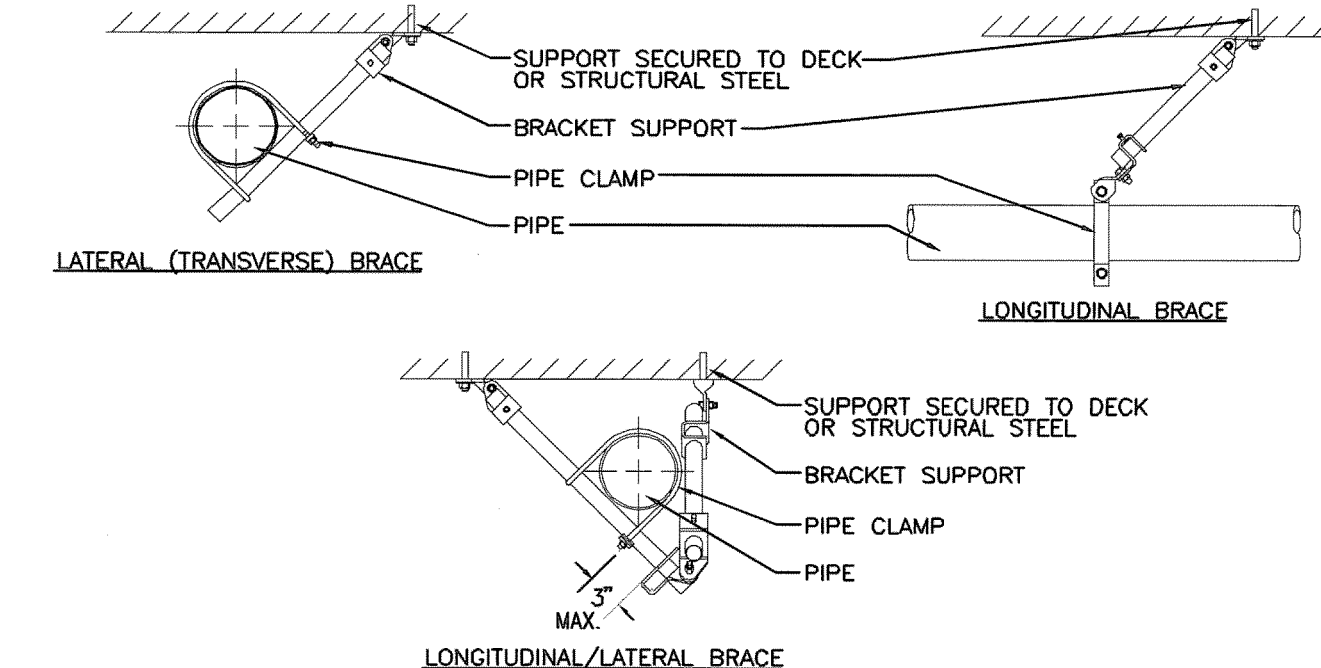
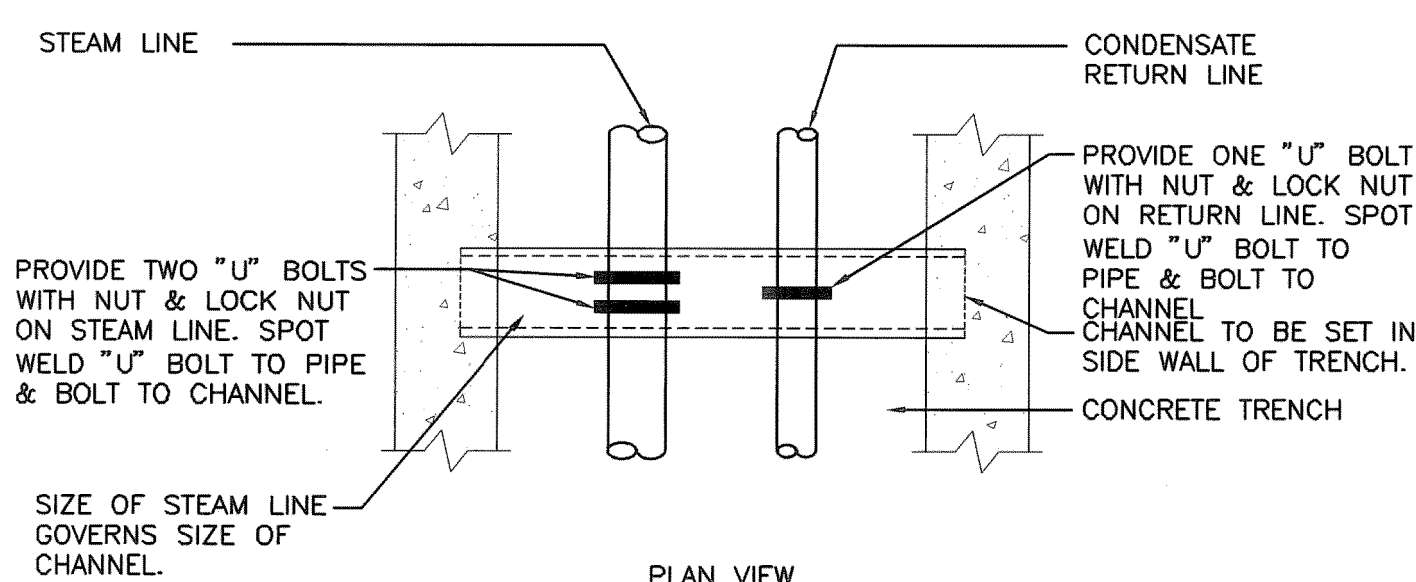


## NOTE

ALL SUPPORTS MUST WITHSTAND THE FOLLOWING SEISMIC PERFORMANCE CRITERIA:

## A. SEISMIC-RESTRAINT LOADING:

1. SITE CLASS AS DEFINED IN THE IBC: D
2. ASSIGNED SEISMIC USE GROUP OR BUILDING CATEGORY AS DEFINED IN THE IBC: II
  - a. COMPONENT IMPORTANCE FACTOR: 1.5
3. SDS DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS (0.2 SECOND): 0.50
4. SD1 DESIGN SPECTRAL RESPONSE ACCELERATION AT 1-SECOND PERIOD: (0.55 SECOND).
5. SEE STRUCTURAL DRAWING SS003 DETAIL C1 FOR SUPPLEMENTAL STEEL STUPPORT HANGERS.

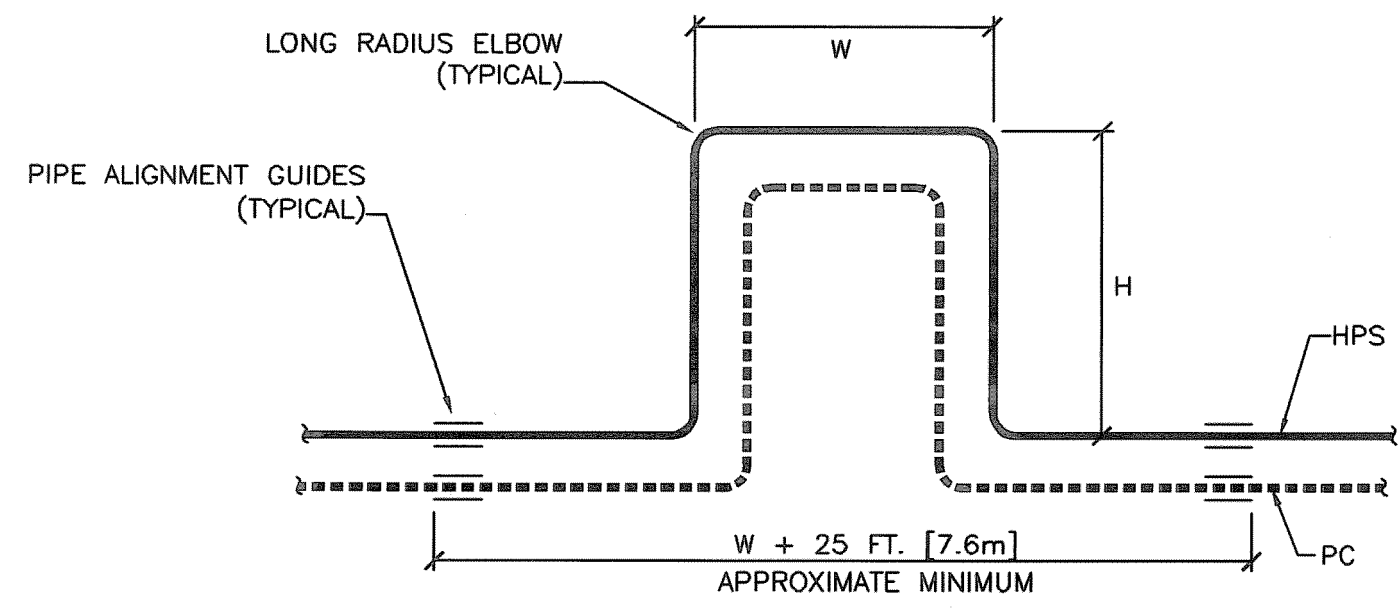
**B1** SEISMIC BRACING FOR PIPE  
SCALE: NONE

SCHEDULE		
SIZE OF PIPE INCH [mm]	SIZE OF "U" BOLT INCH [mm]	SIZE OF CHANNEL INCH [mm]
1 - 2 [25 - 50]	3/8 [10] DIA.	6 x 10.5 [150x265]
2-1/2 - 5 [65 - 125]	1/2 [15] DIA.	8 x 13.75 [200x345]
6 - 8 [150 - 200]	3/4 [20] DIA.	10 x 20 [250x500]

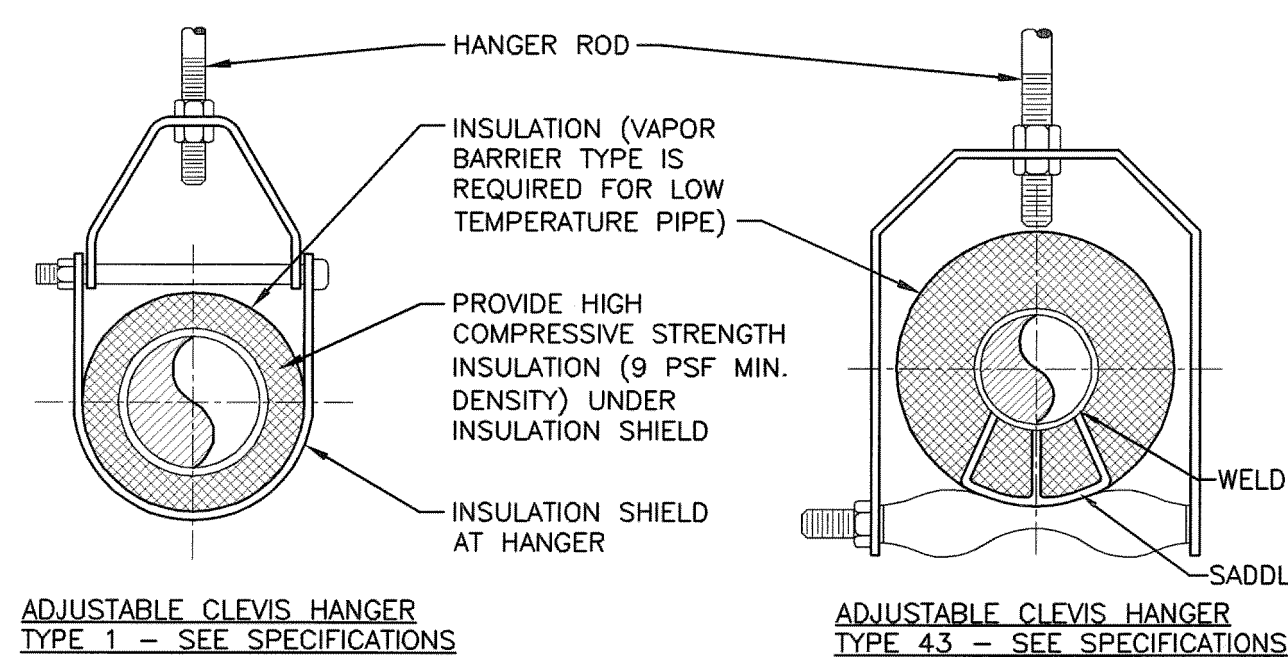
SCHEDULE FOR 8 FT. [2.4m] SPAN OR LESS.

**D1** ANCHOR INSTALLATION STEAM/CONDENSATE PIPING IN TRENCH  
SCALE: NONE

EXPANSION LOOP SCHEDULE				
SIZE OF PIPE	HOT SPRUNG	1 IN [25 mm]	2 IN [51 mm]	4 IN [101 mm]
	COLD SPRUNG	1-1/2" [38 mm]	3" [76 mm]	4-1/2" [114 mm]
2 IN [50 mm]	10 FT [3.0 M]	15 FT [4.6 M]	19 FT [5.8 M]	23 FT [7.0 M]
2-1/2 IN [65 mm]	10 FT [3.0 M]	15 FT [4.6 M]	19 FT [5.8 M]	26 FT [7.9 M]
3 IN [76 mm]	12 FT [3.7 M]	18 FT [5.5 M]	22 FT [6.7 M]	30 FT [9.1 M]
4 IN [101 mm]	13 FT [4.0 M]	20 FT [6.1 M]	26 FT [7.9 M]	35 FT [10.7 M]
5 IN [127 mm]	14 FT [4.3 M]	22 FT [6.7 M]	29 FT [8.8 M]	40 FT [12.2 M]
6 IN [152 mm]	15 FT [4.6 M]	24 FT [7.3 M]	32 FT [9.8 M]	44 FT [13.4 M]
8 IN [203 mm]	16 FT [4.9 M]	27 FT [8.2 M]	35 FT [10.7 M]	50 FT [15.2 M]



- NOTES:
1. THERMAL EXPANSION OF STEEL PIPE PER 100 FEET SHALL BE 2.43".
  2. EXPANSION LOOP SHALL BE COLD SPRUNG 1/2 OF TOTAL EXPANSION. NO CREDIT FOR COLD SPRUNG TAKEN.
  3. WHERE THERE IS DIMENSION LIMITATION IN EITHER DIRECTION, ASSUME THE ONE AND SOLVE FOR THE OTHER (TOTAL = W + 2H).
  4. WHERE THERE ARE NO DIMENSIONAL LIMITATION DIRECTION USING THE LOOP FOR W = H/2.

**F1** EXPANSION LOOP DETAIL  
SCALE: NONENOTES:  
SEE SPECIFICATIONS FOR DETAILED HANGER REQUIREMENTS

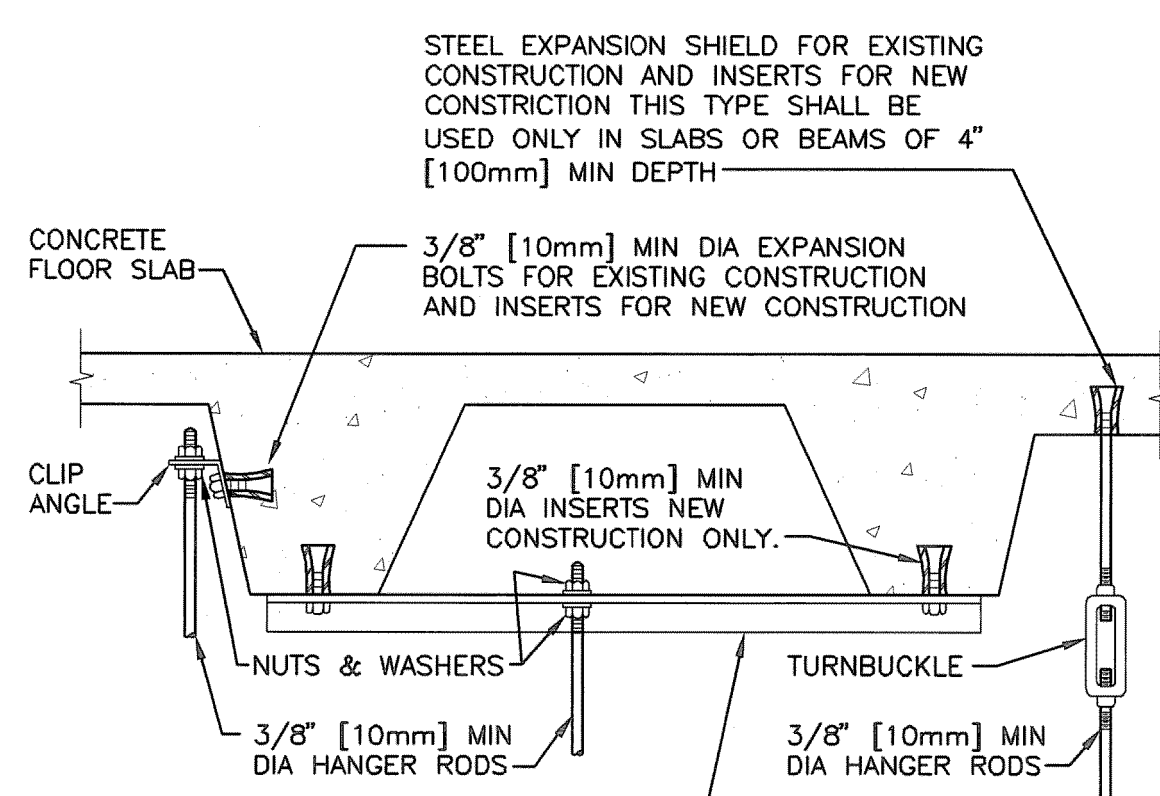
SIDE VIEW TRAPEZE HANGER FOR UP TO 1000 LB. [453KG] UNIFORM LOAD

MAXIMUM PIPE/TUBING SUPPORT SPACING																							
NOM. SIZE	IN. [mm]	THRU 3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24				
PIPE	FT. [mm]	[2100]	[2100]	[2100]	[2700]	[3000]	[3400]	[3700]	[4100]	[4900]	[5200]	[5800]	[6700]	[7000]	[7600]	[8200]	[8500]	[9100]	[9600]				
TUBING	FT. [mm]	5 FT [1500]	6	7	8	8	9	10	12	13	14	16	16	-	-	-	-	-	-	-	-	-	-

NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.

**B3** PIPE HANGERS  
SCALE: NONE

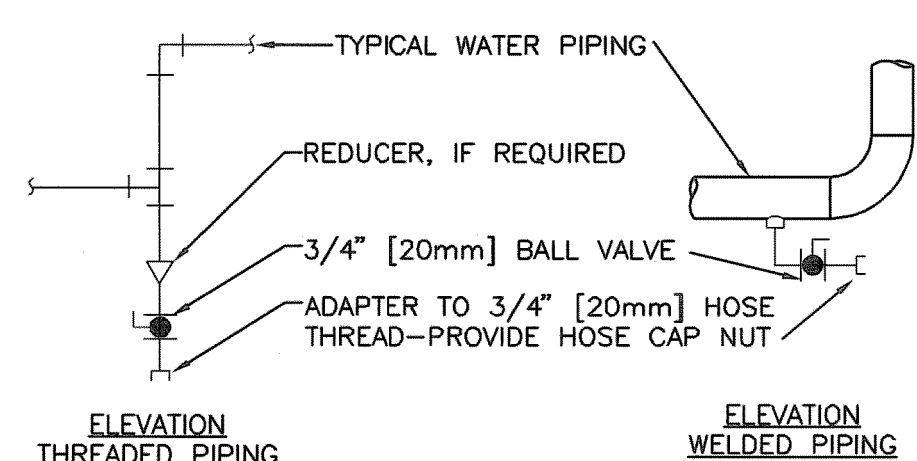
VA CAD DETAIL #: SD230511-21.DWG



FOR PIPES UNDER 2" [50mm] IN SIZE USE 1 1/2"x1 1/2"x1/4" [40x40x6.4mm] ANGLE. ALL PIPES 2" [50mm] &amp; LARGER USE 3"x3"x1/4" [75x75x6.4mm] ANGLE

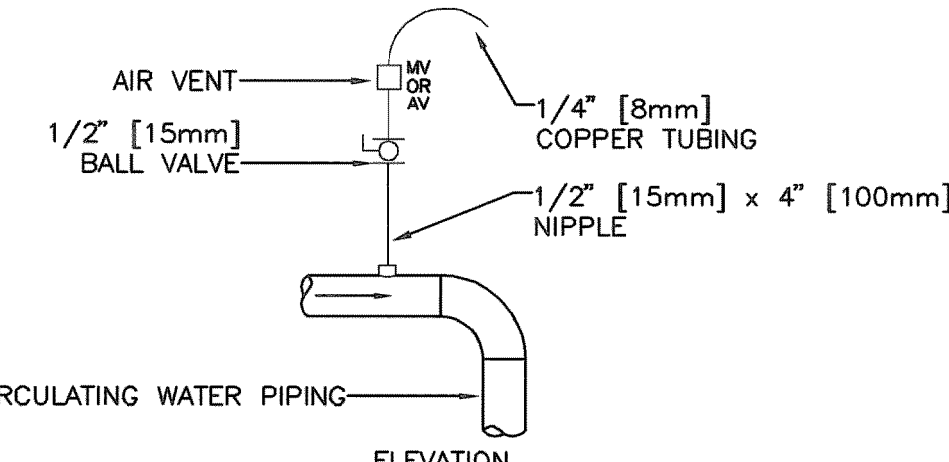
**D3** SECURING HANGER RODS IN CONCRETE  
SCALE: NONE

VA CAD DETAIL #: SD230541-05.DWG



## TYPICAL HOT WATER PIPING DRAIN VALVE CONNECTIONS

- NOTES:
1. DRAIN ALL LOW POINTS AS INDICATED ABOVE.
  2. WHERE SCALE POCKETS ARE SHOWN ON PIPE RISER DIAGRAMS AND/OR PLANS LOCATE DRAIN AT BOTTOM OF SCALE POCKET.



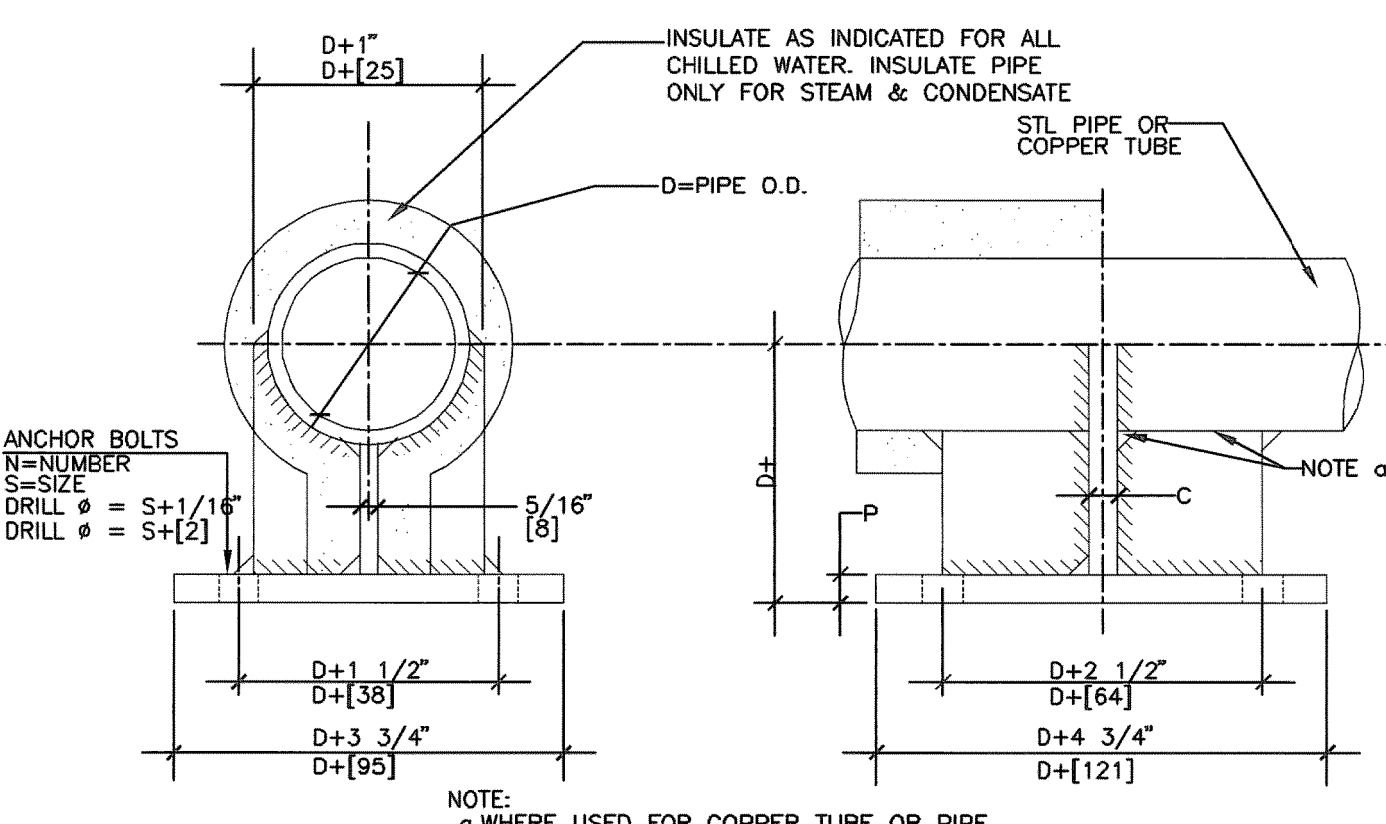
## TYPICAL MANUAL AIR VENT AIR VENT CONNECTIONS (HYDRONIC SYSTEMS)

- NOTES:
1. VENT ALL HIGH POINTS INDICATED ABOVE.
  2. IF AUTOMATIC AIR VENTS ARE USED, PIPE DISCHARGE TO DRAIN.

**F3** AIR VENT CONNECTIONS (HYDRONIC SYSTEMS)  
SCALE: NONE

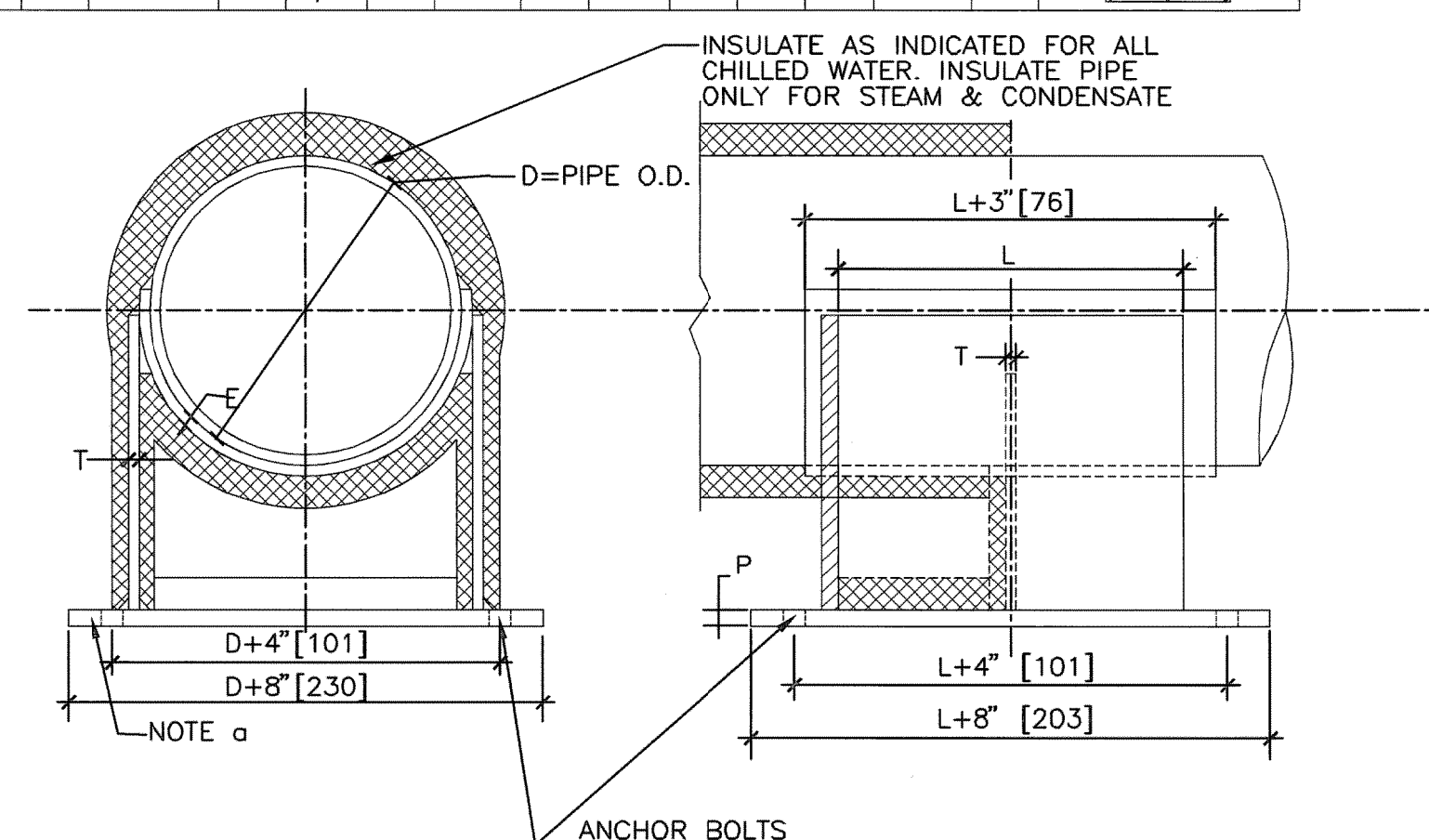
VA CAD DETAIL #: SD232113-07.DWG

PIPE ANCHOR SCHEDULE									
D	P	C	N	S	BOLT PATTERN				
IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
4"	102	5/8"	16	3/4"	19	4"	102	3/4"	19
3"	76	1/2"	13	1/2"	13	4"	102	5/8"	16
2-1/2"	64	3/8"	10	3/8"	10	4"	102	5/8"	16
2"	51	3/8"	10	3/8"	10	4"	102	5/8"	16
1-1/2"	38	3/8"	10	1/4"	6	4"	102	1/2"	13

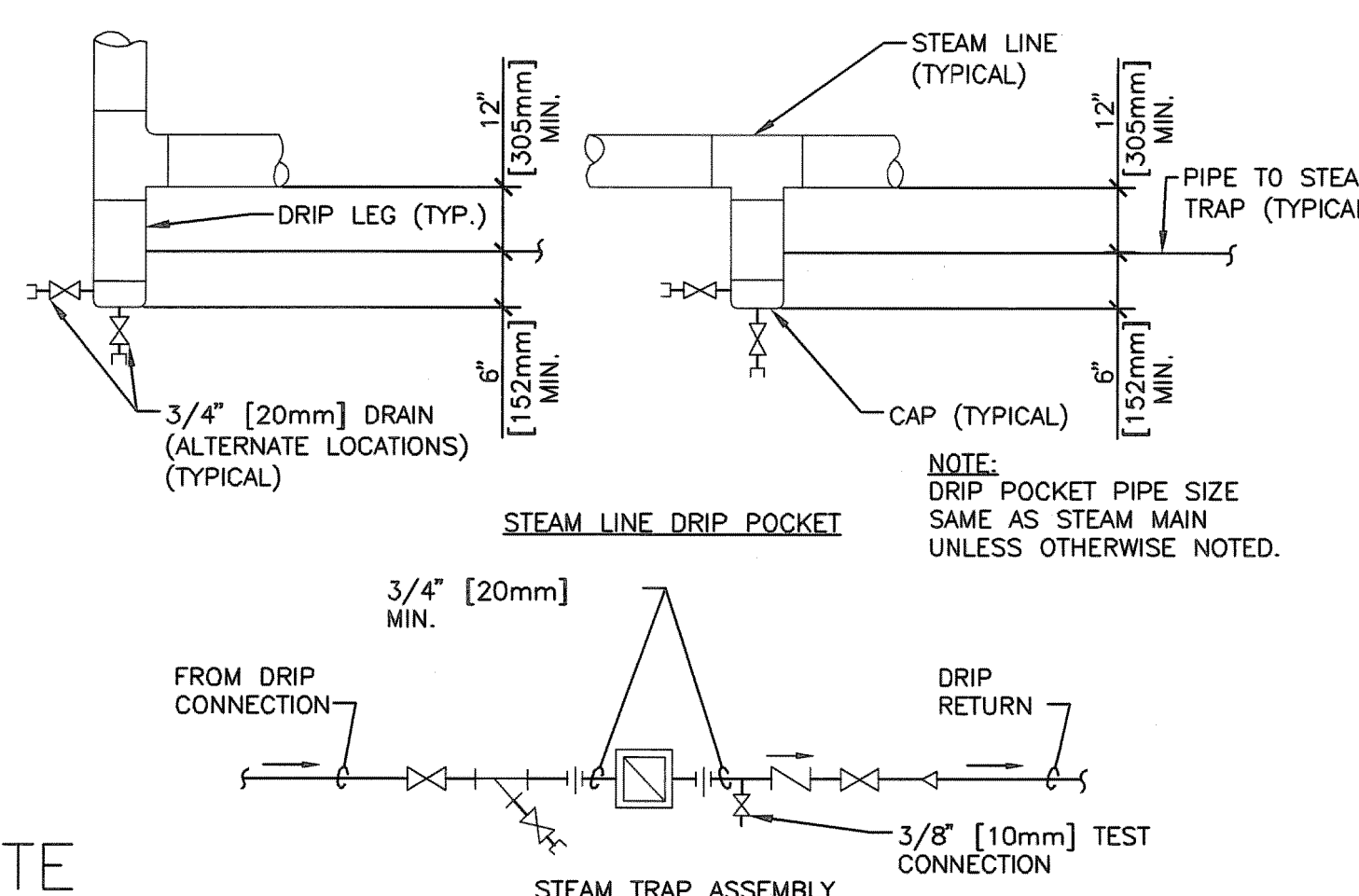
**C6** SMALL PIPE ANCHOR 1-1/2" - 4"  
SCALE: NONE

VA CAD DETAIL #: SD230511-23.DWG

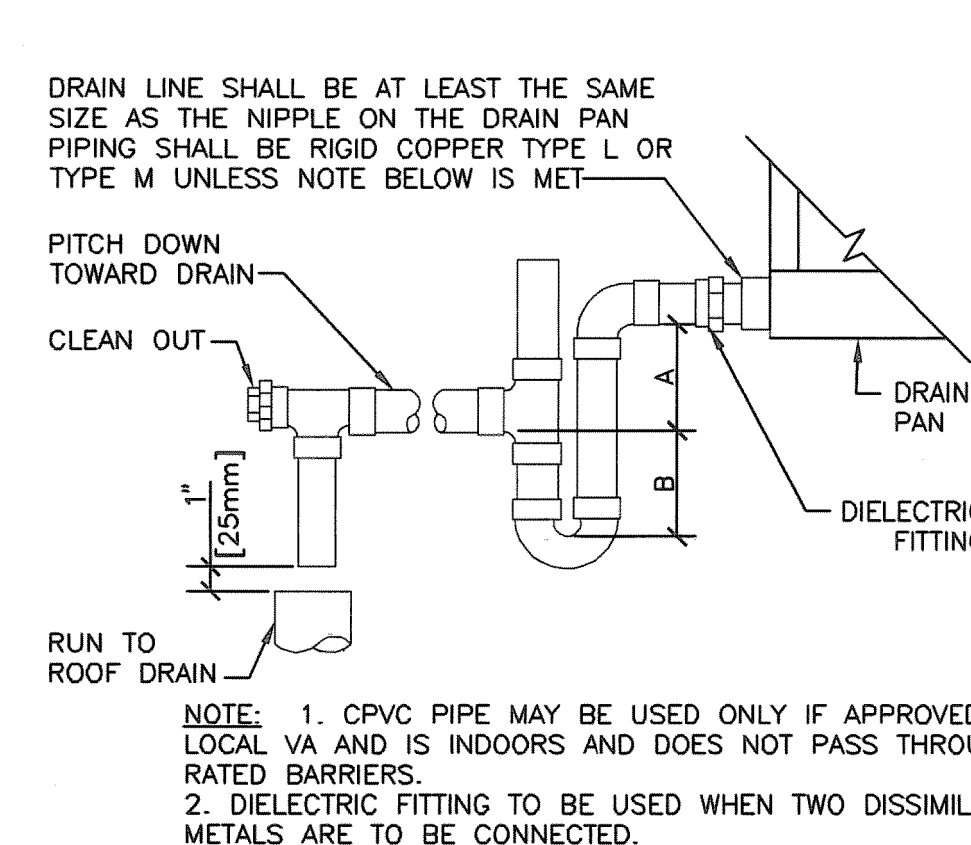
PIPE ANCHOR SCHEDULE															
D	IN	MM	P	IN	MM	N	IN	MM	S	IN	MM	BOLT PATTERN			
6"	152	8-1/2"	216	3/4"	19	5/8"	10	1/4"	6	4"	102	7/8"	22		
8"	203	10"	254	3/4"	19	1/2"	13	1/4"	6	4"	102	7/8"	22		
10"	254	12"	305	3/4"	19	1/2"	13	1/4"	6	4"	102	7/8"	22		
12"	305	14"	356	3/4"	19	1/2"	13	1/4"	6	4"	102	7/8"	22		
14"	356	16"	406	3/4"	19	1/2"	13	1/2"	13	4"	102	7/8"	22		
16"	406	18"	457	3/4"	19	1/2"	13	1/2"	13	4"	102	7/8"	22		
18"	457	20"	508	1"	25	5/8"	16	1/2"	13	6"	152	1"	25		

NOTES:  
a. INSTALL WALL PLATE FIRST THEN WELD ON REMAINING ASSEMBLY. ONE WALL PLATE FOR BOTH CHILLED WATER S&R. IS OPTIONAL.**C8** LARGE PIPE ANCHOR 6" - 18"  
SCALE: NONE

VA CAD DETAIL #: SD230511-24.DWG

**D5** STEAM LINE DRIP POCKET STEAM TRAP ASSEMBLY  
SCALE: NONE

VA CAD DETAIL #: SD232111-01.DWG

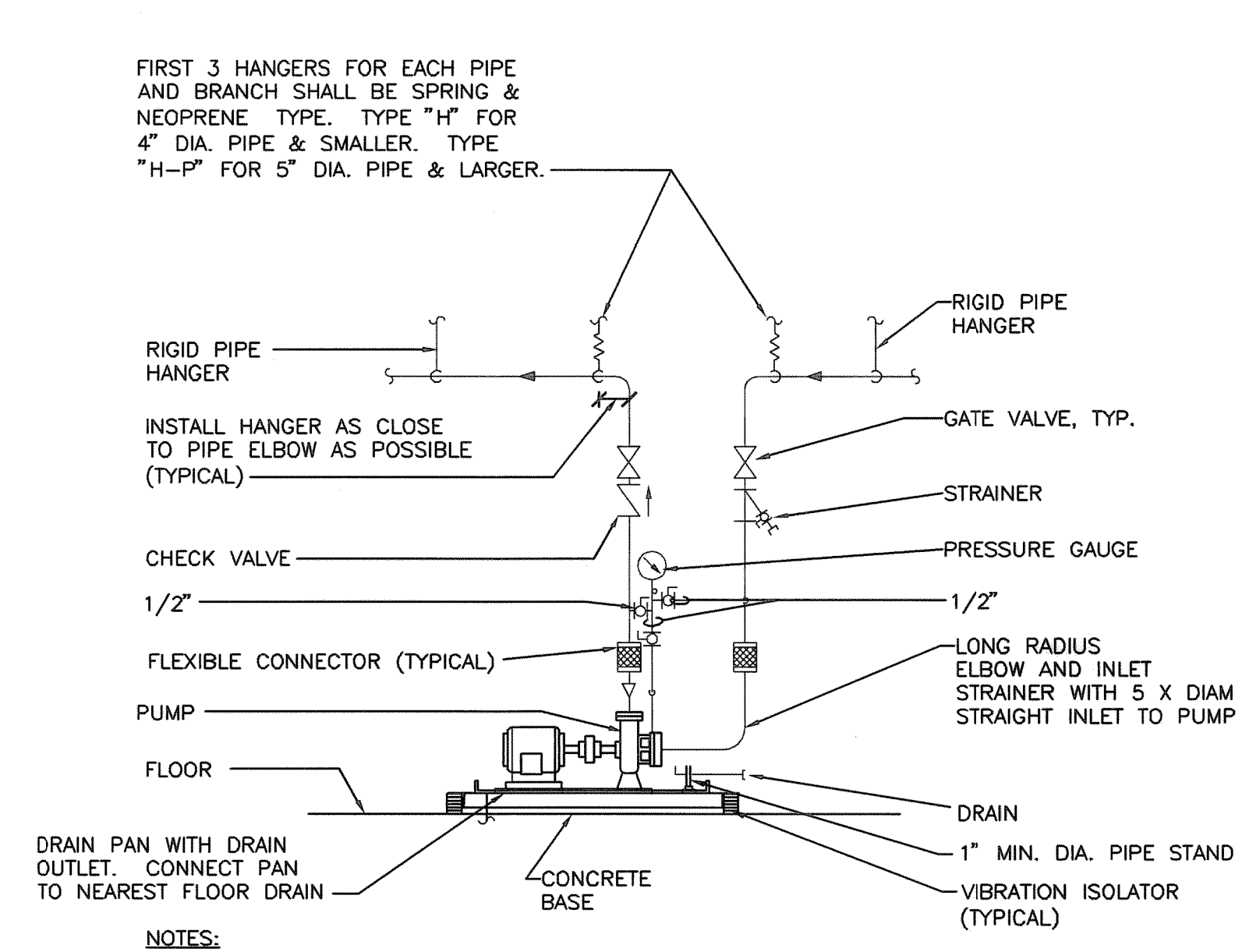


UNIT TYPE	A	B
DRAW THRU	2" [50mm] PLUS X	X
BLOW THRU	1" [25mm] MINIMUM	2X

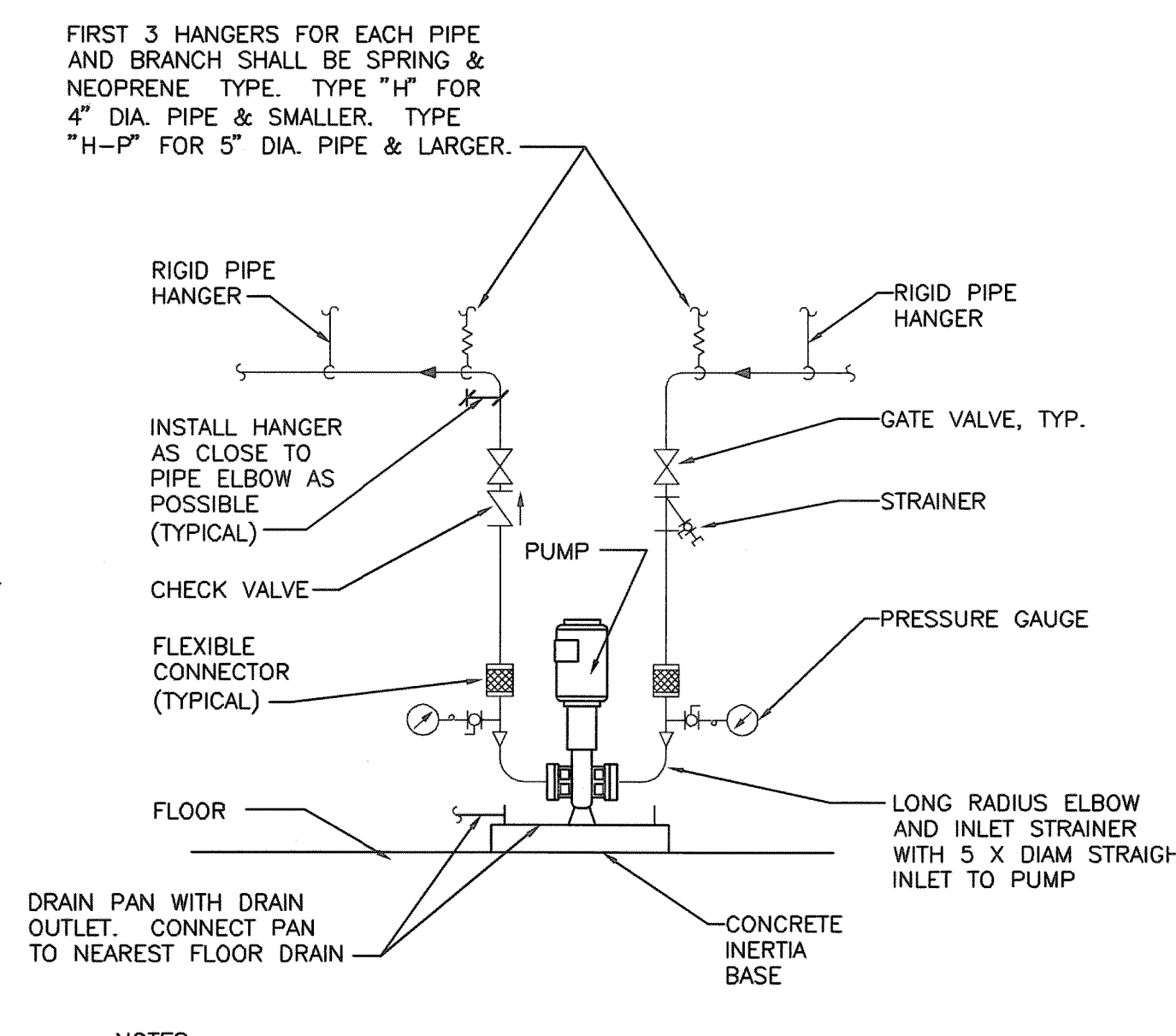
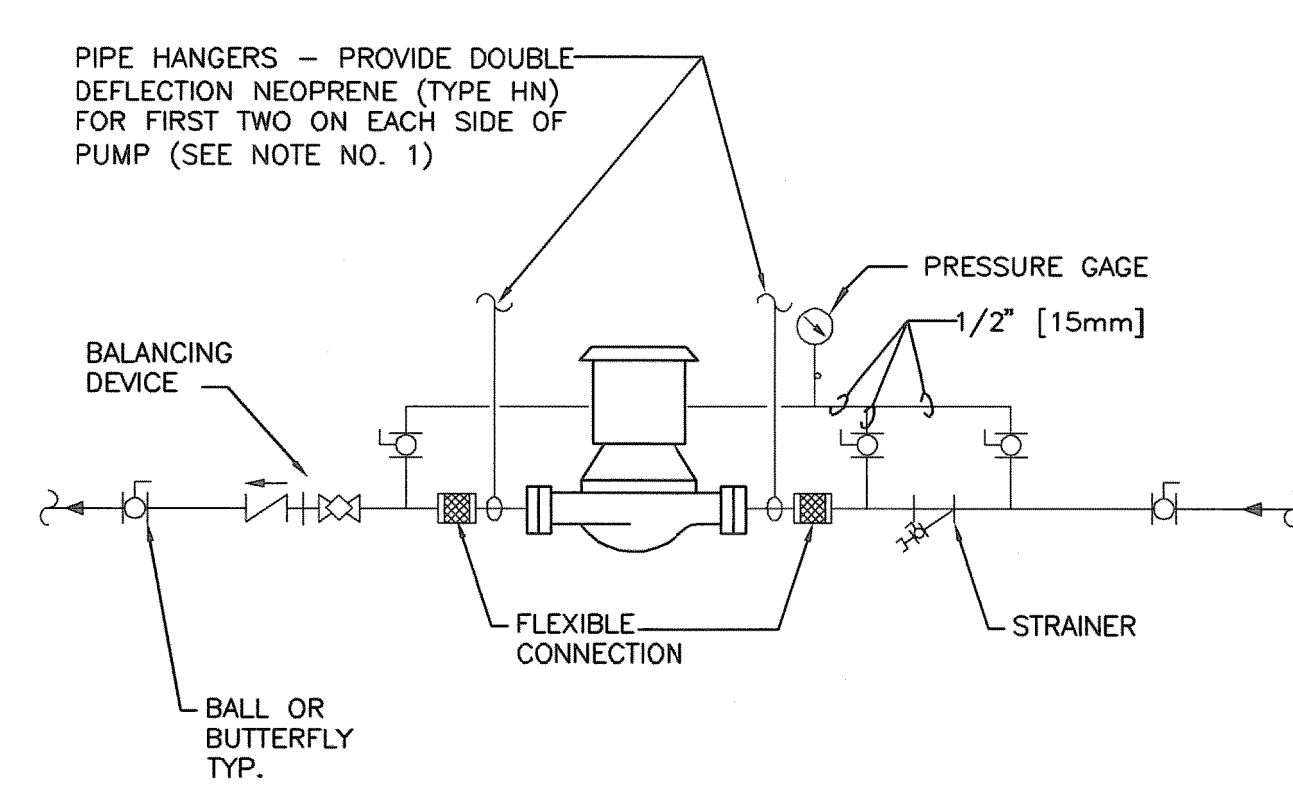
WHERE X = STATIC PRESSURE IN PAN

**E7** AIR HANDLING UNIT DRAIN TRAP DETAIL  
SCALE: NONE

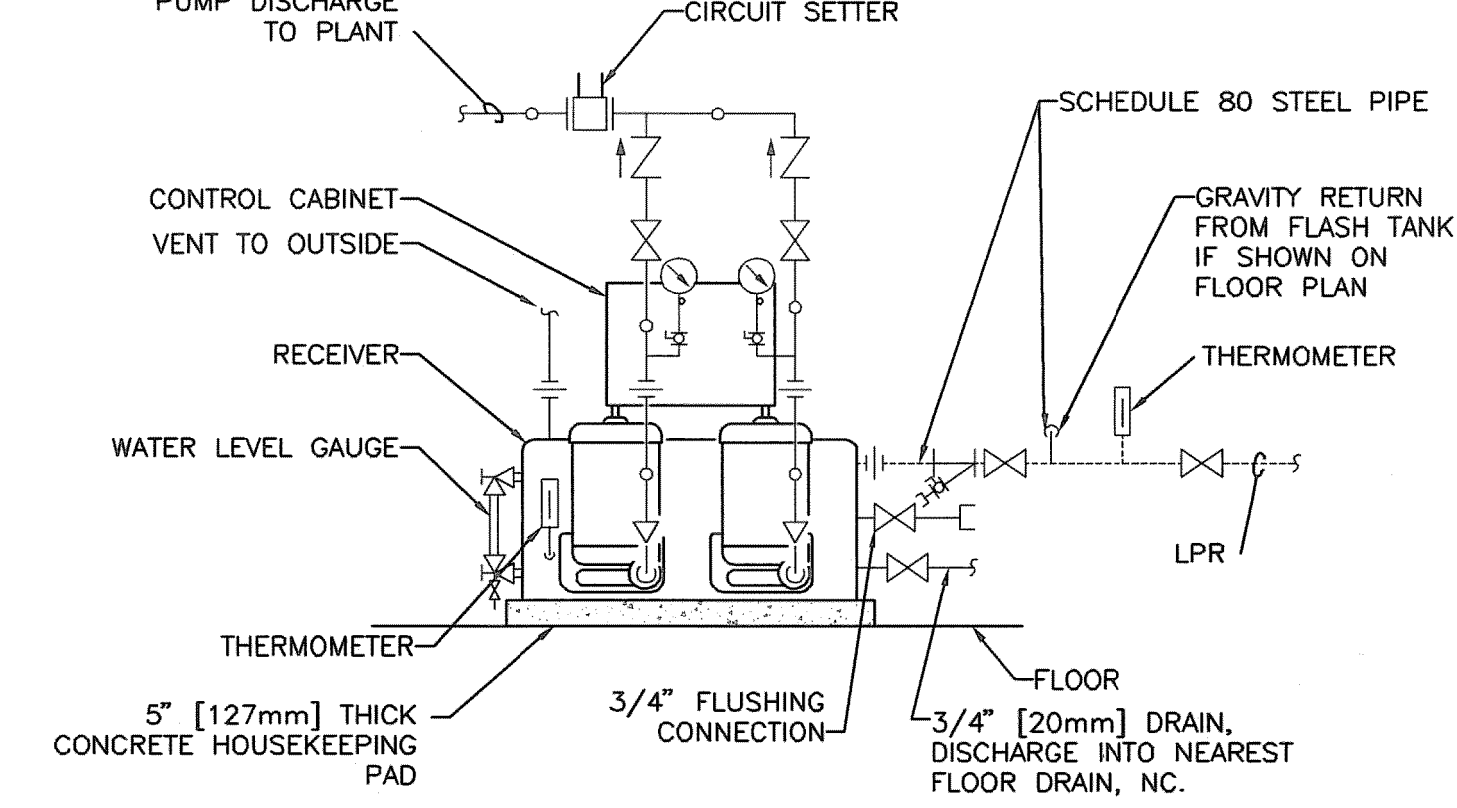
VA CAD DETAIL #: SD232113-08.DWG

**E9** END SUCTION PUMP PIPING  
SCALE: NONE

VA CAD DETAIL #: SD232123-02.DWG

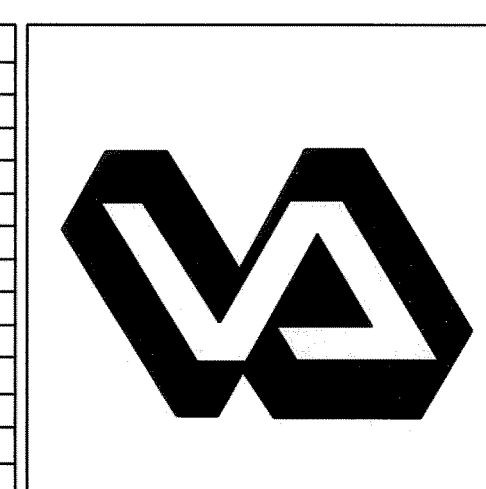
NOTES:  
SEE SPECIFICATION SECTION "PUMPS" FOR Y STRAINER OPTION**F5** VERTICAL PUMP PIPING  
SCALE: NONENOTES:  
1. SUPPORT PUMP FROM PIPING ONLY. DO NOT SUPPORT PUMP FROM MOTOR.**F7** IN-LINE PUMPS - CONNECTIONS  
SCALE: NONE

VA CAD DETAIL #: SD232123-01.DWG

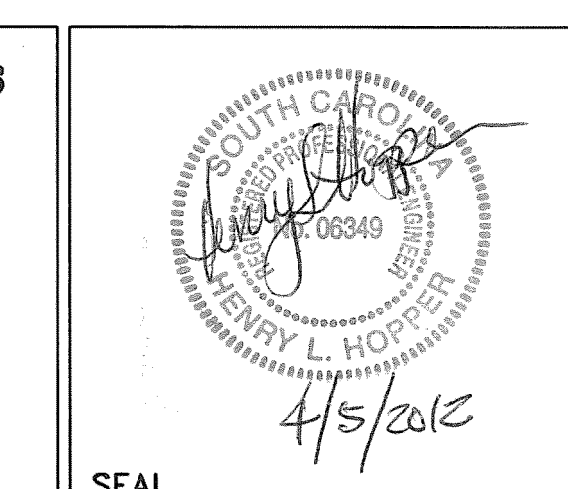
**F9** CONDENSATE PUMPS - PIPING CONNECTIONS  
SCALE: NONE

VA CAD DETAIL #: SD232123-07.DWG

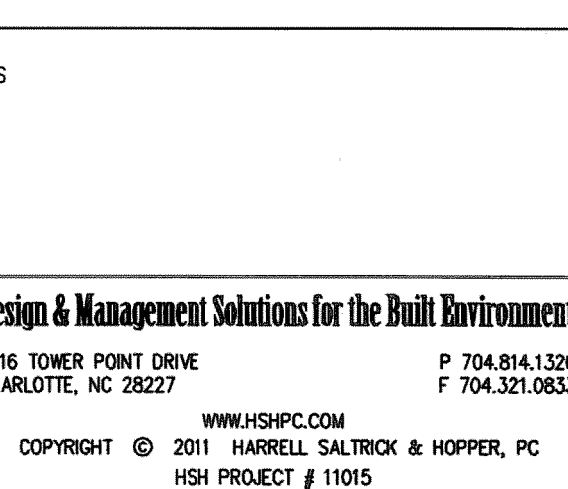
REVISION NO.	REVISION DESCRIPTION
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Recommended Approvals:			
1. MEDICAL DIRECTOR	6. OPERATIONS SERVICE LINE MANAGER		
2. ASSOCIATE DIRECTOR	7. INFECTION CONTROL MANAGER		
3. CHIEF OF STAFF	8. SAFETY MANAGER		
4. ASSOC. DIRECTOR	9. GENERAL ENGINEER		
5. SERVICE LINE MGRS.	10. COTR		

Drawing Title MECHANICAL DETAILS
*BUILDING IS FULLY SPRINKLERED*

Project Title <b>REPLACE BOILER PLANT/ COGEN/CHP</b>		
Drawn DWS	Building Number 21	AutoCAD File No
Checked	Reviewed	Const. Contract

Date APRIL 10, 2012
Project Number 544-11-101
Drawing No. MP502

