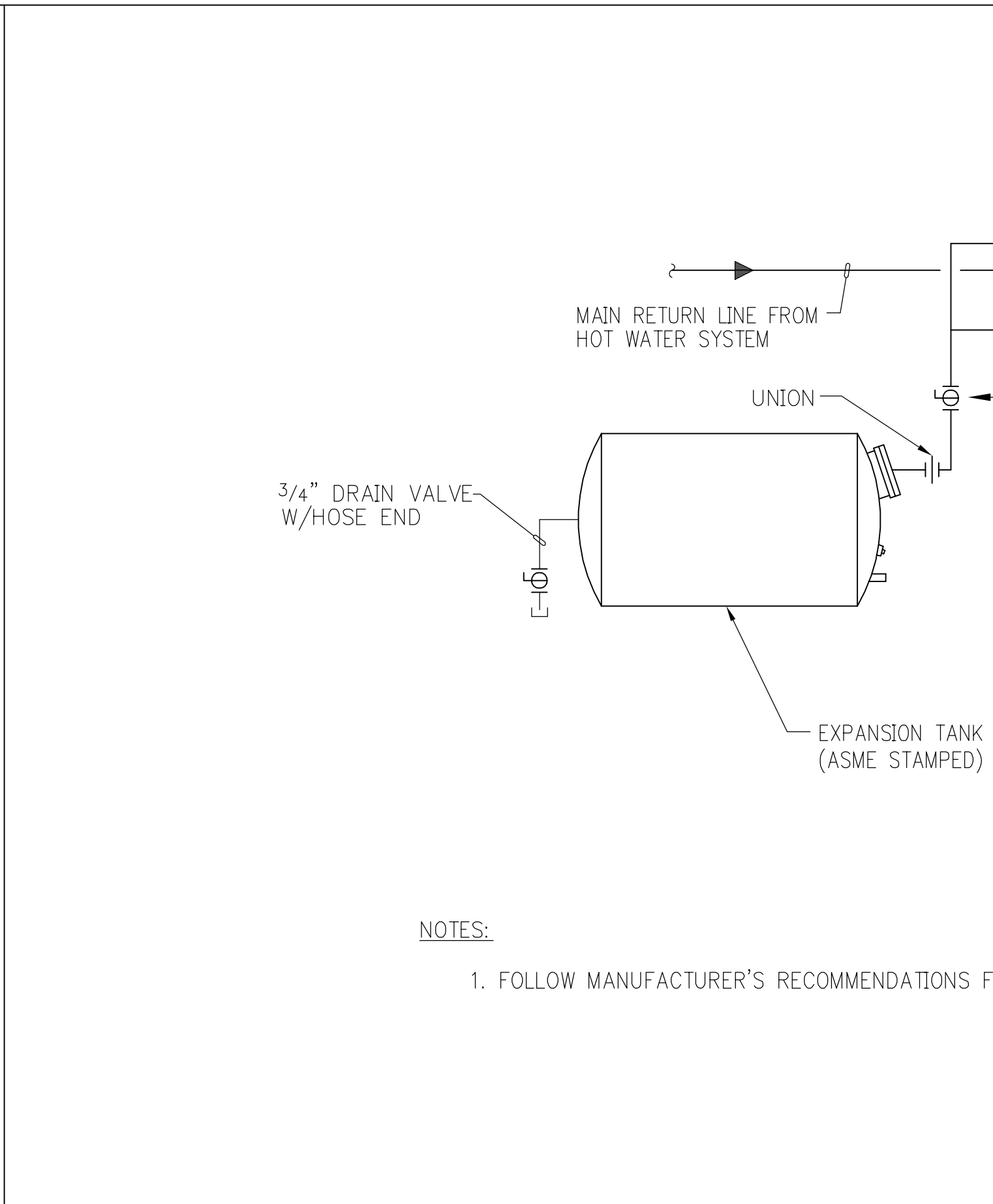
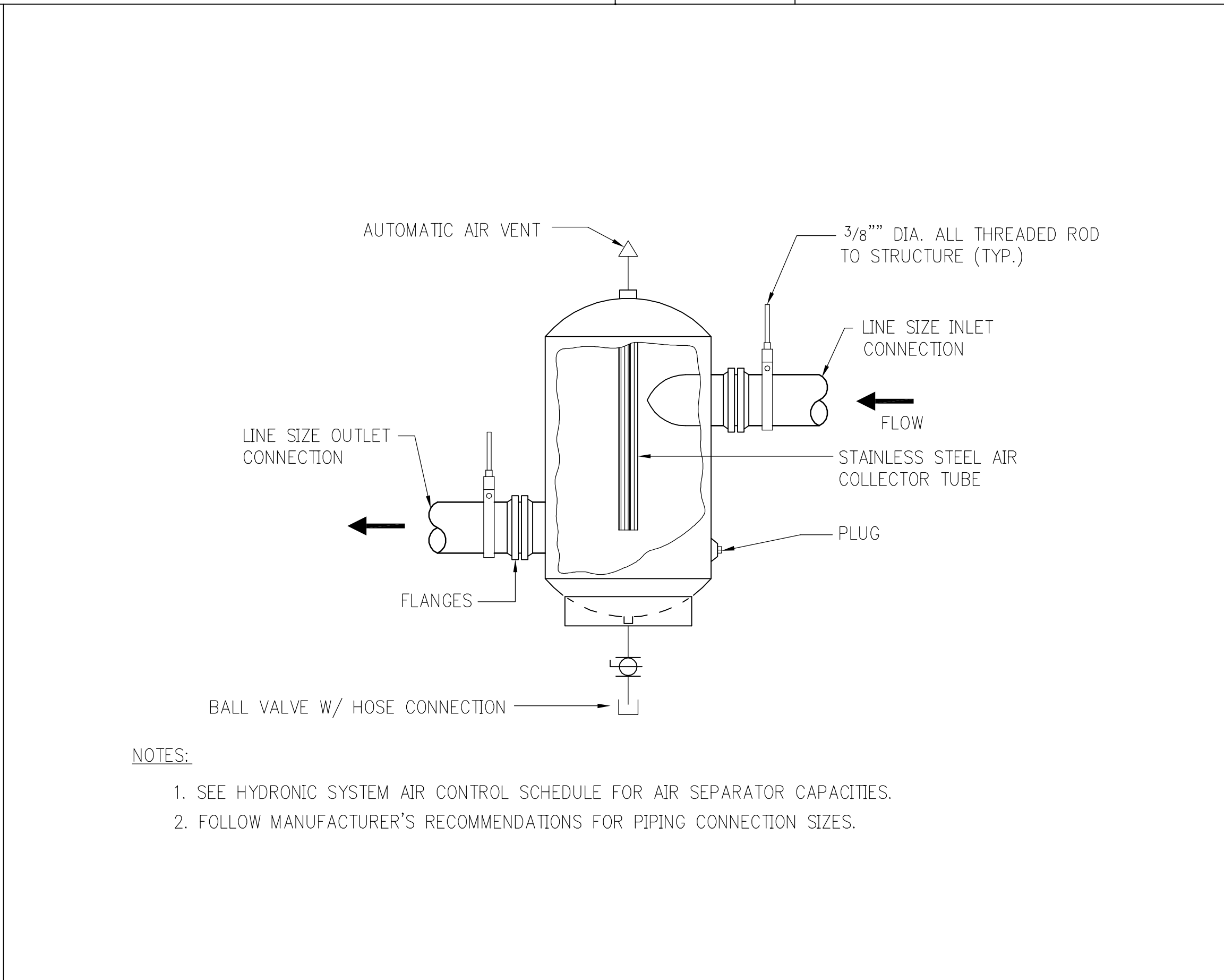
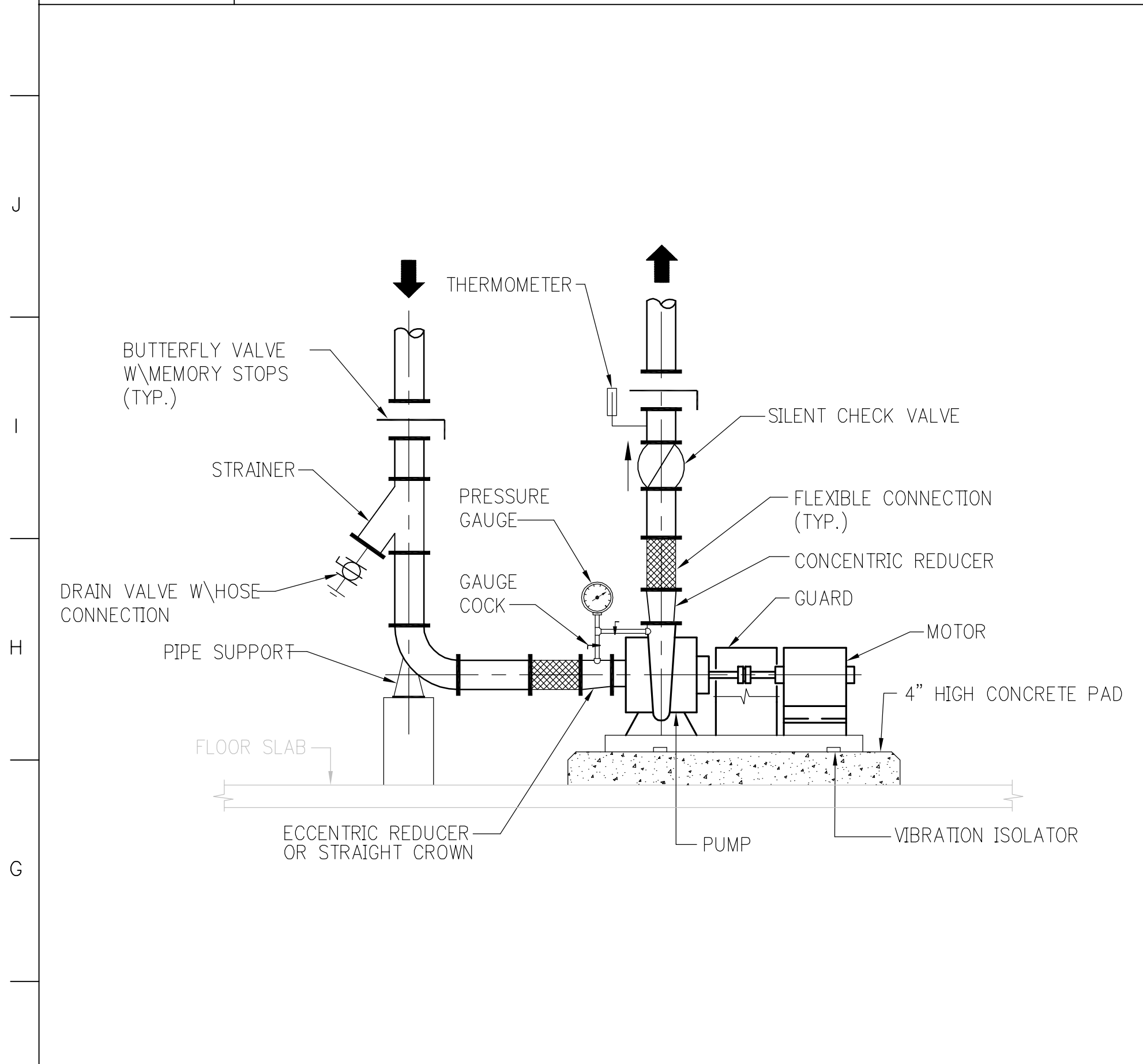




**K1 TYPICAL CHILLED WATER COOLING COIL PIPING DETAIL**  
N.T.S.

**K9 TYPICAL HOT WATER PREHEAT COIL PIPING DETAIL**  
N.T.S.

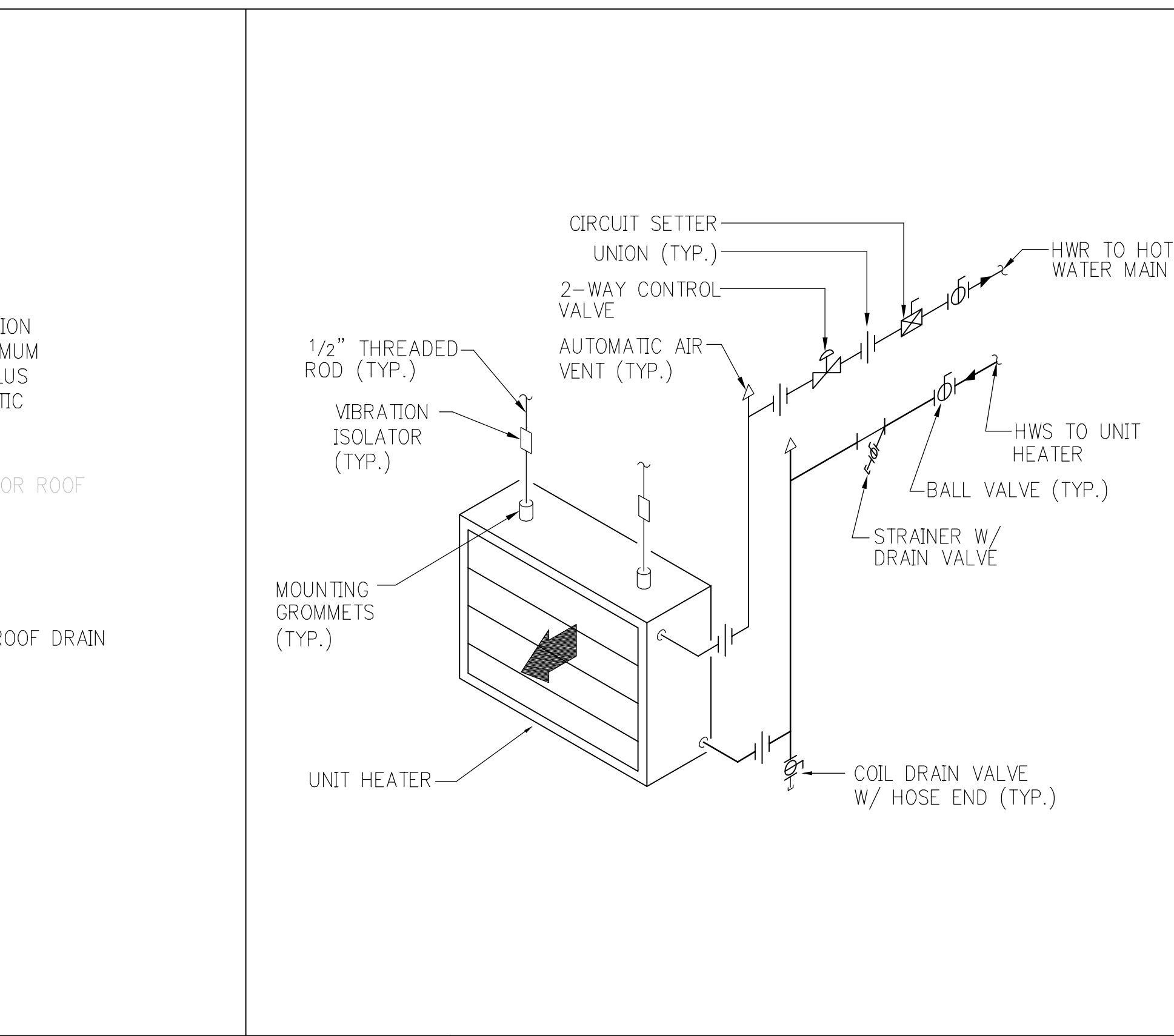
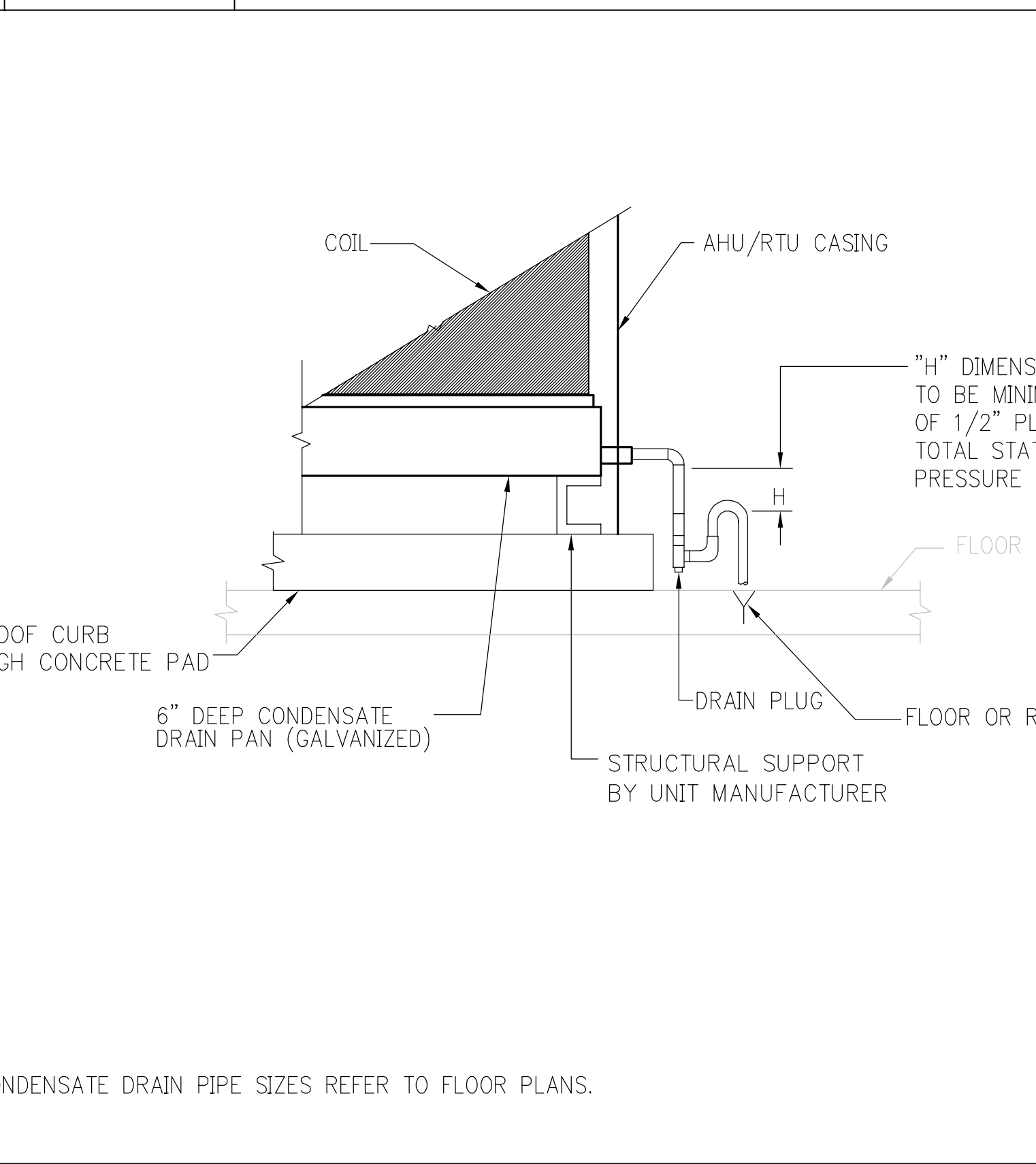
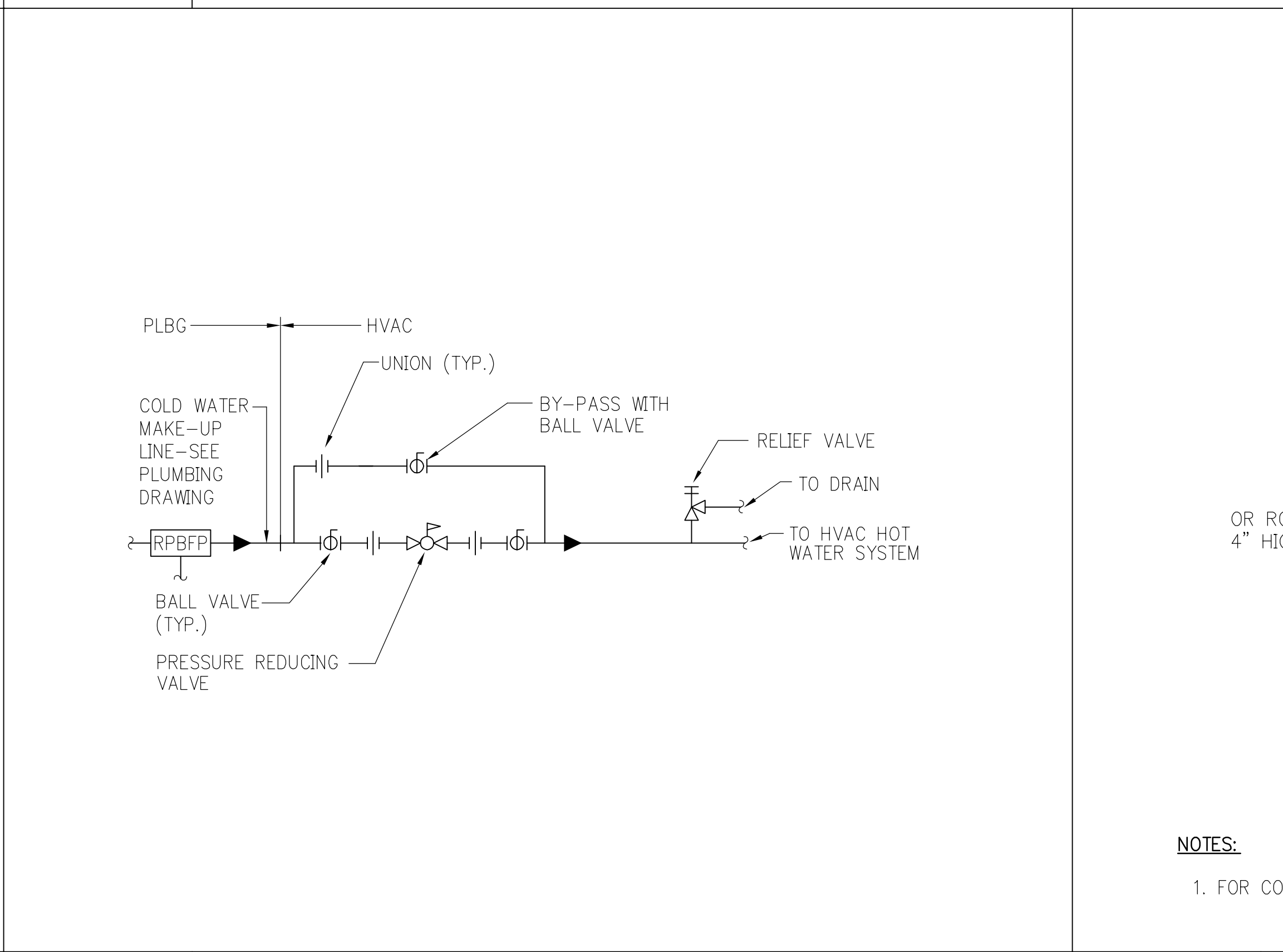
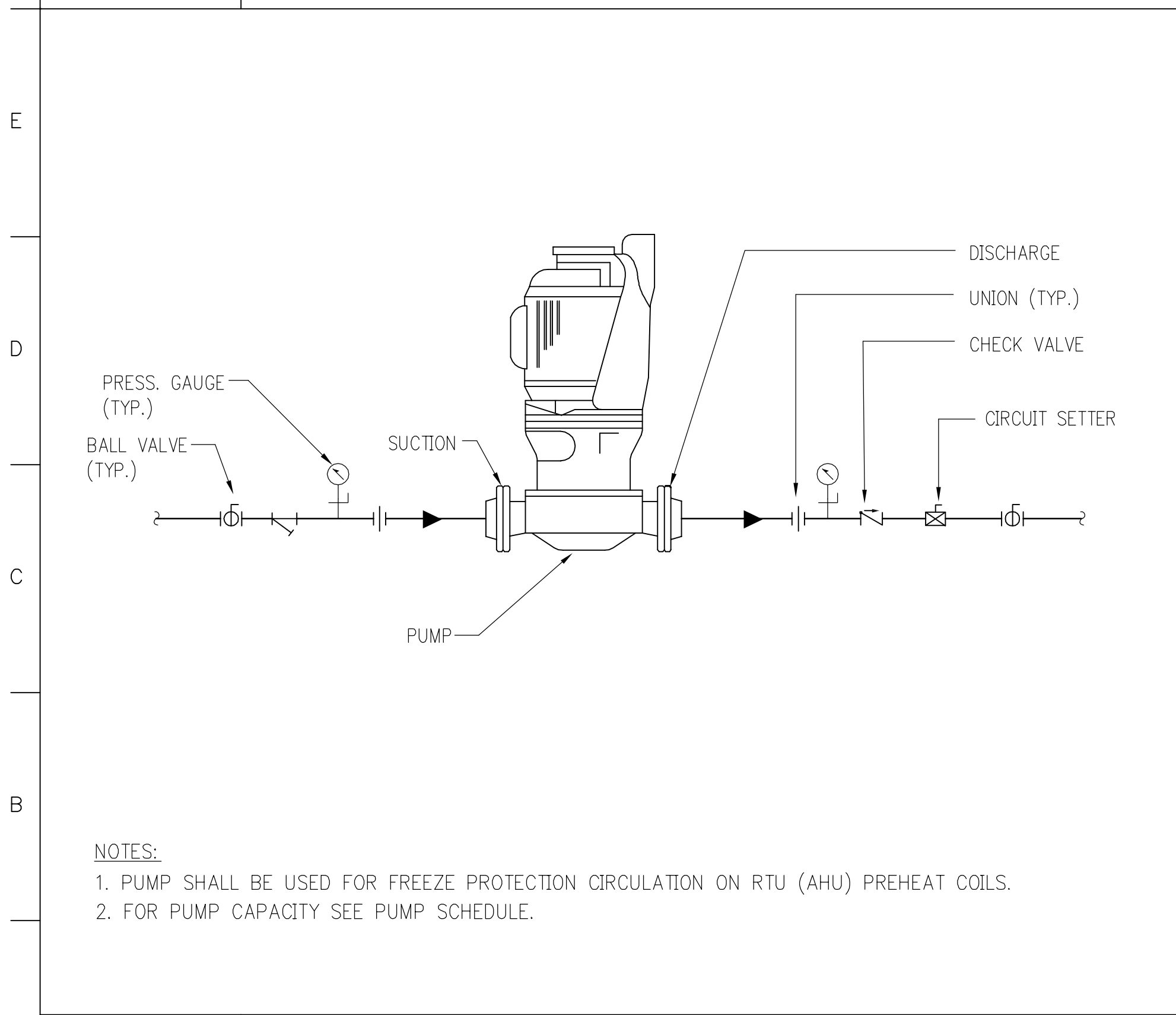
**K16 BY-PASS CHEMICAL FEEDER DETAIL**  
N.T.S.



**F1 END SUCTION PUMP DETAIL**  
N.T.S.

**F6 CENTRIFUGAL AIR SEPARATOR TANK DETAIL**  
N.T.S.

**F12 DIAPHRAGM TYPE EXPANSION TANK DETAIL**  
N.T.S.



**A1 IN-LINE CIRCULATING PUMP DETAIL**  
N.T.S.

**A6 MAKE-UP WATER PIPING DETAIL**  
N.T.S.

**A11 COIL CONDENSATE DRAIN PIPING DETAIL**  
N.T.S.

**A17 UNIT HEATER DETAIL**  
N.T.S.

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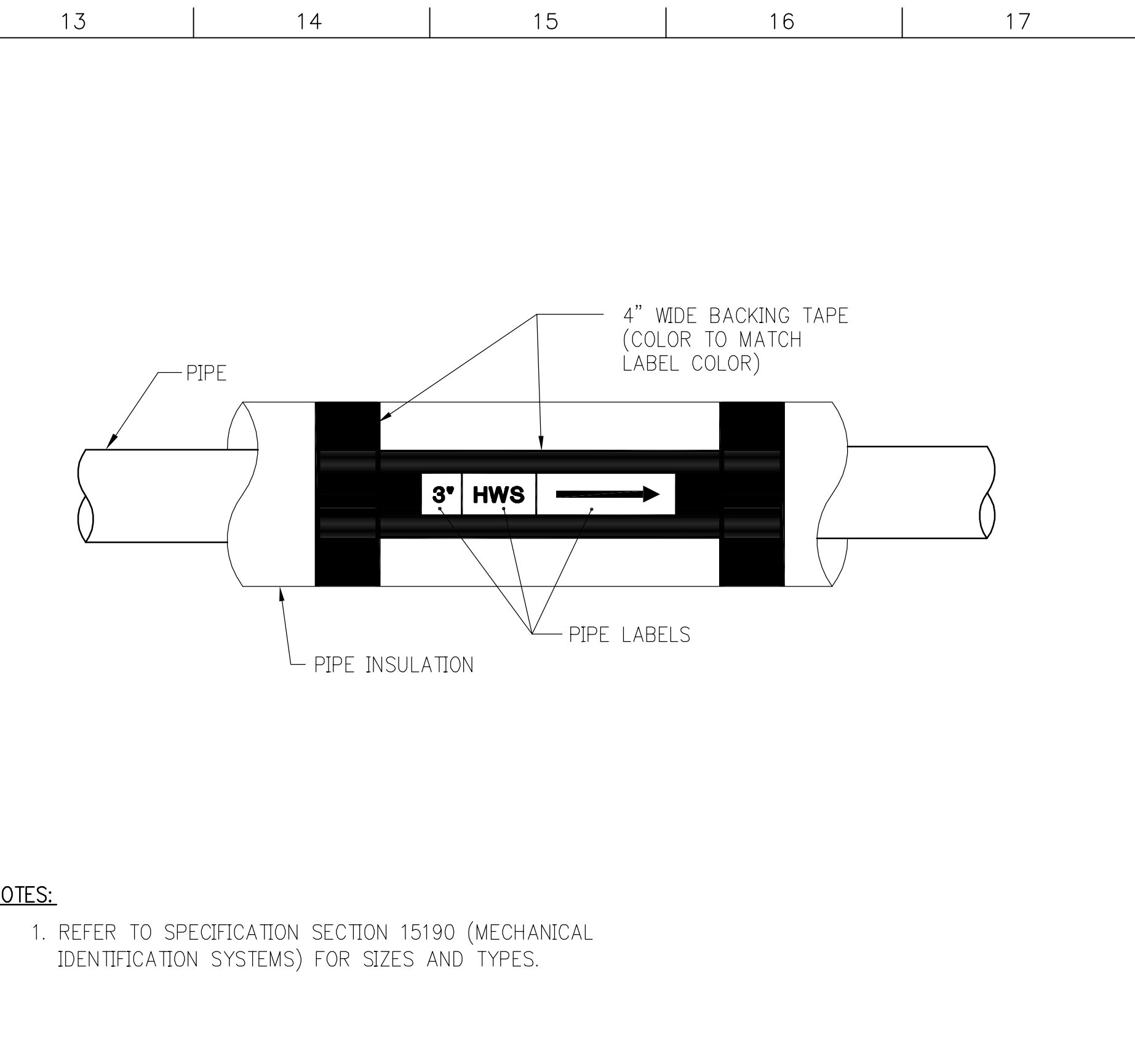
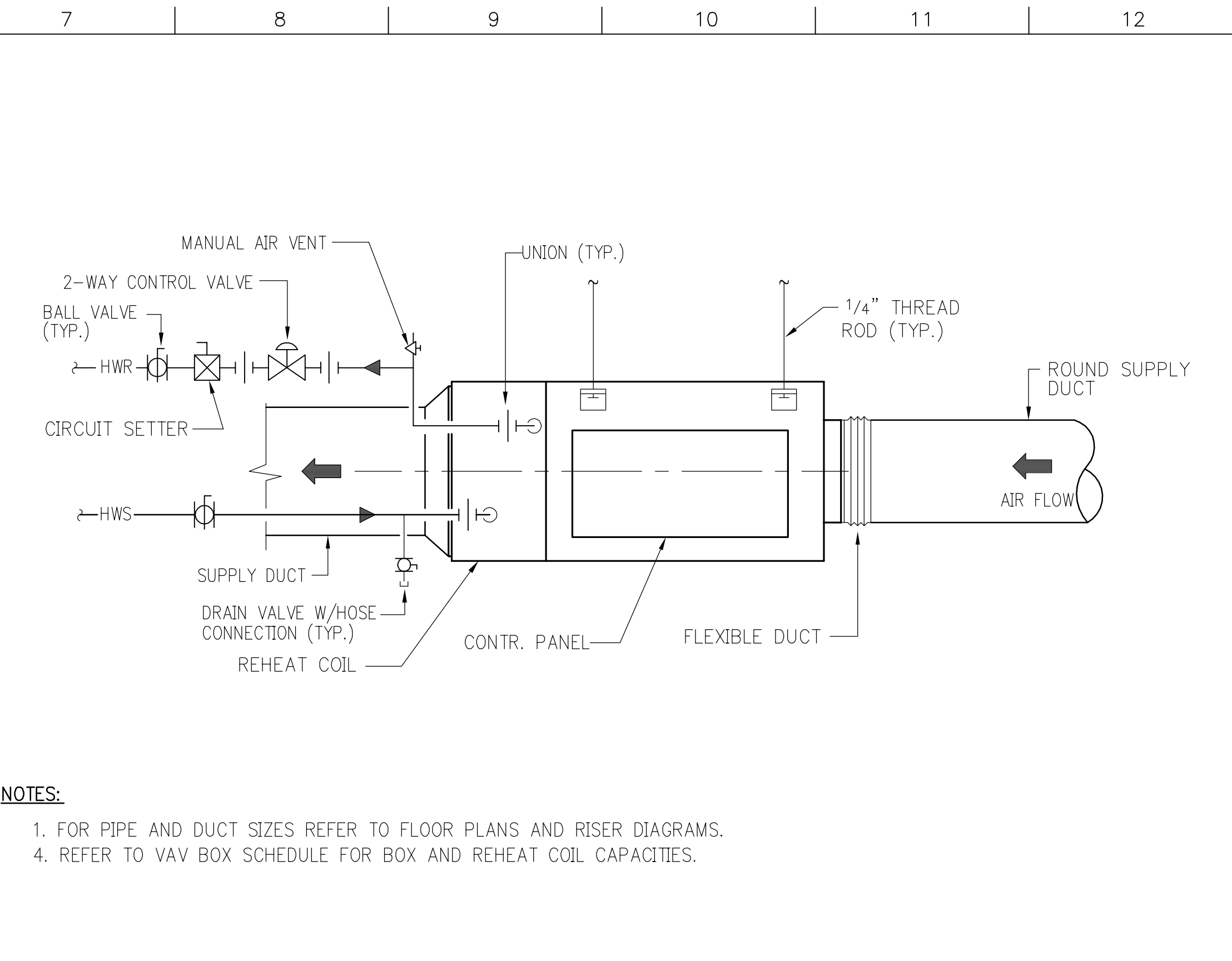
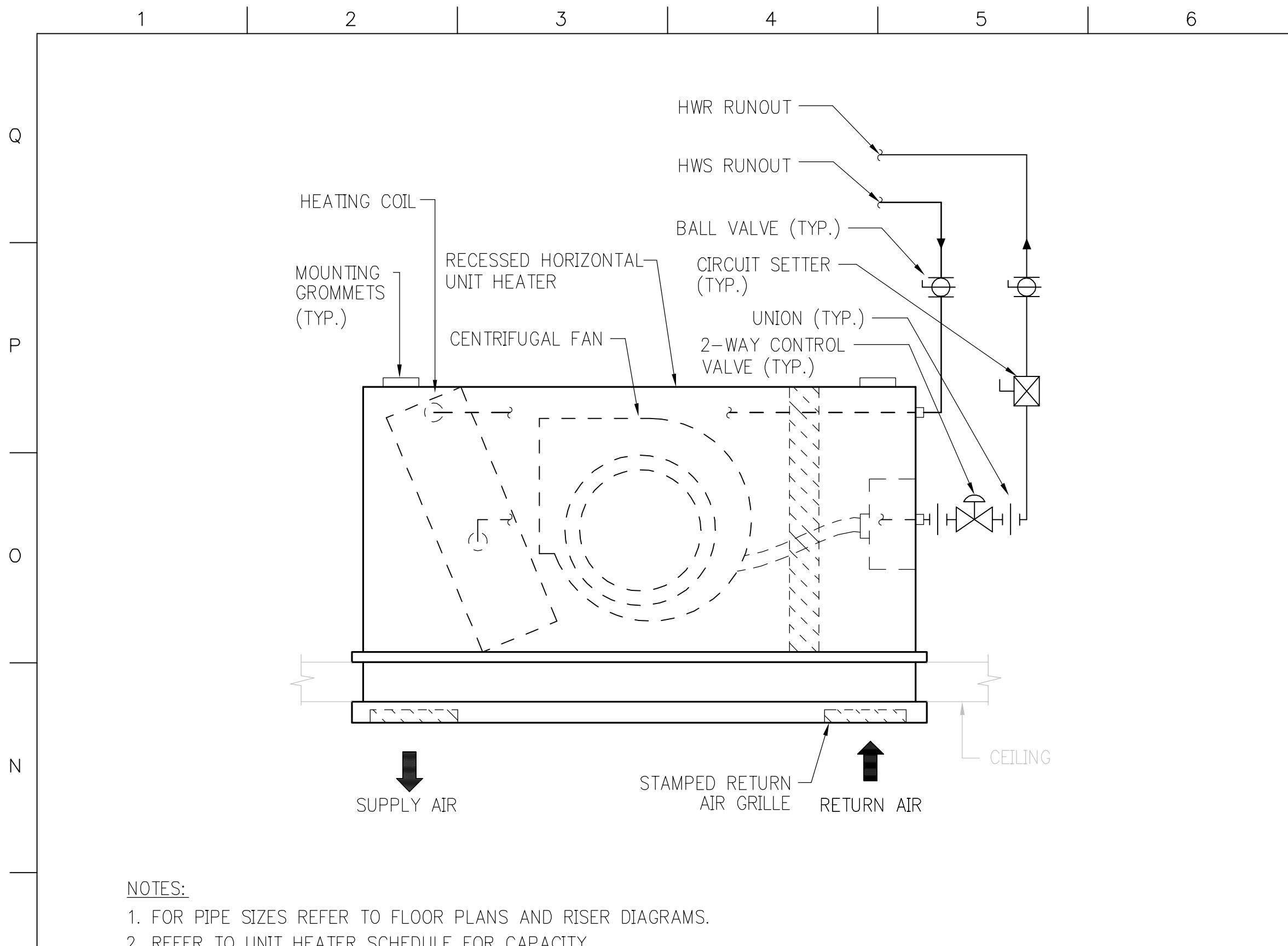
THE JAIR LYNCH COMPANIES ALPHA CORPORATION  
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drawing title: **DETAIL**

designed by	GN	project no.	201038.00
drawn by	GN	CAD file no.	HVEC/PLOT/H502.DWG
checked by	KE	drawing no.	
date	02/10/2003		
scale	N.T.S.		

**H502**

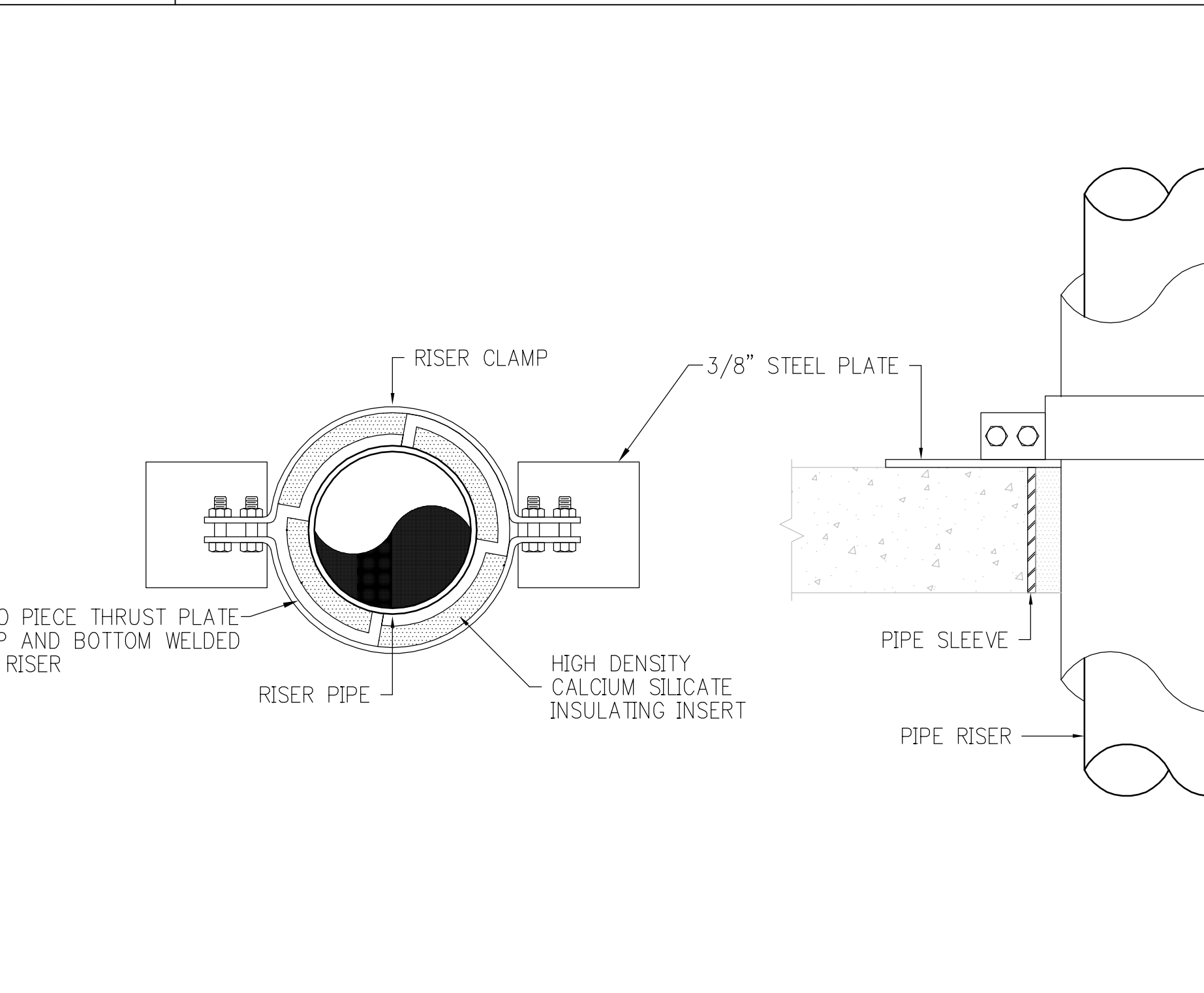
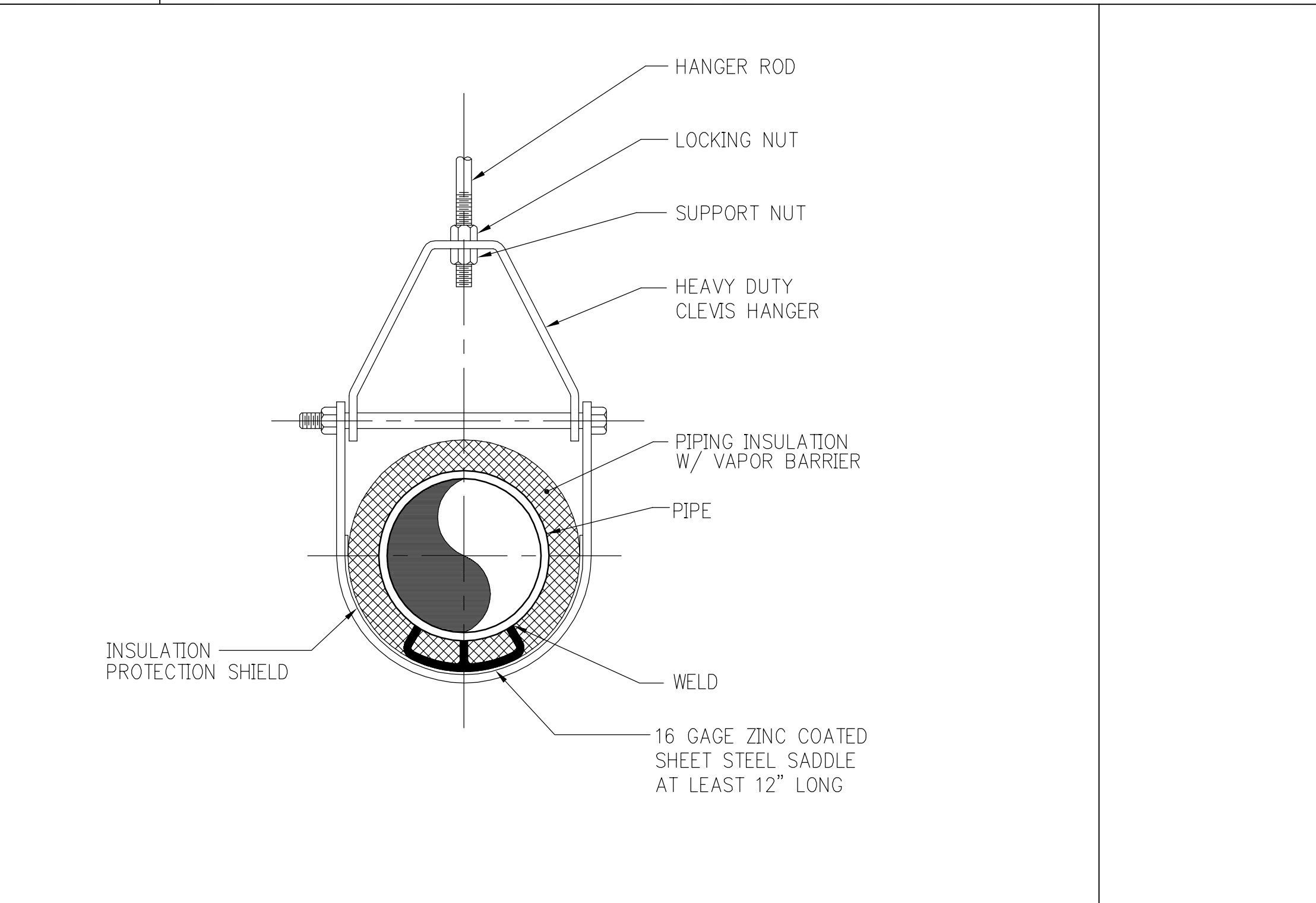
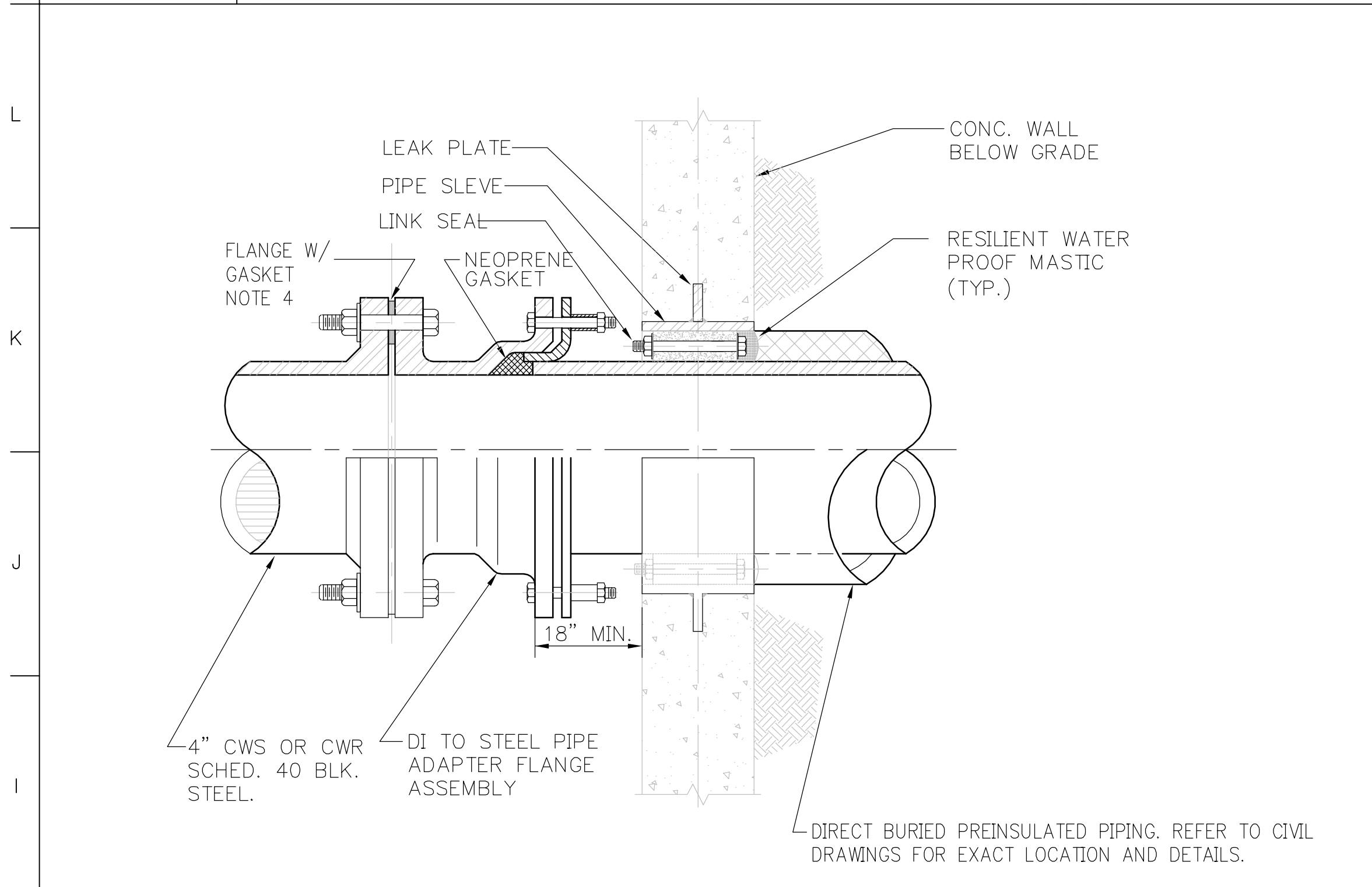




**M1 HORIZ. RESSECED UNIT HEATER DETAIL**  
 N.T.S.

**M7 TYPICAL VAV TERMINAL UNIT PIPING DETAIL**  
 N.T.S.

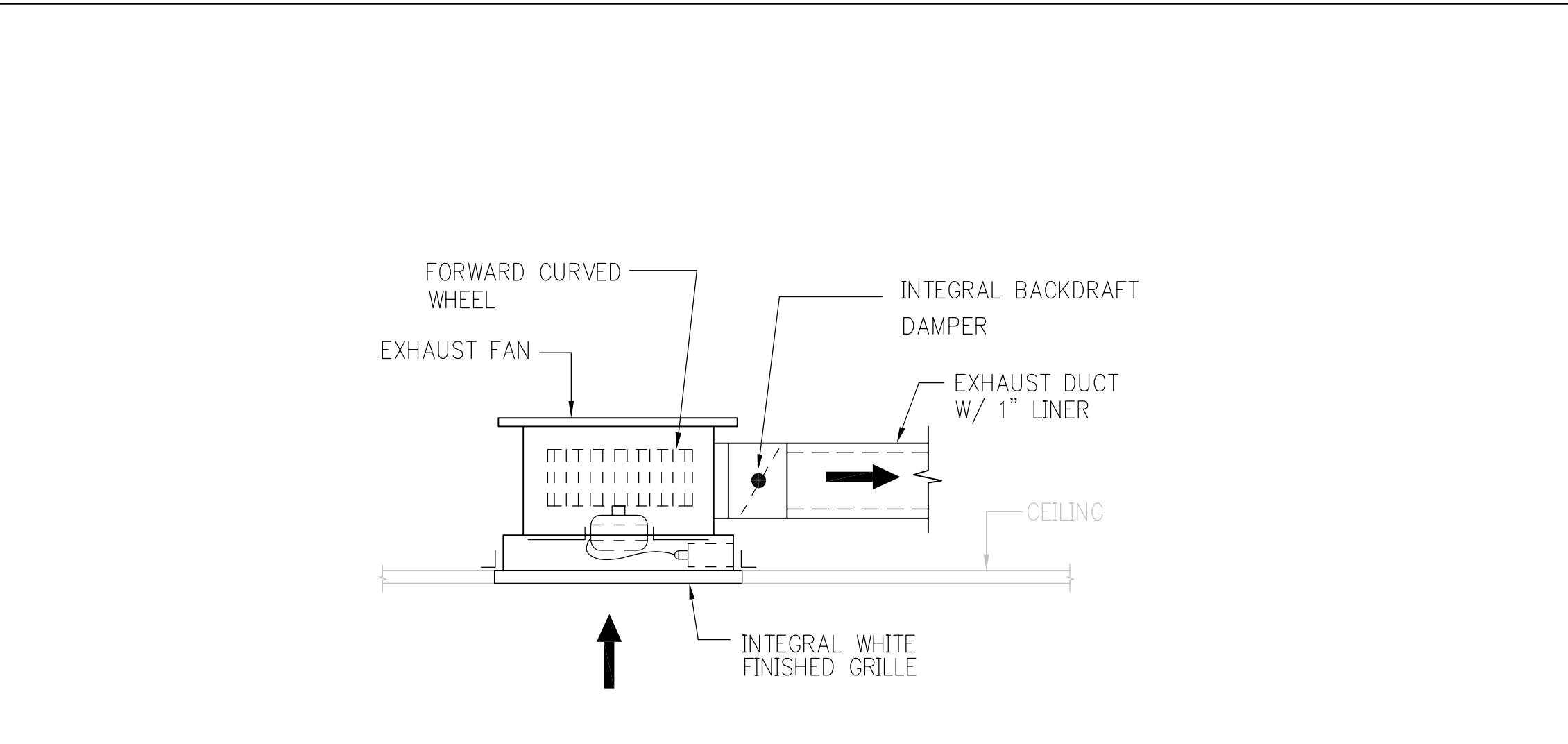
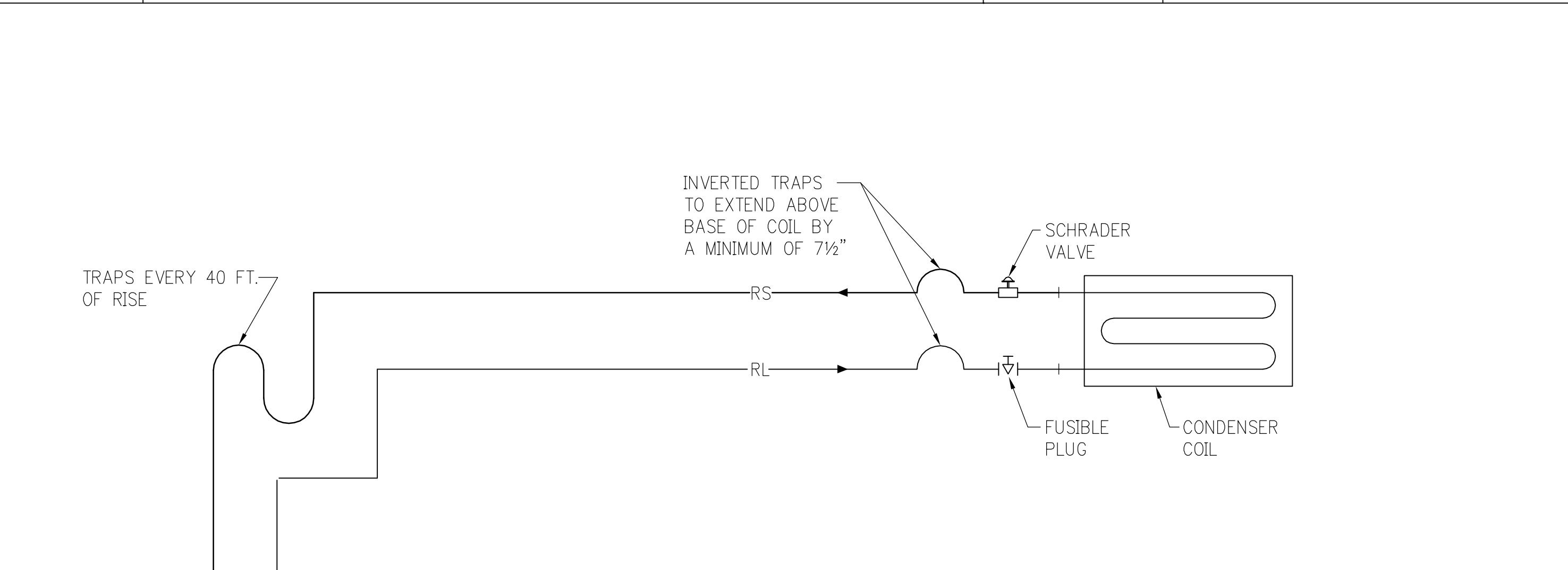
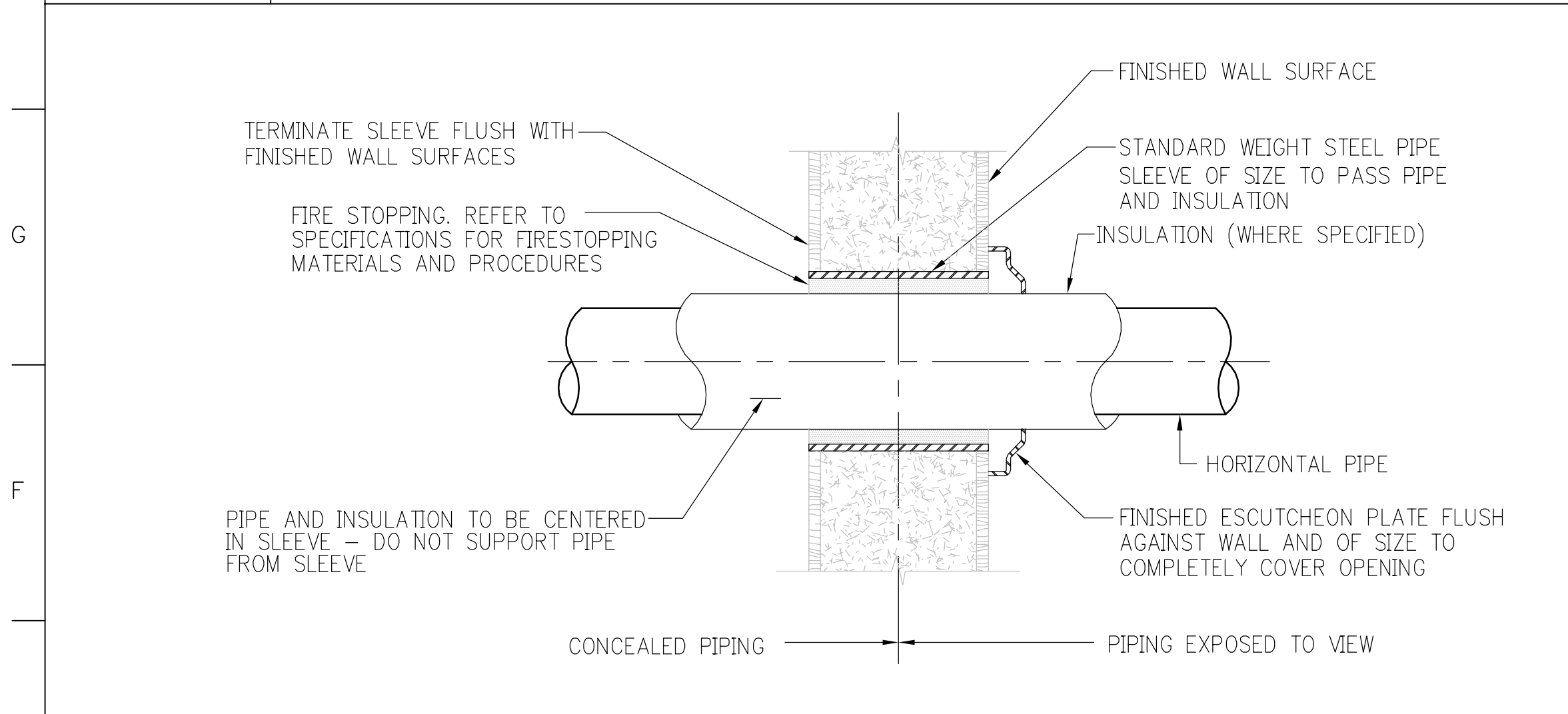
**M13 TYPICAL STANDART PIPE LABLE**  
 N.T.S.



**H1 PIPING ENTRY DETAIL-CHILLED WATER**  
 N.T.S.

**H7 TYPICAL CLEVIS HANGER DETAIL**  
 N.T.S.

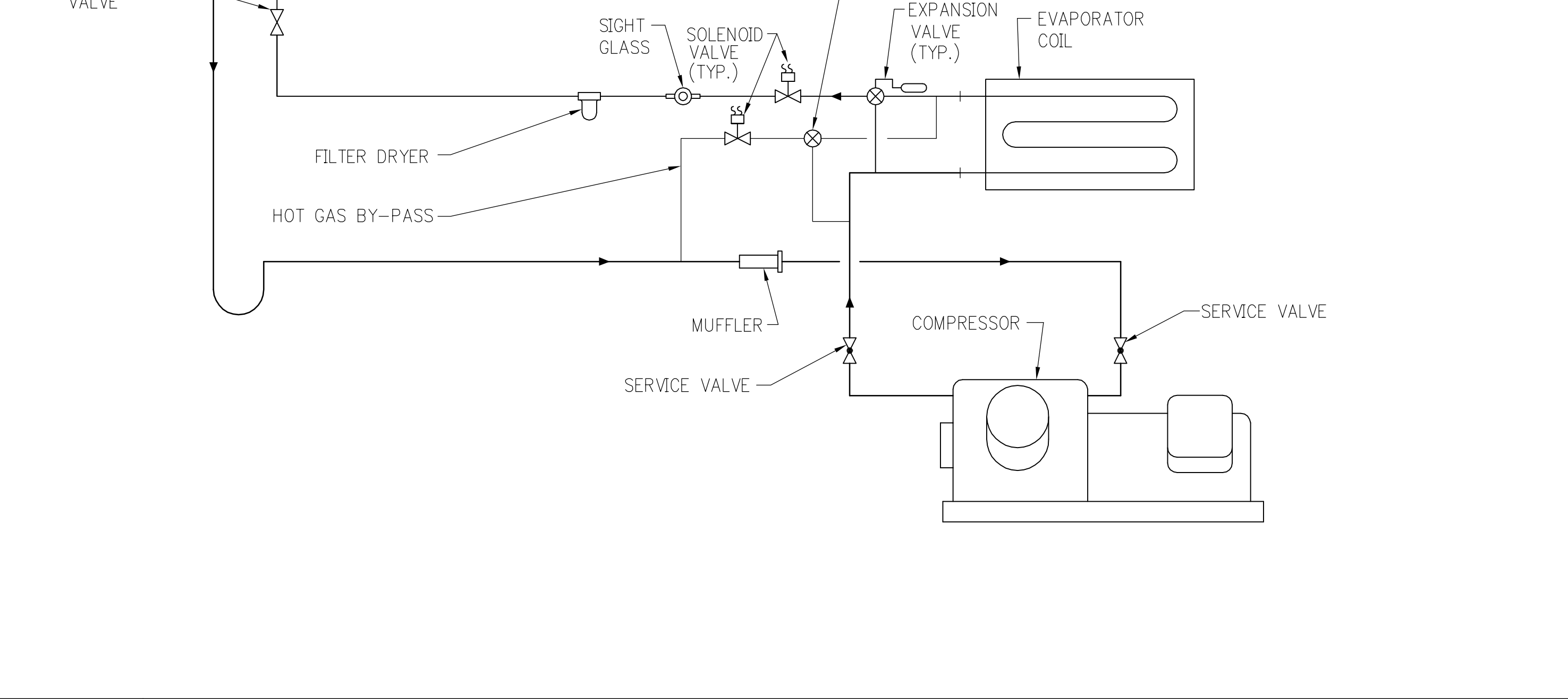
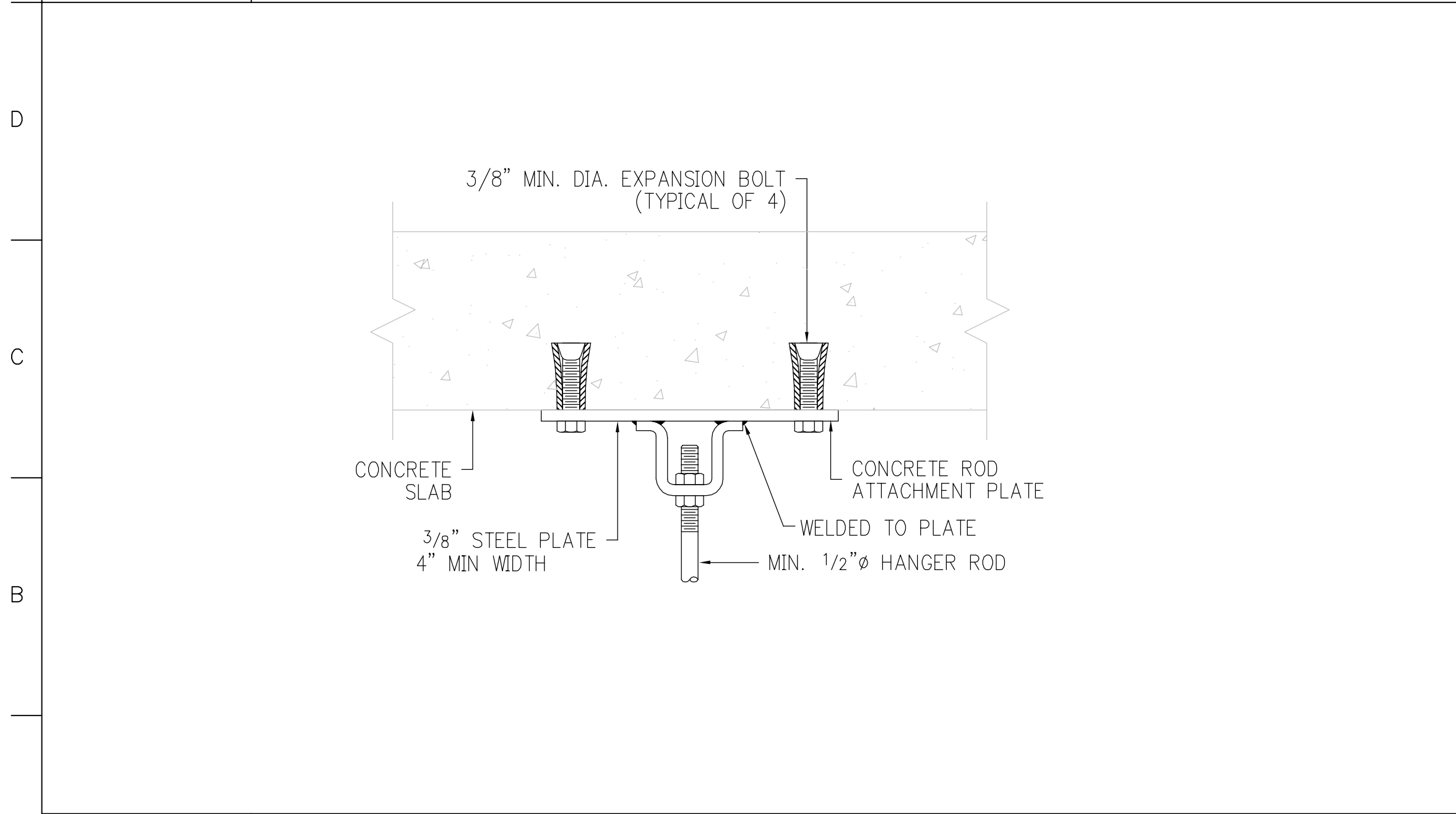
**H12 PIPE RISER SUPPORT DETAIL**  
 N.T.S.



**E1 TYP. PIPE SLEEVE PENETRATING THRU WALL**  
 N.T.S.

**A7 AIR COOLED CONDESER UNT PIPING CONNECTION DETAIL**  
 N.T.S.

**D15 TYP. CABINET FAN DETAIL**  
 N.T.S.



**A1 TYP. METHOD FOR SECURING HANGER RODS**  
 N.T.S.

**A7 AIR COOLED CONDESER UNT PIPING CONNECTION DETAIL**  
 N.T.S.

**D15 TYP. CABINET FAN DETAIL**  
 N.T.S.

**A15 TYP. IN-LINE CABINET FAN DETAIL**  
 N.T.S.

**REVISED CONSTRUCTION DOCUMENT**

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drawing title: **DETAIL**

designed by: GN project no.: 2001038.00  
 drawn by: GN CAD file no.: HVEC/PLOT/H503.DWG  
 checked by: KE drawing no.:  
 date: 02/10/2003  
 scale: N.T.S. **H503**



**AHUS COMPONENTS (BY UNIT MANUFACTURER):**

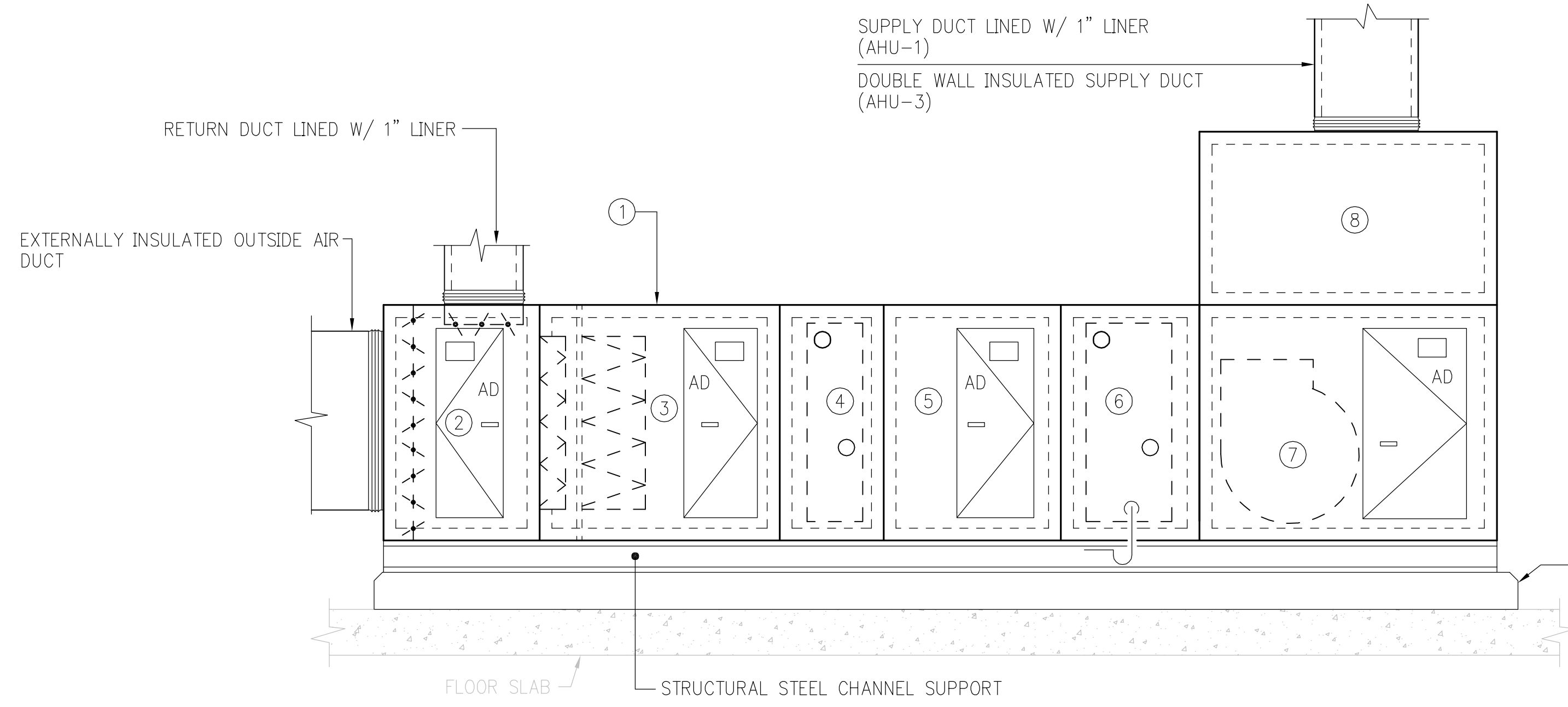
- ① DOUBLE WALL CASING WITH 2" SOUND LINING (TYP. FOR ALL SECTIONS.)
- ② MIXING BOX SECTION WITH FACTORY MOUNTED RETURN AIR AND OUTSIDE AIR MOTORIZED DAMPERS.
- ③ 30% EFFICIENCY FLAT FILTER AND 65% EFFICIENCY CARTRIDGE FILTER SECTION.
- ④ HOT WATER PREHEAT COIL (IN AHU-3 ONLY).
- ⑤ LARGE ACCESS MODULE.
- ⑥ CHILLED WATER COOLING COIL.
- ⑦ FC/BI SUPPLY FAN SECTION.
- ⑧ TOP DISCHARGE PLENUM.

**COMPONENTS (BY CONTRACTOR):**

- ⑨ 4" HIGH CONCRETE PAD.

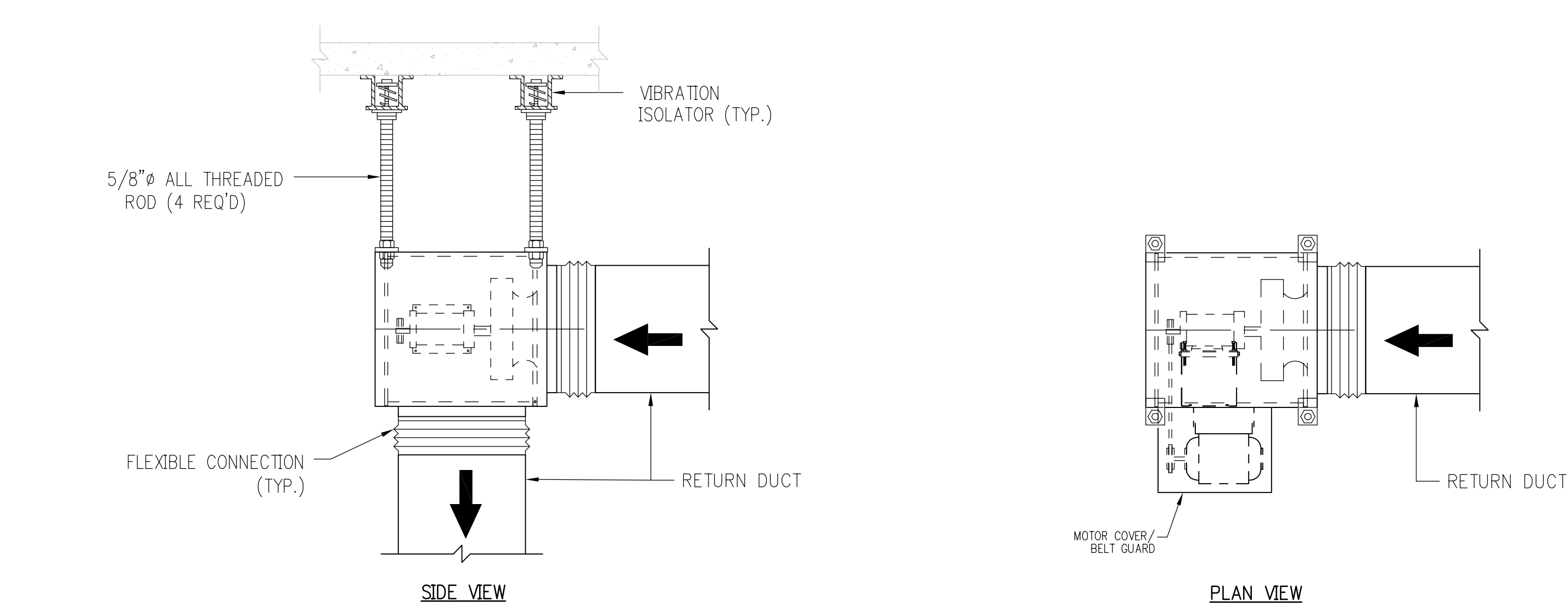
**NOTES:**

1. FOR CHILLED WATER COOLING COIL PIPING SEE DETAIL K1 ON DWG. H502.
2. FOR HOT WATER PREHEAT COIL PIPING SEE DETAIL K9 ON DWG. H502.
3. FOR COOLING COIL CONDENSATE DRAIN PIPING SEE DETAIL A11 ON DWG. H502.
4. VIBRATION ISOLATION SHALL BE AS PER SECTION 15240 OF SPECIFICATIONS.
5. FOR AHUS PERFORMANCE SEE AIR HANDLING UNIT SCHEDULE ON DWG. H601.
6. FOR DUCT AND PIPE SIZES SEE DWGS. H102, H201, H301, H302, H111, H112, H401 AND H402.



**M1 HORIZONTAL MODULAR AIR HANDLING UNIT DETAIL (TYP. FOR AHU-1, AHU-3)**

N.T.S.

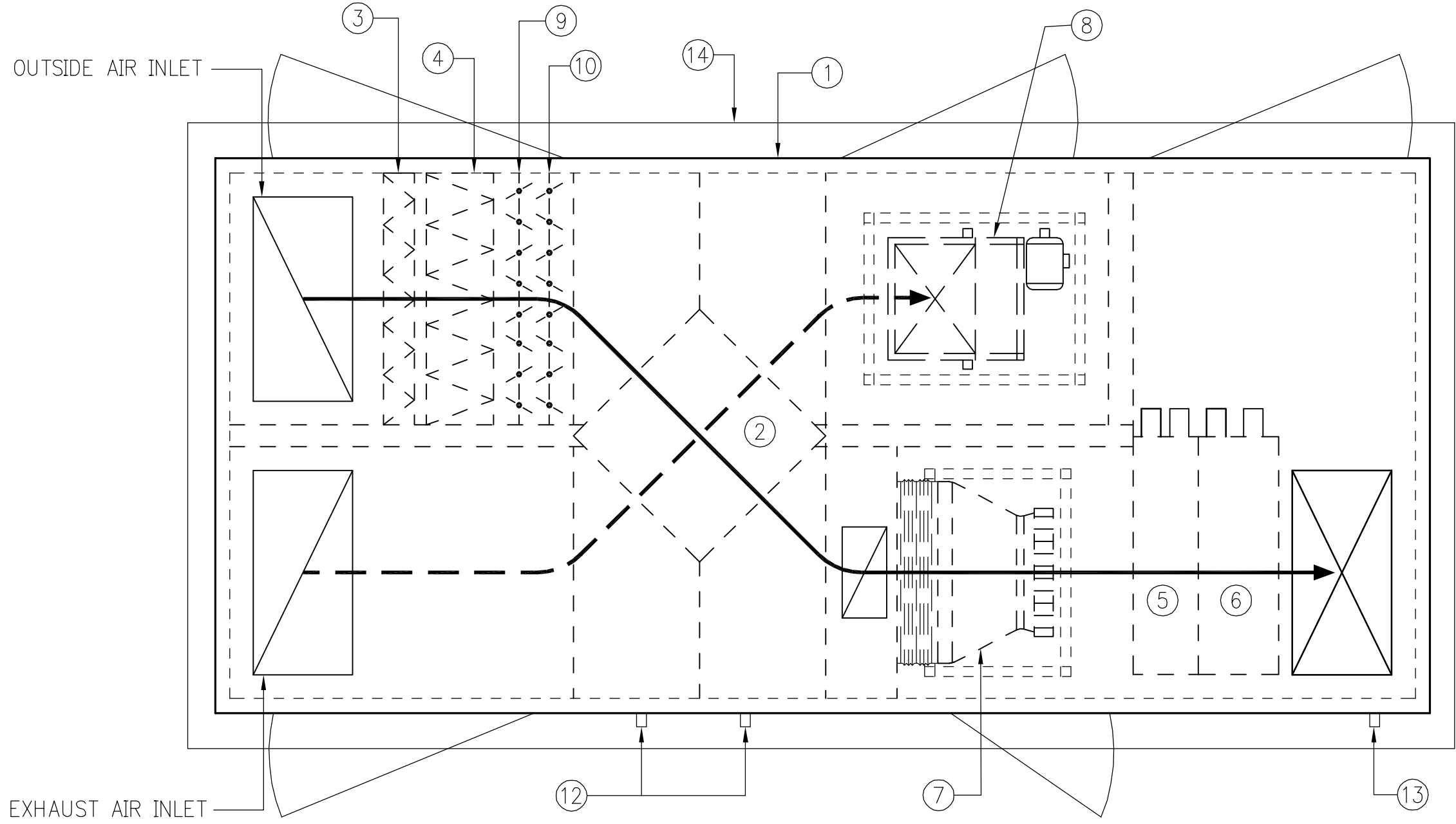


**NOTES:**

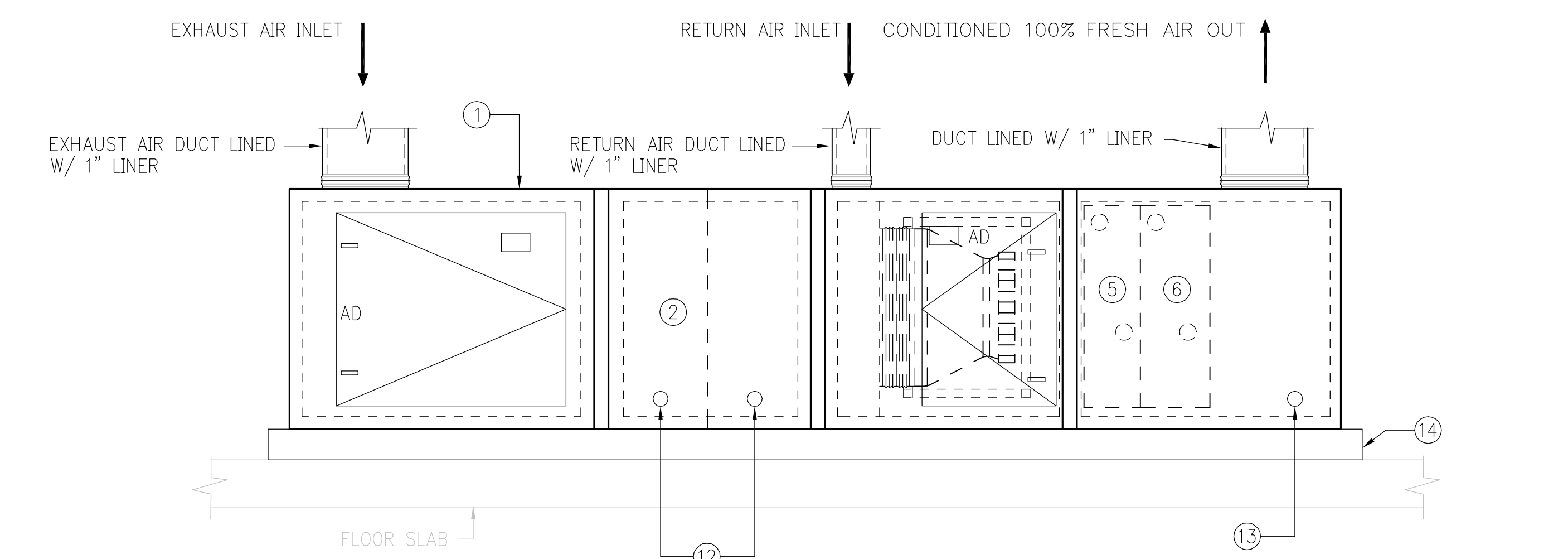
1. FOR DUCT SIZES SEE FLOOR PLANS.
2. FOR VIBRATION ISOLATORS REFER TO SECTION OF SPECIFICATIONS.

**M12 CENTRIF. IN-LINE FAN RF-1 DETAIL (SIDE DISCHARGE)**

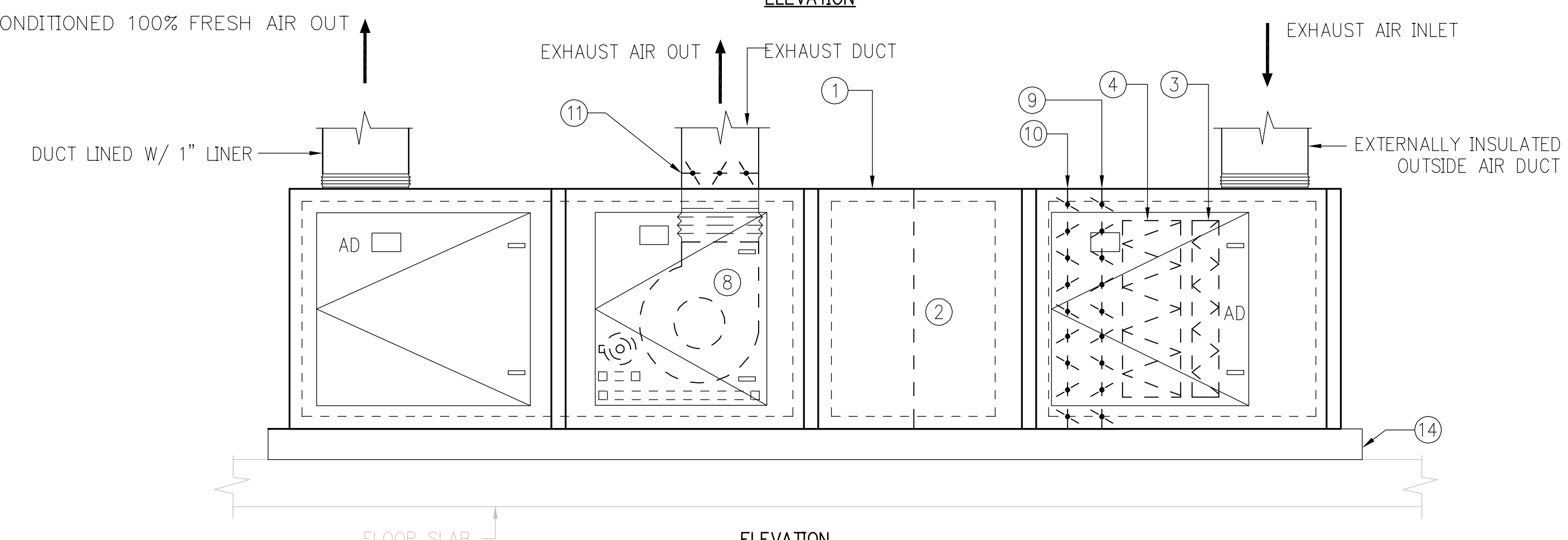
N.T.S.



**PLAN VIEW**



**ELEVATION**



**ELEVATION**

**HXU-1 COMPONENTS (BY UNIT MANUFACTURER):**

- ① DOUBLE WALL CASING WITH 2" SOUND LINING (TYP. FOR ALL SECTIONS.)
- ② CROSS AIR FLOW FLAT PLATE HEAT EXCHANGER.
- ③ 2", 30% EFFICIENCY FLAT PREFILTER.
- ④ 12", 65% EFFICIENCY BAG FILTER.
- ⑤ HOT WATER HEATING COIL.
- ⑥ CHILLED WATER COOLING COIL.
- ⑦ FCDW TYPE SUPPLY FAN ASSEMBLY.
- ⑧ FCDW TYPE EXHAUST FAN ASSEMBLY.
- ⑨ OUTSIDE AIR FACE MOTORIZED DAMPER.
- ⑩ OUTSIDE AIR BYPASS MOTORIZED DAMPER.
- ⑪ EXHAUST AIR MOTORIZED DAMPER.
- ⑫ 3/4" CONDENSATE DRAIN.
- ⑬ 1 1/4" COOLING COIL CONDENSATE DRAIN.
- ⑭ 4" DEEP CONCRETE PAD.

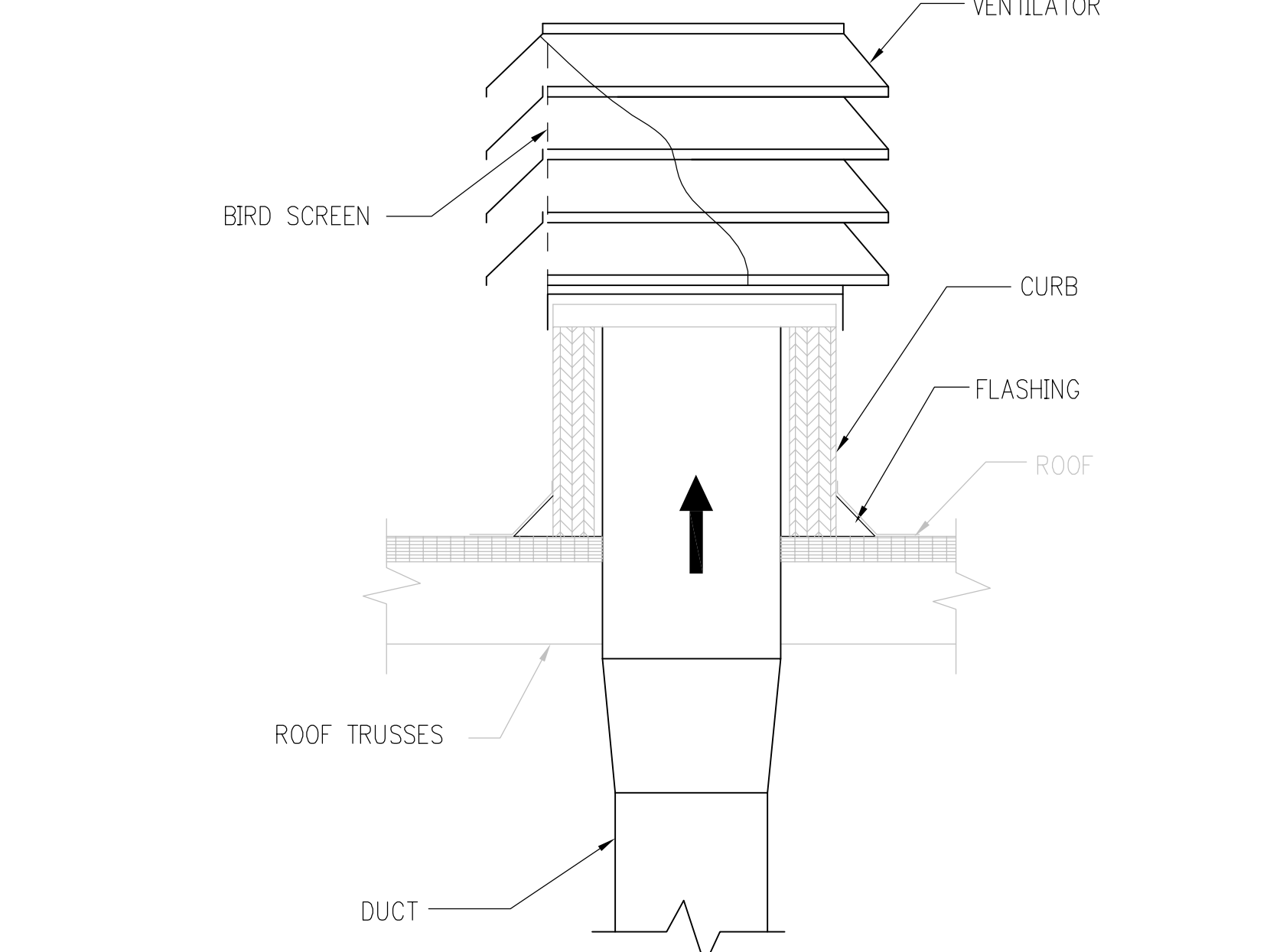
**COMPONENTS (BY CONTRACTOR):**

**NOTES:**

1. FOR CHILLED WATER COOLING COIL PIPING SEE DETAIL K1 ON DWG. H502.
2. FOR HOT WATER HEATING COIL PIPING SEE DETAIL K9 ON DWG. H502.
3. FOR COOLING COIL CONDENSATE DRAIN PIPING SEE DETAIL A11 ON DWG. H502.
4. VIBRATION ISOLATION SHALL BE AS PER SECTION OF SPECIFICATIONS.
5. FOR PERFORMANCE OF AHU-2 SEE AIR HANDLING UNIT SCHEDULE ON DWG. H601.
6. FOR DUCT AND PIPE SIZES SEE DWGS. H201, H301, H111.

**A1 DEHUMIDIFICATION / ENERGY RECOVERY UNIT AHU-2 DETAIL**

N.T.S.

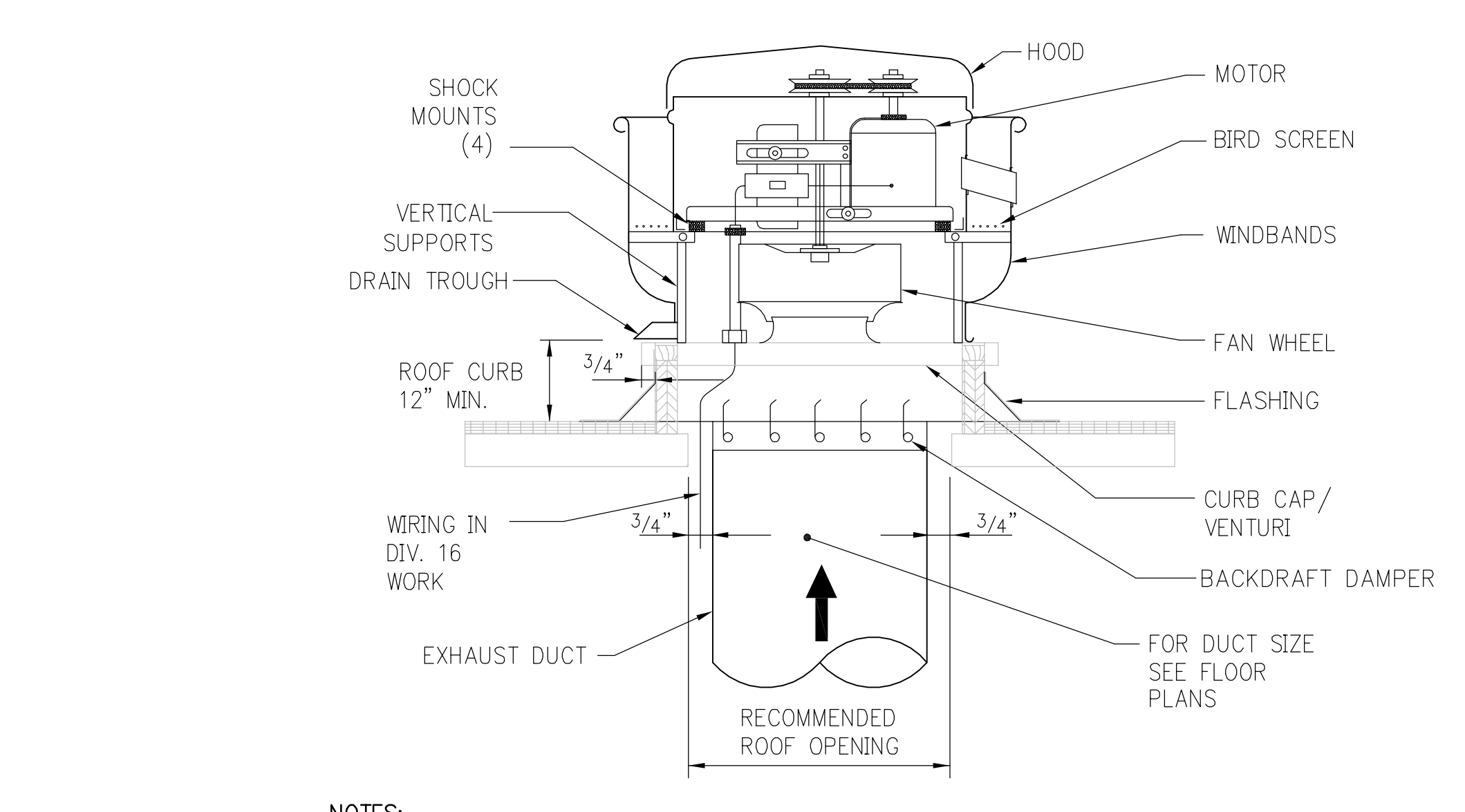


**NOTES:**

1. INSTALL FAN ON ROOF CURB. ROOF CURB SHALL BE PROVIDED BY FAN MANUFACTURER.
2. FOR SEALING AND FLASHING OF ROOF CURB SEE ARCHITECTURAL DRAWINGS.
3. FOR DUCT SIZES SEE FLOOR PLANS.

**H9 GRAVITY VENTILATOR DETAIL**

N.T.S.

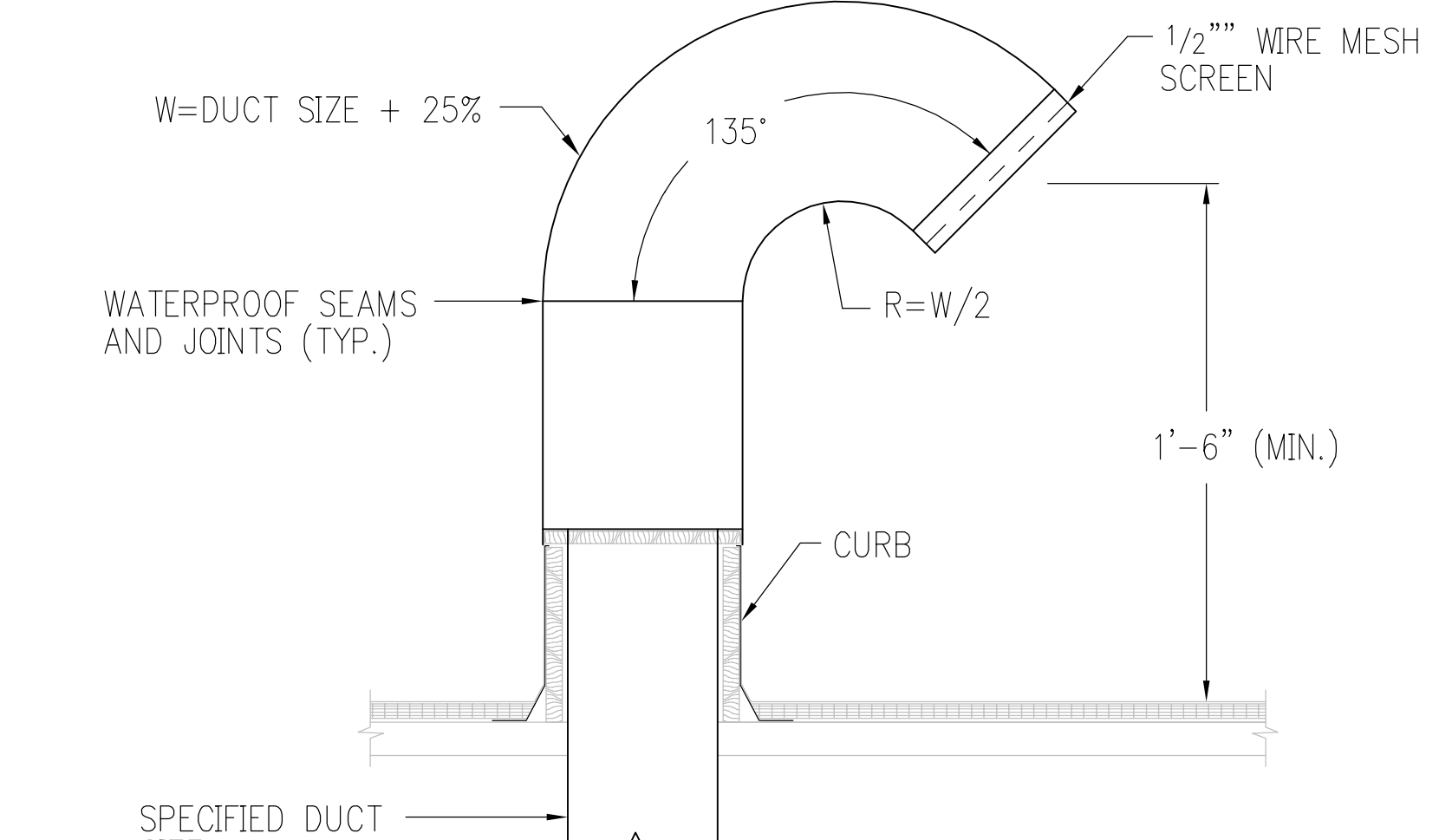


**NOTES:**

1. INSTALL FAN ON ROOF CURB. ROOF CURB SHALL BE PROVIDED BY FAN MANUFACTURER.
2. FOR SEALING AND FLASHING OF ROOF CURB SEE ARCHITECTURAL DRAWINGS.
3. FOR DUCT SIZES SEE FLOOR PLANS.

**H14 UPBLAST CENTRIF. ROOF EXHAUST FAN DETAIL**

N.T.S.

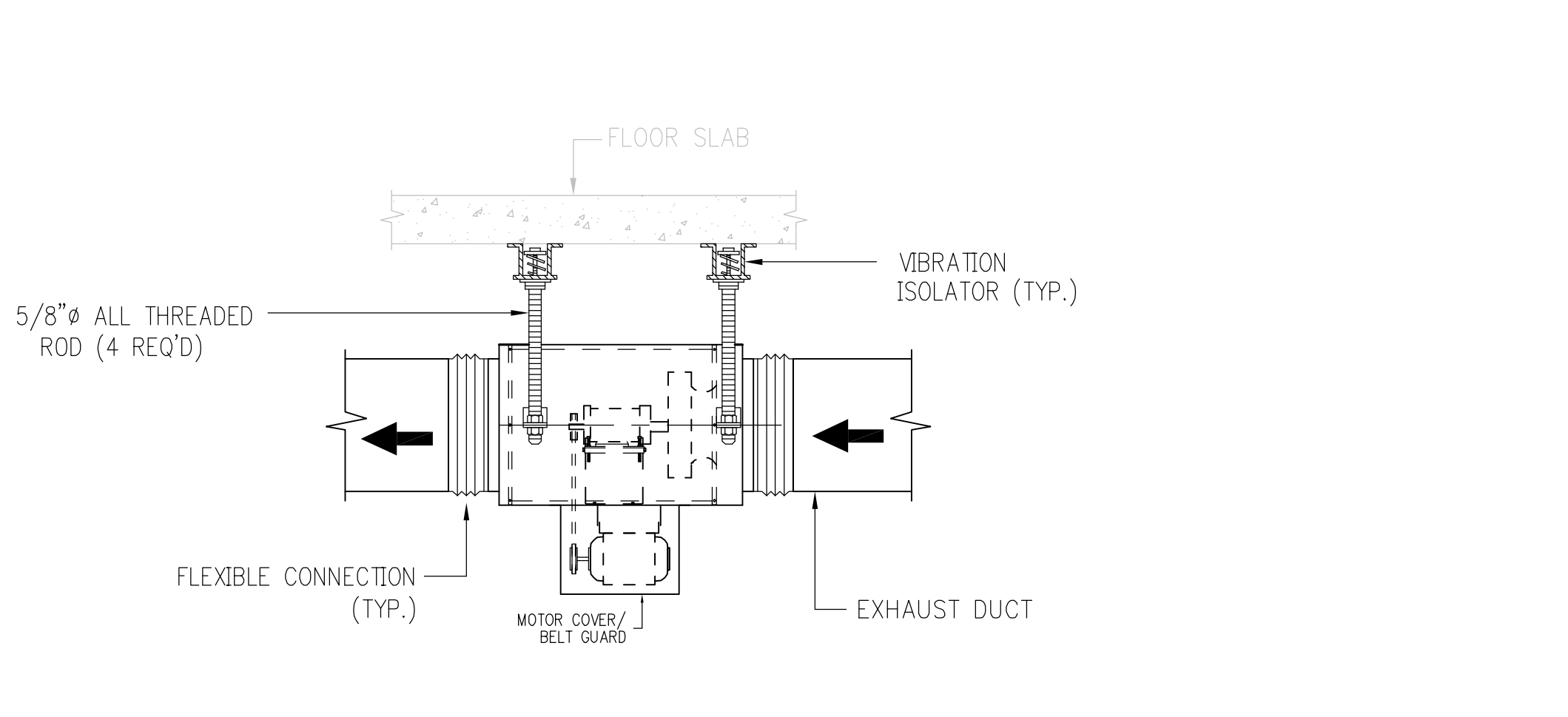


**NOTES:**

1. FOR DUCT SIZES SEE FLOOR PLANS.
2. FOR CURB DETAIL SEE ARCHITECTURAL DRAWINGS.

**D9 RECTANGULAR GOOSENECK DETAIL**

N.T.S.

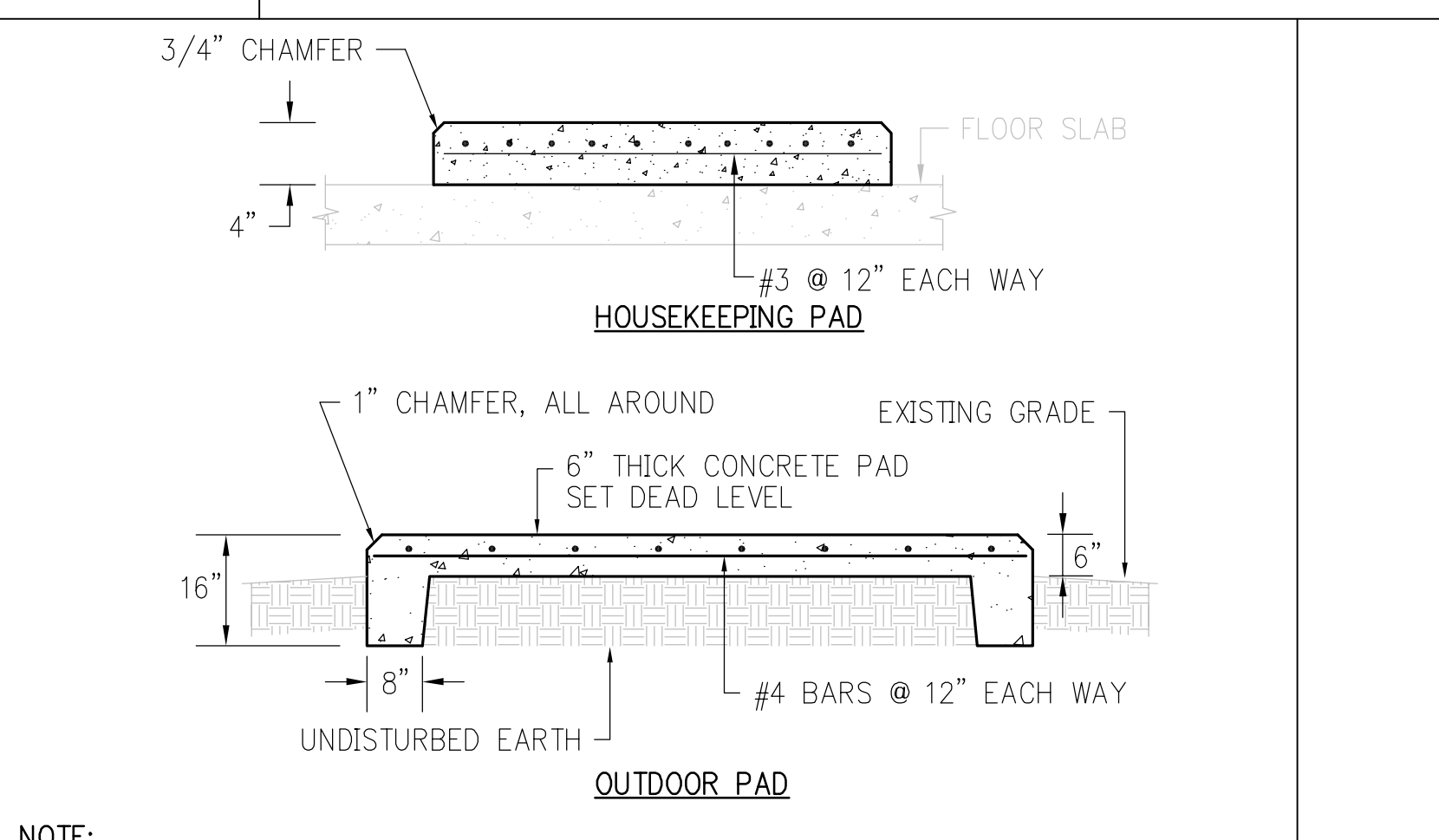


**NOTES:**

1. FOR DUCT SIZES SEE FLOOR PLANS.
2. FOR VIBRATION ISOLATORS REFER TO SECTION 15240 OF SPECIFICATIONS.

**D14 CENTRIF. INLINE FAN DETAIL**

N.T.S.

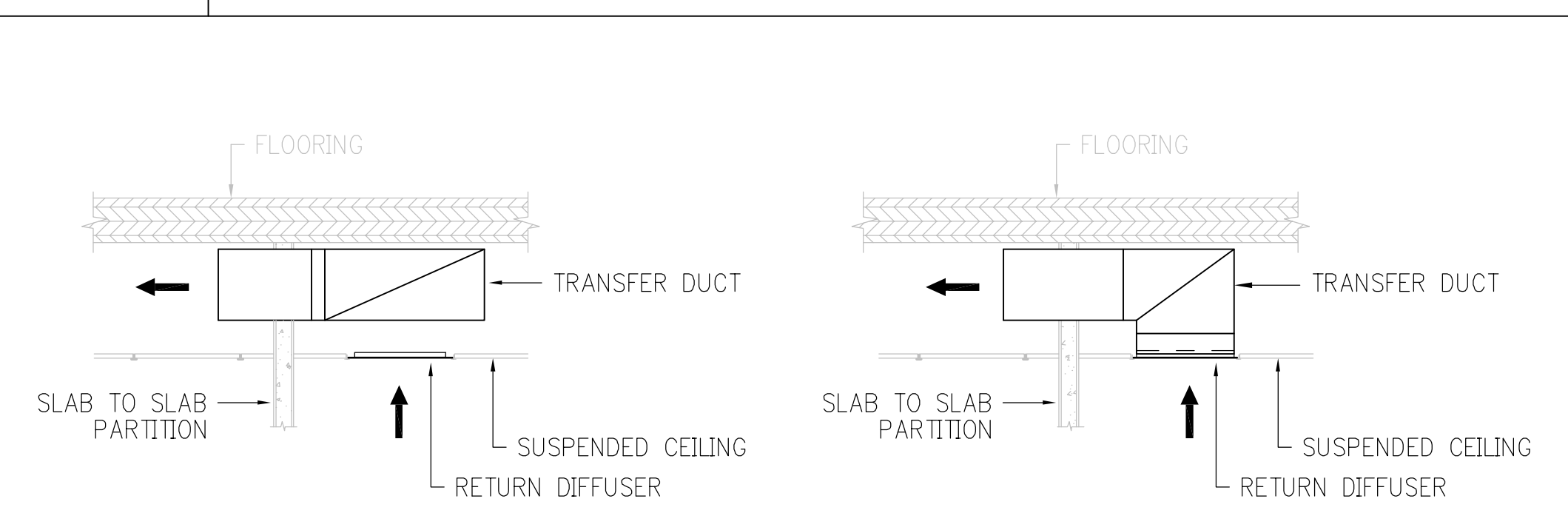


**NOTE:**

1. CONTRACTOR TO COORDINATE SIZE AND LOCATION OF PADS WITH MECHANICAL EQUIPMENT.

**A9 EQUIPMENT PADS DETAIL**

N.T.S.



**NOTES:**

1. REFER TO THE PLANS TO DETERMINE WHICH ARRANGEMENT SHOULD BE USED FOR EACH APPLICATION.
2. REFER TO THE FLOOR PLANS FOR DUCT SIZES.
3. PROVIDE 1 INCH THICK SOUND LINING AS INDICATED ON FLOOR PLANS.

**A13 TYPICAL RETURN AND TRANSFER DUCTS DETAIL**

N.T.S.

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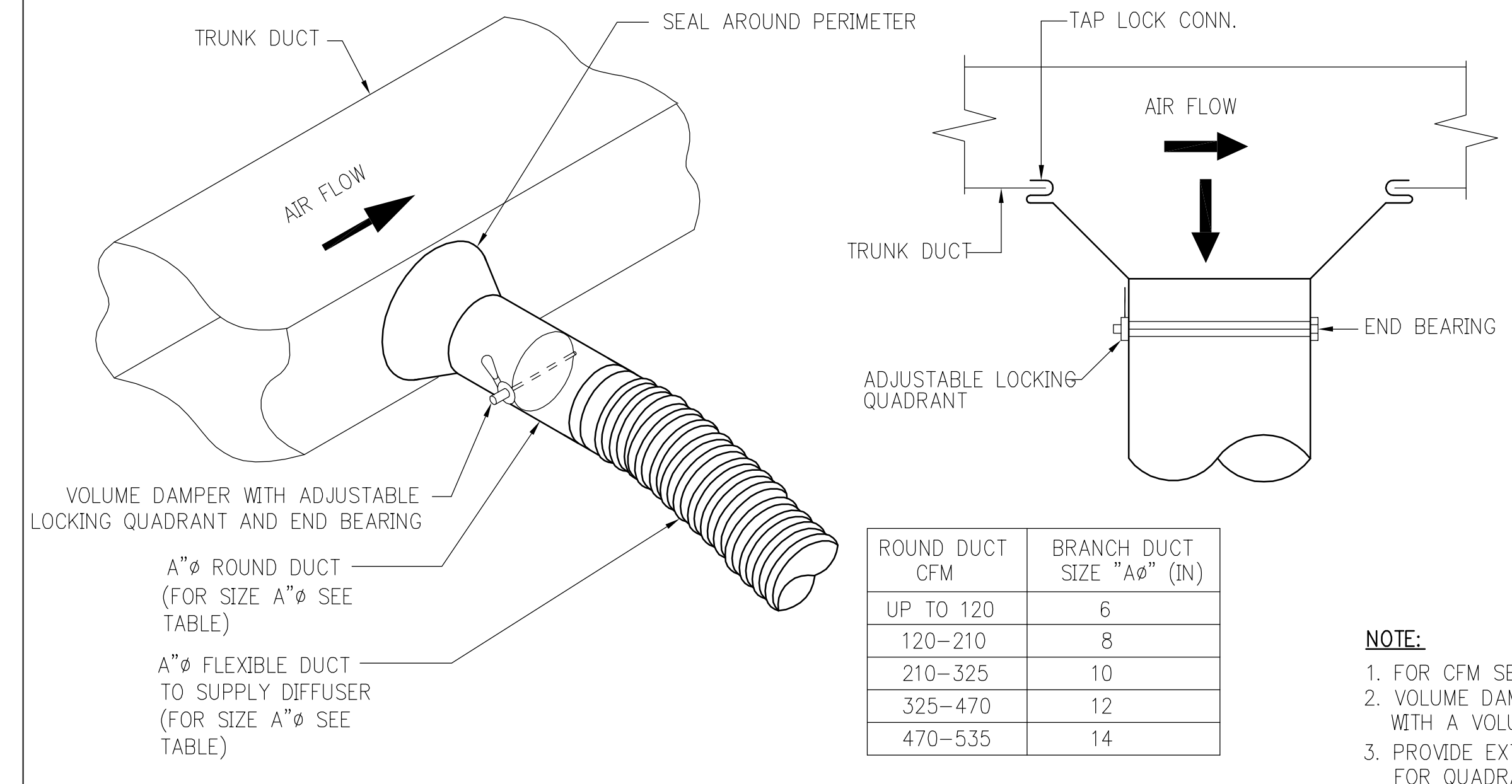
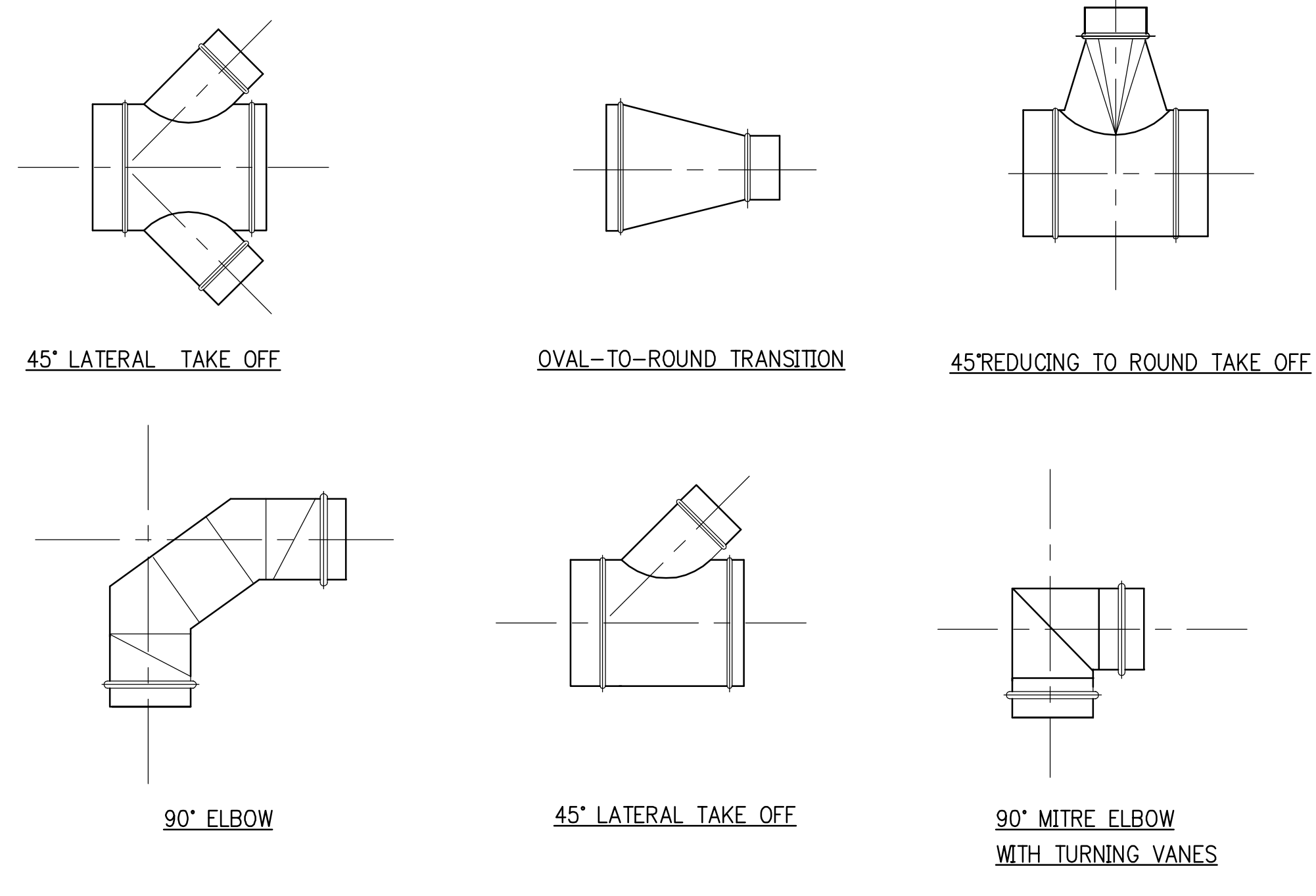
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drawing title	<b>DETAIL</b>
designed by	GN
project no.	2010138.00
drawn by	GN
CAD file no.	HVEC/PLOT/H504.DWG
checked by	KE
drawing no.	
date	02/10/2003
scale	N.T.S.
	<b>H504</b>
	of



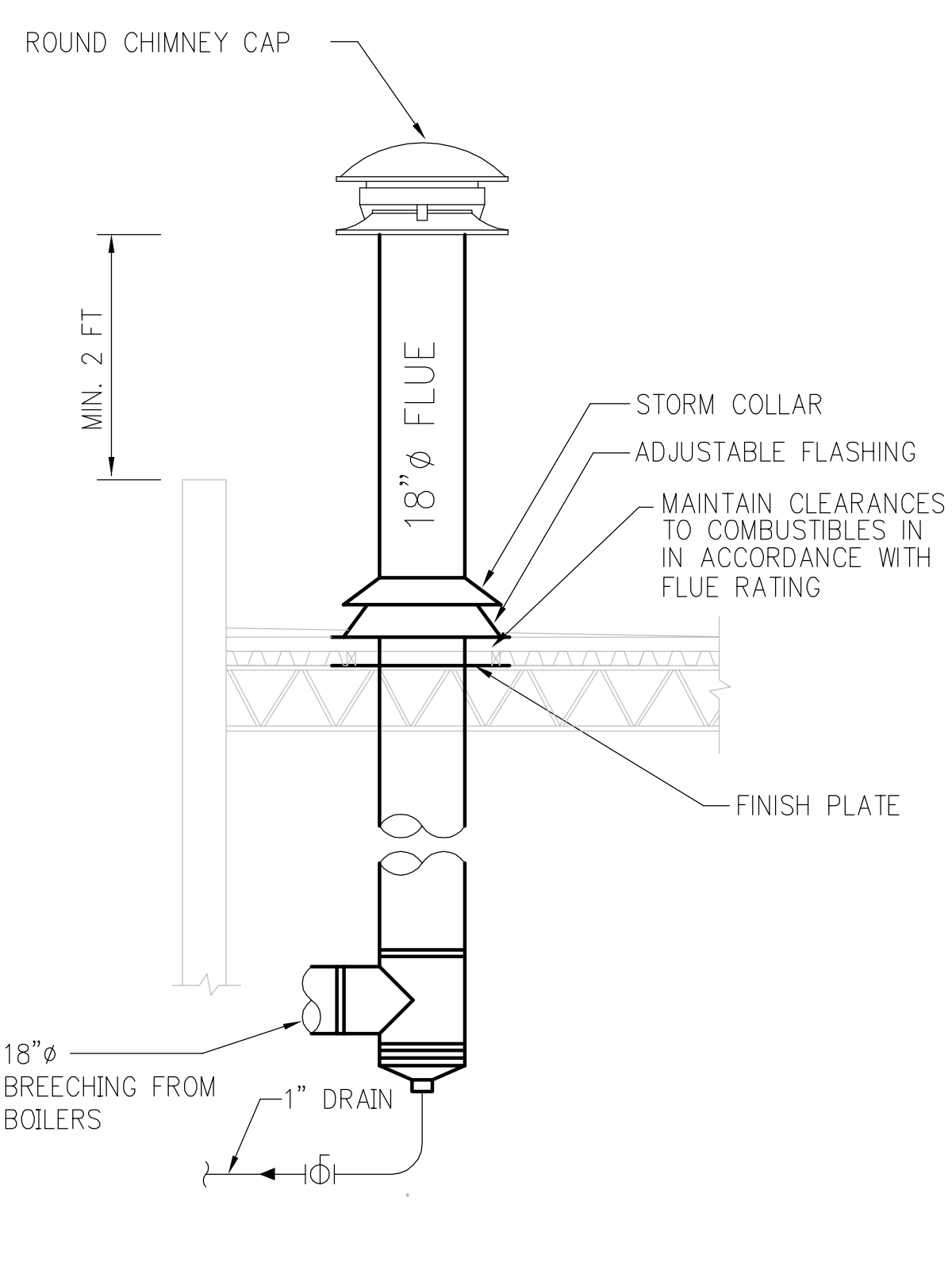


ROUND DUCT CFM	BRANCH DUCT SIZE "A#" (IN)
UP TO 120	6
120-210	8
210-325	10
325-470	12
470-535	14

**NOTE:**  
 1. FOR CFM SEE FLOOR PLANS AND DIFFUSERS SCHEDULE.  
 2. VOLUME DAMPER TO BE OMITTED WHEN A GRILLE OR REGISTER WITH A VOLUME DAMPER IS ATTACHED WITHIN 18" OF TRUNK DUCT.  
 3. PROVIDE EXTENDED MOUNTING BRACKET AND EXTENDED LENGTH SHAFT FOR QUADRANT OPERATOR WHERE DUCTWORK IS INSULATED.

**M1 TYPICAL HIGH OR MEDIUM PRESSURE DUCT FITTINGS**  
 N.T.S.

**M8 TYPICAL LOW PRESSURE DUCT CONNECTION DETAIL**  
 N.T.S.



**G1 FLUE STACK DETAIL**  
 N.T.S.

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seal	designed by GN	project no. 2001038.00
	drawn by GN	CAD file no. HVEC/PLOT/H505.DWG
	checked by KE	drawing no.
	date 02/10/2003	<b>H505</b>
	scale N.T.S.	of







HEAT EXCHANGER SCHEDULE																			
UNIT NO	LOCATION	SERVES	TYPE	LOWER TEMPERATURE FLUID						HIGHER TEMPERATURE FLUID					TOTAL HEAT TRANSFER (MBH)	OPERATING WEIGHT (LBS)	BASIS OF DESIGN	REMARKS	
				FLUID	GPM	EW (°F)	LWT (°F)	FOULING FACTOR	MAX PD (FT)	FLUID	GPM	EW (°F)	LWT (°F)	FOULING FACTOR					MAX PD (FT)
HE-1	MECH RM B-17	LEISURE POOL	PLATE & FRAME	POOL WATER	20.0	84	95.1	0.0001	15	HEATING HOT WATER	7.5	180	150	0.0001	10	110.0	360	MUELER: MODEL 10G	
HE-2	MECH RM B-17	COMPETITION POOL	PLATE & FRAME	POOL WATER	320.0	50	78.3	0.0001	15	HEATING HOT WATER	308.0	180	150	0.0001	10	4518.3	1070	MUELER: MODEL 402V	

DIFFUSER AND REGISTER SCHEDULE																
MARK	NECK SIZE (IN.)	FACE SIZE (IN.)	MAX. CFM		MAX. VEL (FPM)	MAX. PD (IN WG)	MAX. NC	BASIS OF DESIGN	REMARKS AND ACCESSORIES							
			L.F.	TOTAL												
CD1	6ø	24X24	-	120	600	0.050	16	TITUS: MODEL PAS, TYPE 3	SQUARE STEEL CEILING SUPPLY DIFFUSER							
CD2	8ø	24X24	-	210	600	0.055	22									
CD3	10ø	24X24	-	325	600	0.065	27									
CD4	12ø	24X24	-	470	600	0.110	30									
CD5	14ø	24X24	-	535	500	0.08	28									
CD6	8ø	18ø	-	210	600	0.040	21	TITUS: MODEL TMRA, TYPE 3	ROUND STEEL CEILING SUPPLY DIFFUSER							
CD7	10ø	23ø	-	380	700	0.055	27									
CD8	12ø	27ø	-	550	700	0.055	27									
CD9	18ø	41ø	-	900	550	0.050	20									
RD1	22X22	24X24	-	1340	400	0.06	20	TITUS: MODEL PAR, TYPE 3	RETURN/TRANSFER STEEL CEILING DIFFUSER							
S01	6X6	8X8	-	115	600	0.055	15	TITUS: MODEL 300RL	SUPPLY CEILING GRILLE, ¾" SPACING, AT DOUBLE 22.5" DEFLECTION, STEEL							
S02	10X6	12X8	-	205	600	0.055	18									
S03	12X10	14X12	-	430	600	0.055	21									
S04	18X8	20X10	-	415	500	0.040	20									
S05	24X10	26X12	-	745	500	0.040	19									
S06	42X8	44X10	-	1005	500	0.004	20	TITUS: AEROBLADE SERIES MODEL 271FL	SUPPLY CEILING GRILLE, ¾" SPACING, AT SINGLE 45" DEFLECTION, ALUMINUM							
T01	8X6	10X8	-	150	600	0.074	18	TITUS: MODEL 301FL	TRANSFER CEILING GRILLE, ¾" SPACING, AT SINGLE 0" DEFLECTION, ALUMINUM							
T02	10X6	12X8	-	205	600	0.074	18									
T03	12X6	14X8	-	245	600	0.055	19									
T04	12X12	14X14	-	525	600	0.055	22									
T05	18X10	20X12	-	555	500	0.065	17									
EG1	6X6	8X8	-	115	600	0.050	15	TITUS: MODEL 355ZFL	EXHAUST/RETURN/TRANSFER GRILLE: ¾" SPACING; 0" DEFLECTION, ALUMINUM							
EG2	8X6	10X8	-	155	600	0.050	15									
EG3	10X6	12X8	-	205	600	0.050	15									
EG4	12X6	14X8	-	245	600	0.050	15									
EG5	14X14	16X16	-	610	500	0.035	15									
E06	18X10	20X12	-	665	600	0.050	20	TITUS: MODEL CT-PP-0	LINEAR BAR DIFFUSER, 7/16" SPACING, 7/32" BARS, 0" DEFLECTION, 72" LENGTH							
LD1	2X72	-	50	300	500	0.080	24									
LD2	3X72	-	95	570	500	0.090	30									

SPLIT SYSTEM AIR COOLED AIR CONDITIONING UNIT SCHEDULE																	
MARK	LOCATION	SERVES	EVAPOR. FAN CFM	CONDENS. FAN CFM	COOLING DATA				ELECTRICAL DATA				OPERATING WEIGHT (LBS)	BASIS OF DESIGN	REMARKS		
					CAPACITY (MBH)	EAT (°F)	DB	WB	EVAPOR. FAN MOTOR HP	CONDENSER FAN MOTOR HP	FLA	VOLTS				PHASE	CYCLE
AC-1	ELEV. MACH. RM. B04	ELEVATOR MACH. RM.	750	-	19.8	15.5	80.0	66.7	0.2	-	1.4	208	1	60	150	"LIEBERT" MODEL MM18E	INDOOR EVAPORATOR
ACCU-1	ROOF	ELEVATOR MACH. RM.	-	2200	19.8	-	95.0	64.9	-	0.2 (OUTDOOR)	11.4	208	1	60	200	"LIEBERT" MODEL PFC020A	OUTDOOR PROPELLER FAN CONDENSING UNIT

AIR COOLED CONDENSER UNIT SCHEDULE																
UNIT NO.	LOCATION	ASSOCIATED INDOOR UNIT NO	AMBIENT AIR WB (°F)	TOTAL HEAT REJECTION (MBH)	FAN MOTOR(S)				ELECTRICAL DATA				OPERATING WEIGHT (LBS)	BASIS OF DESIGN	REMARKS AND ACCESSORIES	
					NO OF FANS	HP/FAN	MCA	MOCF	VOLTS	PHASE	CYCLE	FLA				VOLTS
ACCU-2	ROOF	PDU-1	95	2027.3	10	1.5	30.8	35	460	3	60	4200	DECTRON CLD-142			
ACCU-3	ROOF	PDU-2	95	2027.3	10	1.5	30.8	35	460	3	60	4200	DECTRON CLD-142			

HYDRONIC SYSTEM AIR CONTROL SCHEDULE																	
SYSTEM SERVED	AIR SEPARATOR					EXPANSION TANK											
	MARK	LOCATION	GPM	CON. SIZE (IN)	WEIGHT (LBS)	MARK	LOCATION	TYPE	CAP. (GAL.)	DIA. (IN.)	LENGTH (IN.)	WEIGHT (LBS)	INITIAL PRESS. (PSIG)	MAX. OPER. PRESS. (PSIG)	ACCEPTANCE VOL. (GAL.)	BASIS OF DESIGN	REMARKS AND ACCESSORIES
CHILLED WATER	AS-1	MECH. RM. B11	228	4	270	BELL & GOSSETT MODEL R-4	ET-1	MECH. RM. B11	HORIZONTAL	7.8	12	(19)	121	15	40	2.5	BELL & GOSSETT DIAPHRAGM TYPE
HOT WATER	AS-2	MECH. RM. B11	320	5	425	BELL & GOSSETT MODEL R-5	ET-2	MECH. RM. B11	HORIZONTAL	55.7	16	(68)	696	15	35	22.6	BELL & GOSSETT MODEL D-100

VARIABLE AIR VOLUME TERMINAL UNIT SCHEDULE (FOR AHU-3)																			
MARK	DESIGN MAX CFM	HEATING MAX CFM	UNIT MAX CFM	MAX. APD (INWG)	INLET DIA (IN.)	MN. DAMPER POSITION (%)	HOT WATER REHEAT COIL DATA							PRIMARY MAXIMUM DISCHARGE SOUND POWER	BASE OF DESIGN	REMARKS AND ACCESSORIES			
							MBH	GPM	E.A.T (°F)	MAX WPD (FT.)	ROWS	2	3				4	5	6
V-1	85	50	225	0.10	4	30	1.4	0.1	55	0.2	1	28	18	-	-	-	-	"TITUS", DESV SERIES	WITH VELOCITY SENSOR AND ATTENUATION
V-2	390	120	500	0.30	6	30	5.1	0.3	55	0.2	1	38	31	-	-	-	-	"TITUS", DESV SERIES	WITH VELOCITY SENSOR AND ATTENUATION
V-3	390	120	500	0.30	6	30	3.0	0.2	55	0.2	1	38	31	-	-	-	-	"TITUS", DESV SERIES	WITH VELOCITY SENSOR AND ATTENUATION
V-4	540	165	650	0.30	7	30	6.1	0.4	55	0.2	1	35	33	-	-	-	-	"TITUS", DESV SERIES	WITH VELOCITY SENSOR AND ATTENUATION
V-5	550	165	650	0.40	7	30	9.3	0.6	55	0.2	2	35	33	10	-	-	-	"TITUS", DESV SERIES	WITH VELOCITY SENSOR AND ATTENUATION
V-6	600	600	650	0.40	7	0	10.5	0.7	55	0.2	1	35	34	11	-	-	-	"TITUS", DESV SERIES	WITH VELOCITY SENSOR AND ATTENUATION
V-7	650	195	650	0.60	7	30	10.7	0.7	55	0.2	2	33	31	-	-	-	-	"TITUS", DESV SERIES	WITH VELOCITY SENSOR AND ATTENUATION
V-8	925	280	1050	0.40	9	30	13.9	0.9	55	0.2	1	40	27	-	-	-	-	"TITUS", DESV SERIES	WITH VELOCITY SENSOR AND ATTENUATION
V-9	1450	0	2000	0.20	12	30	-	-	-	-	-	38	29	10	-	-	-	"TITUS", DESV SERIES	WITH VELOCITY SENSOR AND ATTENUATION
V-10	1450	580	2000	0.40	12	30	32.7	2.2	55	0.5	1	37	26	-	-	-	-	"TITUS", DESV SERIES	WITH VELOCITY SENSOR AND ATTENUATION
V-11	1550	760	2000	0.60	12	30	37.5	2.5	55	1.3	2	36	25	-	-	-	-	"TITUS", DESV SERIES	WITH VELOCITY SENSOR AND ATTENUATION

NOTES:  
 1 MAXIMUM ALLOWABLE PRESSURE DROP INCLUDING WATER COIL ACROSS BOX AT DESIGN CFM WITH DAMPER FULL OPEN.  
 2 NUMBER AS SHOWN ON PLAN.

HOT WATER REHEAT COIL SCHEDULE																			
MARK	COIL TYPE	LOCATION	DUCT SIZE (W"xH")	MAXIMUM COIL SIZE (W"xH")	AIR SIDE			WATER SIDE			TOT. MBH	FLOW (GPM)	MAX. AIR WTR PD (IN.)	MAX. WTR PD (FT.)	NO. OF ROWS	MAX. FACE VEL (FPM)	OPERATING WEIGHT (LBS)	BASIS OF DESIGN	REMARKS AND ACCESSORIES
					HEATING (CFM)	EAT (°F)	LAT (°F)	WTR (°F)	LWT (°F)										
RHC-1	HOT WATER REHEAT	DUCT MOUNTED TEAM ROOM #B07	14X10	16X12	725	55.0	95.3	180	150	31.7	2.1	0.20	0.90	1	600	15.0	TRANE: TYPE T-COIL		
RHC-2	HOT WATER REHEAT	DUCT MOUNTED LOBBY #B01	12X10	12X12	655	55.0	88.8	180	150	24.0	1.6	0.30	0.50	1	600	12.0	TRANE: TYPE T-COIL		
RHC-3	HOT WATER REHEAT	DUCT MOUNTED LOCKER ROOM #B16	12X12	15X12	705	55.0	92.6	180	150	28.8	1.9	0.20	2.0	1	600	14.0	TRANE: TYPE T-COIL		
RHC-4	HOT WATER REHEAT	DUCT MOUNTED WEIGHT TRAINING #B15	24X14	36X18	2560	55.0	87.2	180	150	89.4	5.9	0.20	13.0	1	600	32.0	TRANE: TYPE T-COIL		
RHC-5	HOT WATER REHEAT	DUCT MOUNTED OFFICE #B10	28X16	49X18	3660	55.0	87.7	180	122	129.8	4.5	0.20	10.0	1	600	45.0	TRANE: TYPE T-COIL		
RHC-6	HOT WATER REHEAT	DUCT MOUNTED LOBBY #B06	18X10	18X15	1100	55.0	87.8	180	150	39.2	2.6	0.20	4.0	1	600	17.0	TRANE: TYPE T-COIL		
RHC-7	HOT WATER REHEAT	DUCT MOUNTED LOBBY #B02	22X14	30X18	2160	55.0	86.6	180	150	74.0	4.9	0.20	9.0	1	600	28.0	TRANE: TYPE T-COIL		

NOTE: 1 PROVIDE SHEET METAL PLENUM FOR DUCT CONNECTION OVER ENTIRE DIFFUSER.

FAN SCHEDULE																
MARK	LOCATION	FAN SERVES	CFM	SP (IN WG)	FAN TYPE	DRIVE	MOTOR DATA			FAN RPM	BASIS OF DESIGN	REMARKS AND ACCESSORIES				
							HP/(W)	V	PH HZ							
EF-1	POOL BUILDING LOWER ROOF	CHEM. AND ACID ROOMS #B24 & B25	250	0.30	UPBLAST CENTRIFUGAL	DIRECT	1/30	115	1	60	1550	"GREENHECK" MODEL CUE-070-D	W/ SPEED CONTROL, BACKDRAFT DAMPER, BRD SCREEN AND ROOF CURB			
EF-2	CLASSROOM BUILDING ROOF	STORAGE RM. #154	90	0.25	UPBLAST CENTRIFUGAL		1/60				1380	"GREENHECK" MODEL CUE-060-G	W/ SPEED CONTROL, BACKDRAFT DAMPER, BRD SCREEN AND ROOF CURB			
EF-3	CLASSROOM BUILDING ROOF	ELECTRICAL RM. #156 & PANTRY RM. #157	650	0.30	UPBLAST CENTRIFUGAL		1/15				1550	"GREENHECK" MODEL CUE-095-D	W/ SPEED CONTROL, BACKDRAFT DAMPER, BRD SCREEN AND ROOF CURB			
EF-4	CLASSROOM BUILDING ROOF	WOMEN RESTROOM #B12	150	0.20	CEILING EXHAUST FAN		(129)				1050	"GREENHECK" MODEL SP-9	W/ SPEED CONTROL, BACKDRAFT DAMPER AND HOODED RAIN CAP			
EF-5	CLASSROOM BUILDING ROOF	MEN RESTROOM #B11	150	0.20	CEILING EXHAUST FAN		(129)				1050	"GREENHECK" MODEL SP-9	W/ SPEED CONTROL, BACKDRAFT DAMPER AND HOODED RAIN CAP			
EF-6	CLASSROOM BUILDING ROOF	MECHANICAL ROOM #B19	400	0.20	CENTRIFUGAL INLINE	BELT	0.25				1183	"GREENHECK" MODEL BSQ-180-4	W/ BACKDRAFT DAMPER AND MOTOR GUARD			
EF-7	POOL BUILDING LOWER ROOF	DOMESTIC WATER HEATERS FLUE EXHAUST	440	0.40	UPBLAST CENTRIFUGAL	DIRECT	(160)				1600	"EXHAUSTO" MODEL RSV 250	W/ SPEED CONTROL AND BRD SCREEN (FAN IS PART OF CHIMNEY AUTOMATION SYSTEM)			
EF-8	POOL BUILDING LOWER ROOF	MECHANICAL ROOM #B11	1720	0.20	UPBLAST CENTRIFUGAL	BELT	0.25				1050	"GREENHECK" MODEL CUE-141-3	W/ BACKDRAFT DAMPER, BRD SCREEN AND ROOF CURB			
EF-9	POOL BUILDING LOWER ROOF	MECHANICAL ROOM #B17	2000	0.20	UPBLAST CENTRIFUGAL		1/3				1200	"GREENHECK" MODEL CUE-141-5	W/ BACKDRAFT DAMPER, BRD SCREEN AND ROOF CURB			
RF-1	POOL BUILDING MECHANICAL ROOM #B11	RETURN AIR FOR AHU-1	4550	1.0	CENTRIFUGAL INLINE		1.5	460	3		1300	"GREENHECK" MODEL BSQ-180-15	W/ BOTTOM DISCHARGE AND MOTOR GUARD			
RF-2	CLASSROOM BUILDING MECHANICAL ROOM #B19	RETURN AIR FOR AHU-3	6410	1.0	CENTRIFUGAL INLINE		1.5	460	3		770	"GREENHECK" MODEL BSQ-240-15	W/ VARIABLE FREQUENCY DRIVE AND MOTOR GUARD			
TF-1	POOL BUILDING MECHANICAL ROOM #B15	MEN RESTROOM #B13	475	0.25	CEILING EXHAUST FAN	DIRECT	(530)	115	1		880	"GREENHECK" MODEL SP-255	W/ SPEED CONTROL AND BACKDRAFT DAMPER			
TF-2	POOL BUILDING MECHANICAL ROOM #B15	WOMEN RESTROOM #B12	475	0.25	CEILING EXHAUST FAN		(400)				1100	"GREENHECK" MODEL SP-252	W/ SPEED CONTROL AND BACKDRAFT DAMPER			
TF-3	POOL BUILDING MECHANICAL ROOM #B09	MEN LOCKER ROOM #B09	475	0.50	INLINE CABINET FAN		(530)				1100	"GREENHECK" MODEL CSP-255	W/ SPEED CONTROL			
TF-4	POOL BUILDING MECHANICAL ROOM #B16	WOMEN LOCKER ROOM #B16	670	0.40	INLINE CABINET FAN											