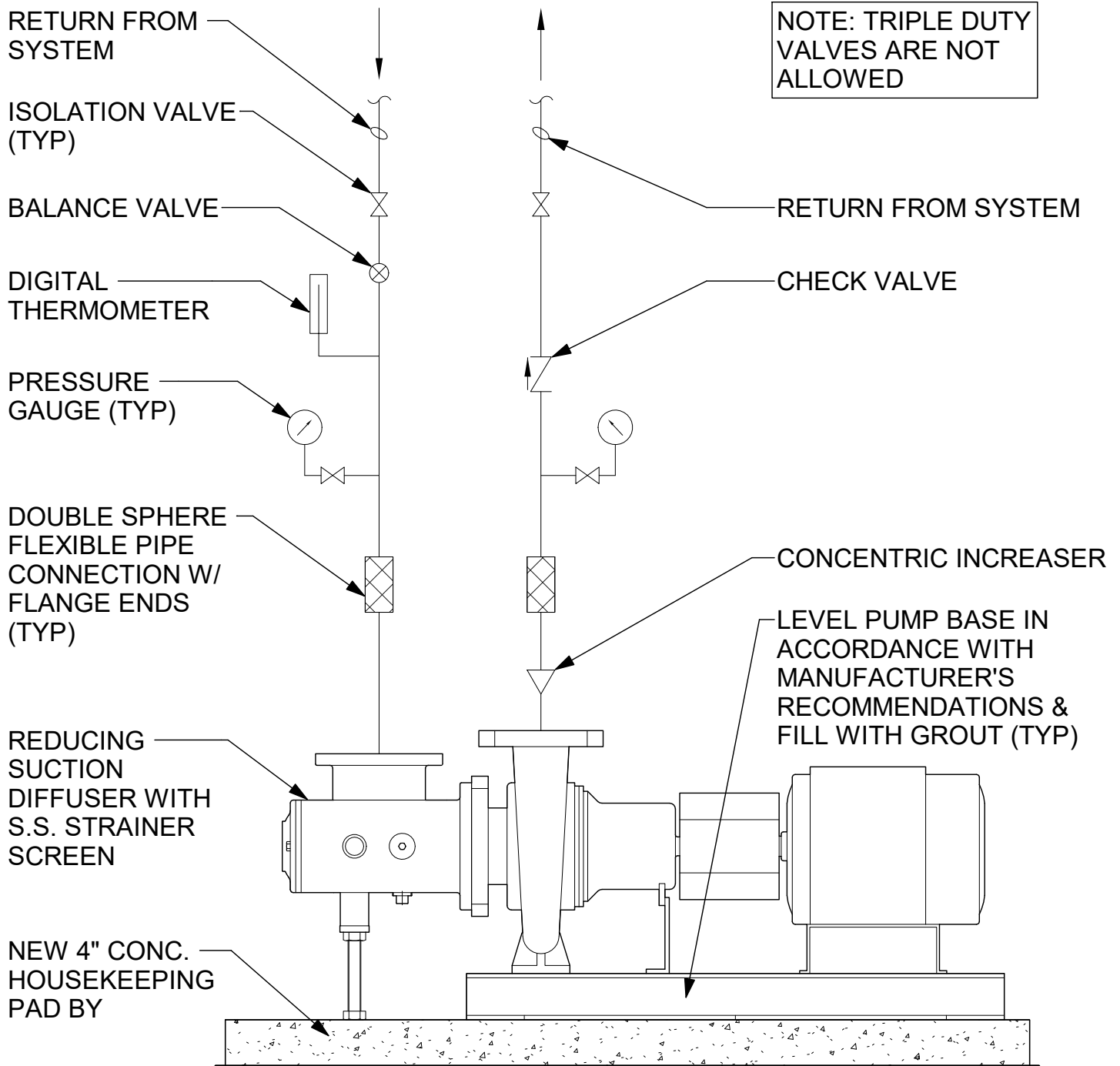





ILLINOIS STATE UNIVERSITY
EXHIBIT FS-23.2: MECHANICAL DETAILS
Effective October 23, 2024

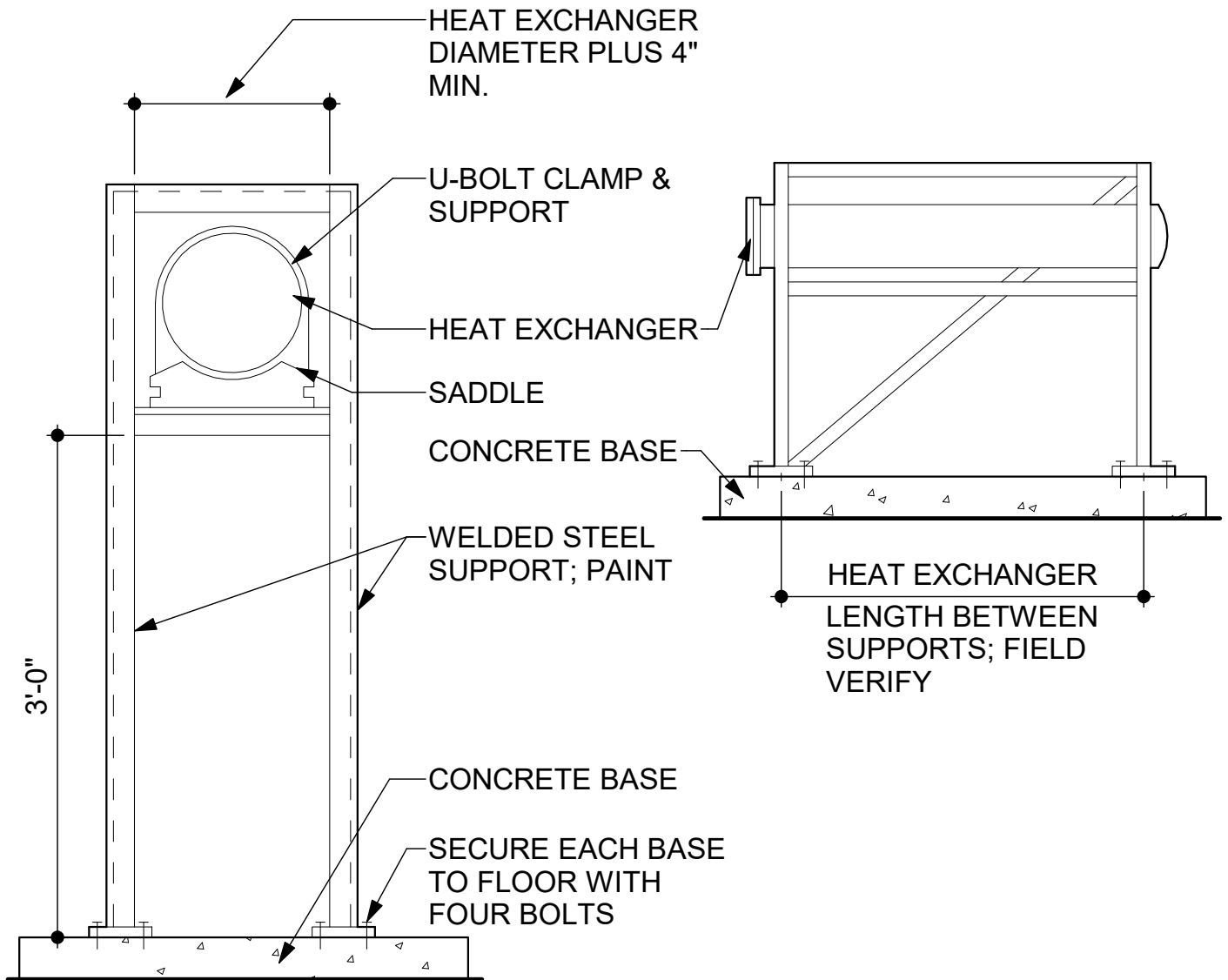
I. DETAILS

- A. See the *Illinois State University Design Guidelines* and the *Illinois State University Facilities Standards* for additional information.
- B. The following mechanical details have been included:
1. Detail 1/M1: End Suction Centrifugal Pump Piping Detail
 2. Detail 1/M2: Heat Exchanger Support Detail
 3. Detail 1/M3: Steam to Hot Water Heat Exchanger Piping Dtl.
 4. Detail 1/M4: Hot Water Reheat Coil Piping Detail (2-Way)
 5. Detail 1/M5: Chilled Water Cooling Coil Piping Detail (AHU)
 6. Detail 1/M6: Make-Up Water / Expansion Tank Detail
 7. Detail 1/M7: Condensate Drain Piping Detail (AHU)
 8. Detail 1/M8: Pot Feeder / Side Stream Filter Piping Detail
 9. Detail 1/M9: Steam Pressure Reducing Station Double Valve (1/3 & 2/3)




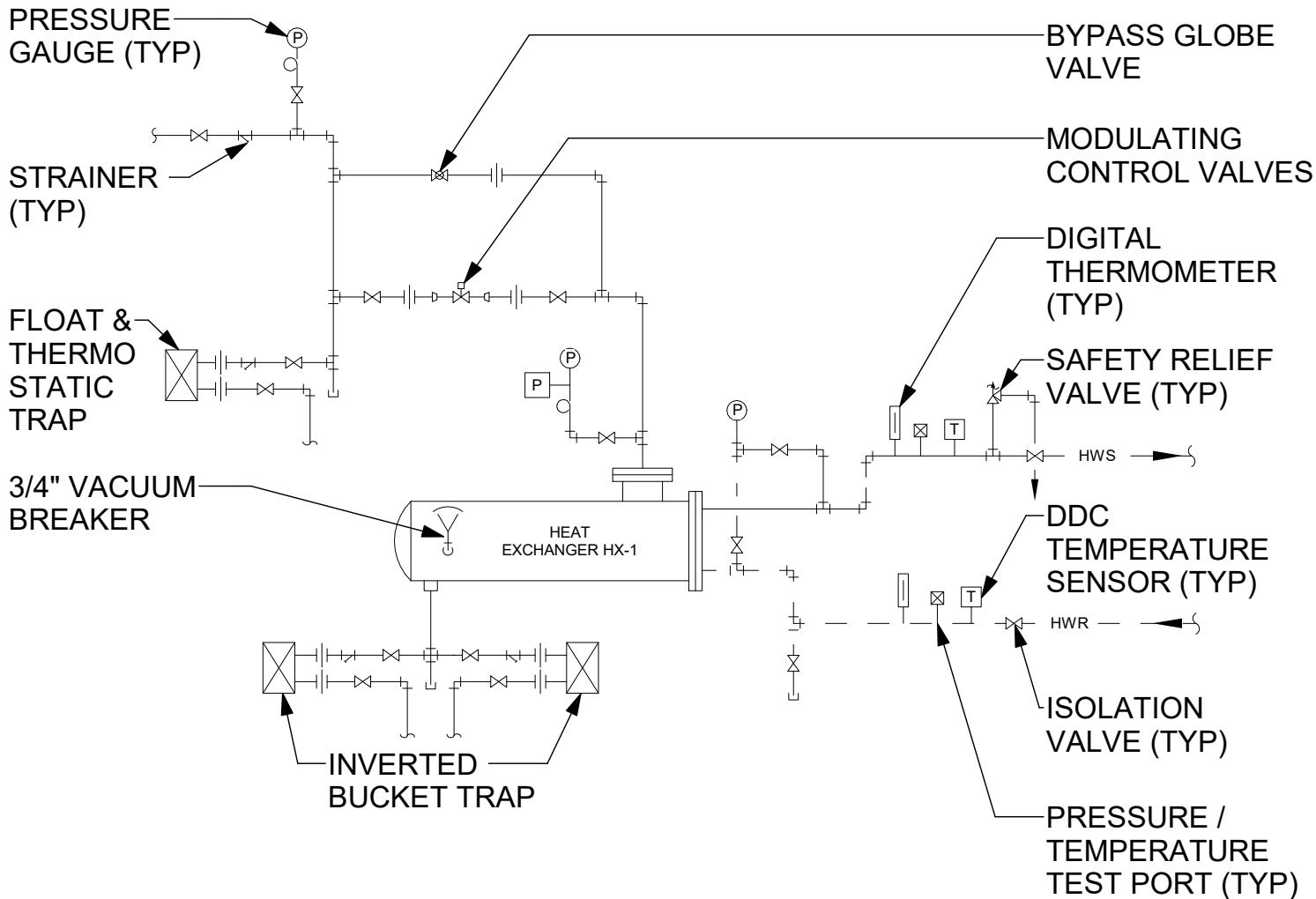
1 END SUCTION CENTRIFUGAL PUMP PIPING DETAIL
M1 NOT TO SCALE

 FACILITIES PLANNING AND CONSTRUCTION Illinois State University 100 South Fell, Suite 102 • Normal, IL 61790-3390 • (309) 438-8606	END SUCTION CENTRIFUGAL PUMP PIPING DETAIL ISU FACILITIES STANDARDS Normal, IL 61761	PROJECT NO.	DATE
		Exhibit FS-23.2	
		SHEET	M1



1 HEAT EXCHANGER SUPPORT DETAIL
 M2 NOT TO SCALE

 FACILITIES PLANNING AND CONSTRUCTION Illinois State University <small>100 South Fell, Suite 102 • Normal, IL 61790-3390 • (309) 438-8606</small>	HEAT EXCHANGER SUPPORT DETAIL ISU FACILITIES STANDARDS Normal, IL 61761	PROJECT NO.	DATE
		Exhibit FS-23.2	
		SHEET	M2



1 STEAM TO HOT WATER HEAT EXCHANGER PIPING DTL.
M3 NOT TO SCALE



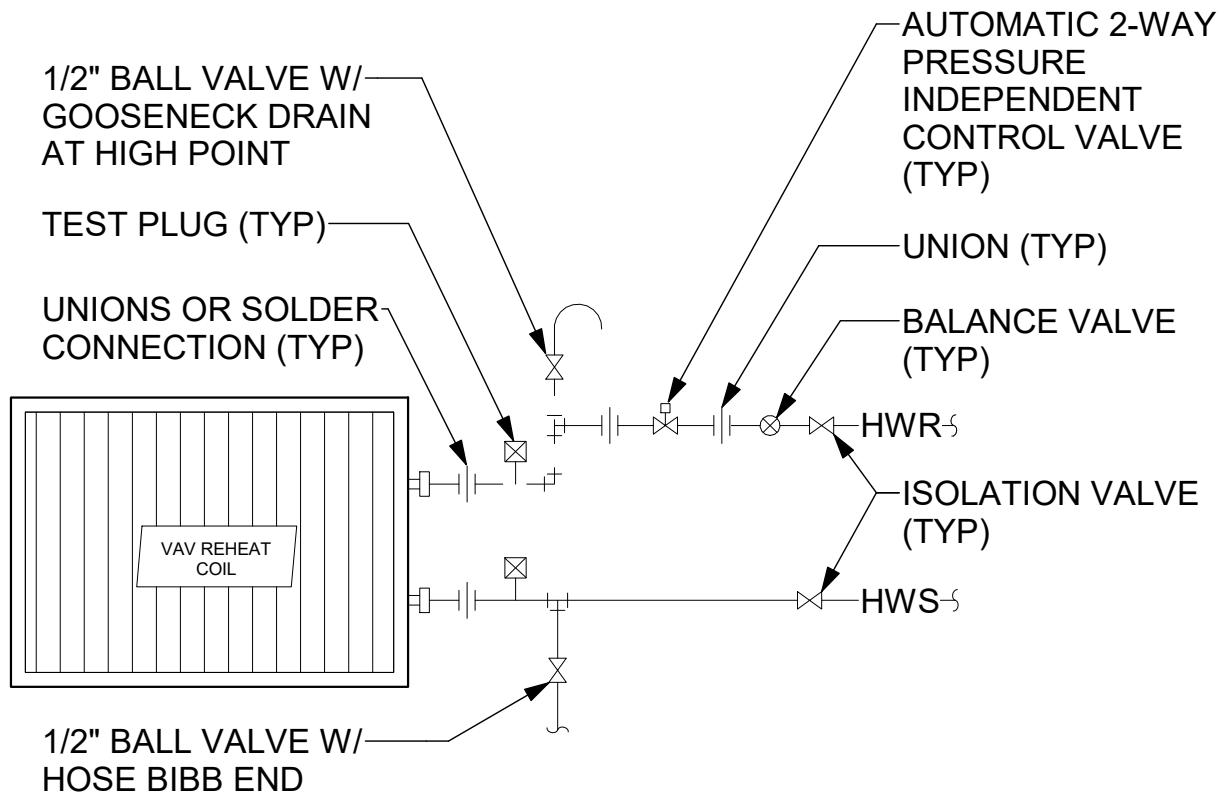
100 South Fell, Suite 102 • Normal, IL 61790-3390 • (309) 438-8606

STEAM TO HOT WATER HEAT EXCHANGER PIPING DETAIL

ISU FACILITIES STANDARDS
 Normal, IL 61761

PROJECT NO. Exhibit FS-23.2	DATE
SHEET	

M3



1 **HOT WATER REHEAT COIL PIPING DETAIL (2-WAY)**
M4 NOT TO SCALE



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**HOT WATER REHEAT COIL PIPING
DETAIL (2-WAY)**

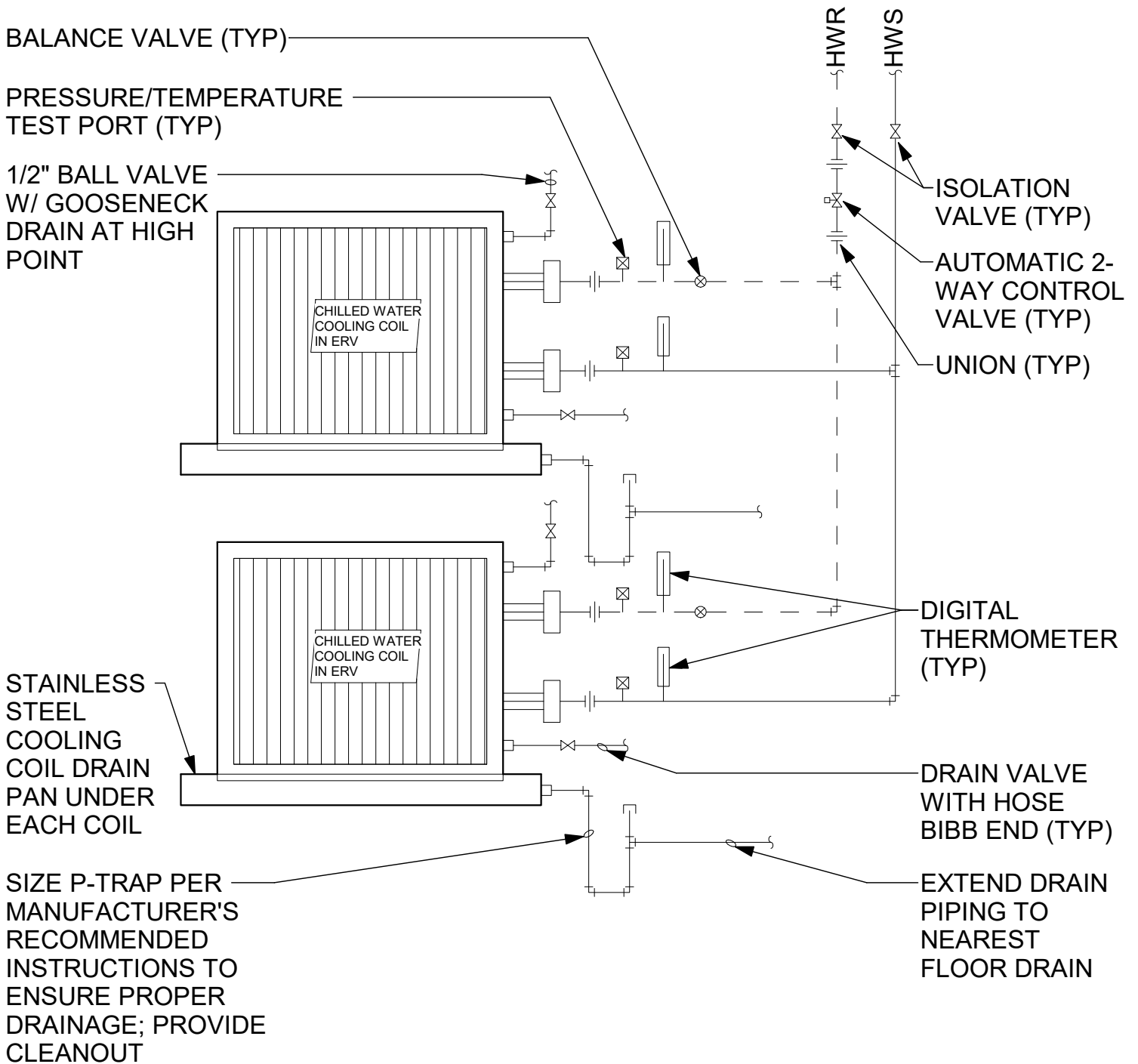
ISU FACILITIES STANDARDS
Normal, IL 61761

PROJECT NO. DATE


Exhibit FS-23.2

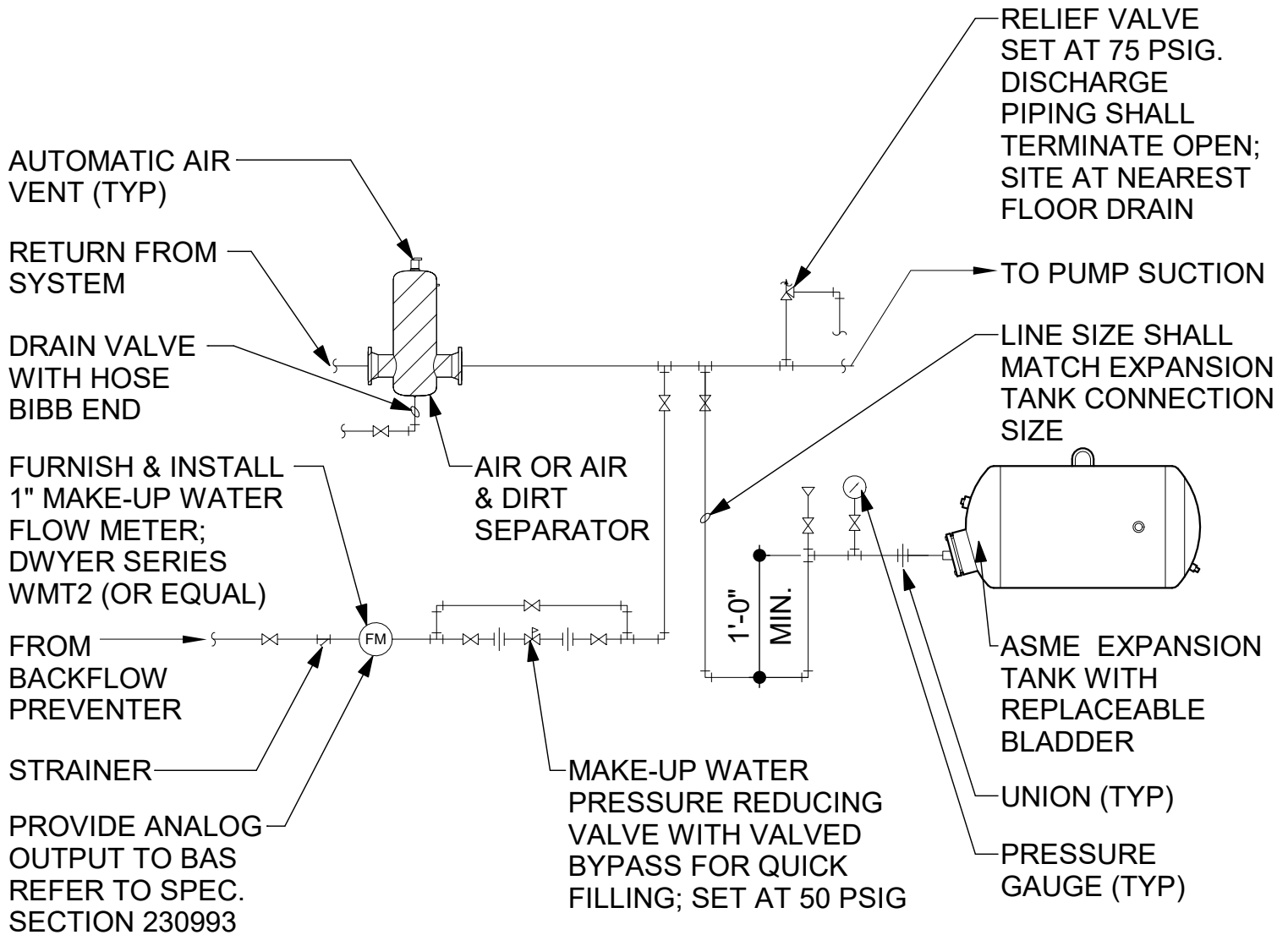
SHEET

M4




1 CHILLED WATER COOLING COIL PIPING DETAIL (AHU)
M5 NOT TO SCALE

 <p>FACILITIES PLANNING AND CONSTRUCTION <i>Illinois State University</i> 100 South Fell, Suite 102 • Normal, IL 61790-3390 • (309) 438-8606</p>	<p>CHILLED WATER COOLING COIL PIPING DETAIL (AHU)</p> <p>ISU FACILITIES STANDARDS Normal, IL 61761</p>	PROJECT NO.	DATE
		Exhibit FS-23.2	
		SHEET	
		M5	



1 MAKE-UP WATER / EXPANSION TANK DETAIL

M6 NOT TO SCALE

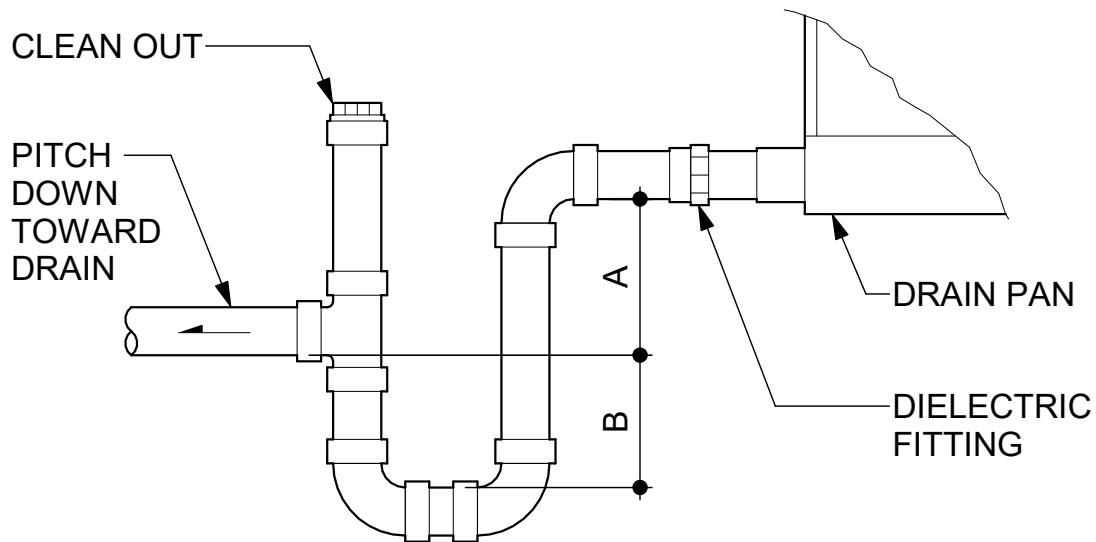
 <p>FACILITIES PLANNING AND CONSTRUCTION Illinois State University 100 South Fell, Suite 102 • Normal, IL 61790-3390 • (309) 438-8606</p>	<p>MAKE-UP WATER / EXPANSION TANK DETAIL</p> <p>ISU FACILITIES STANDARDS Normal, IL 61761</p>	PROJECT NO.	DATE
		Exhibit FS-23.2	
		SHEET	M6

NOTE:

1. DRAIN LINE SIZING SHALL BE AT LEAST THE SAME SIZE AS THE NPPLE ON THE DRAIN PAN. PIPING SHALL BE RIGID COPPER TYPE "L" OR "M" UNLESS NOTED OTHERWISE.
2. DIELECTRIC FITTING TO BE USED WHEN TWO DIFFERENT METALS ARE TO BE CONNECTED.
3. PROVIDE 1" AIR GAP AND FLOOR DRAIN OR FLOOR SINK.

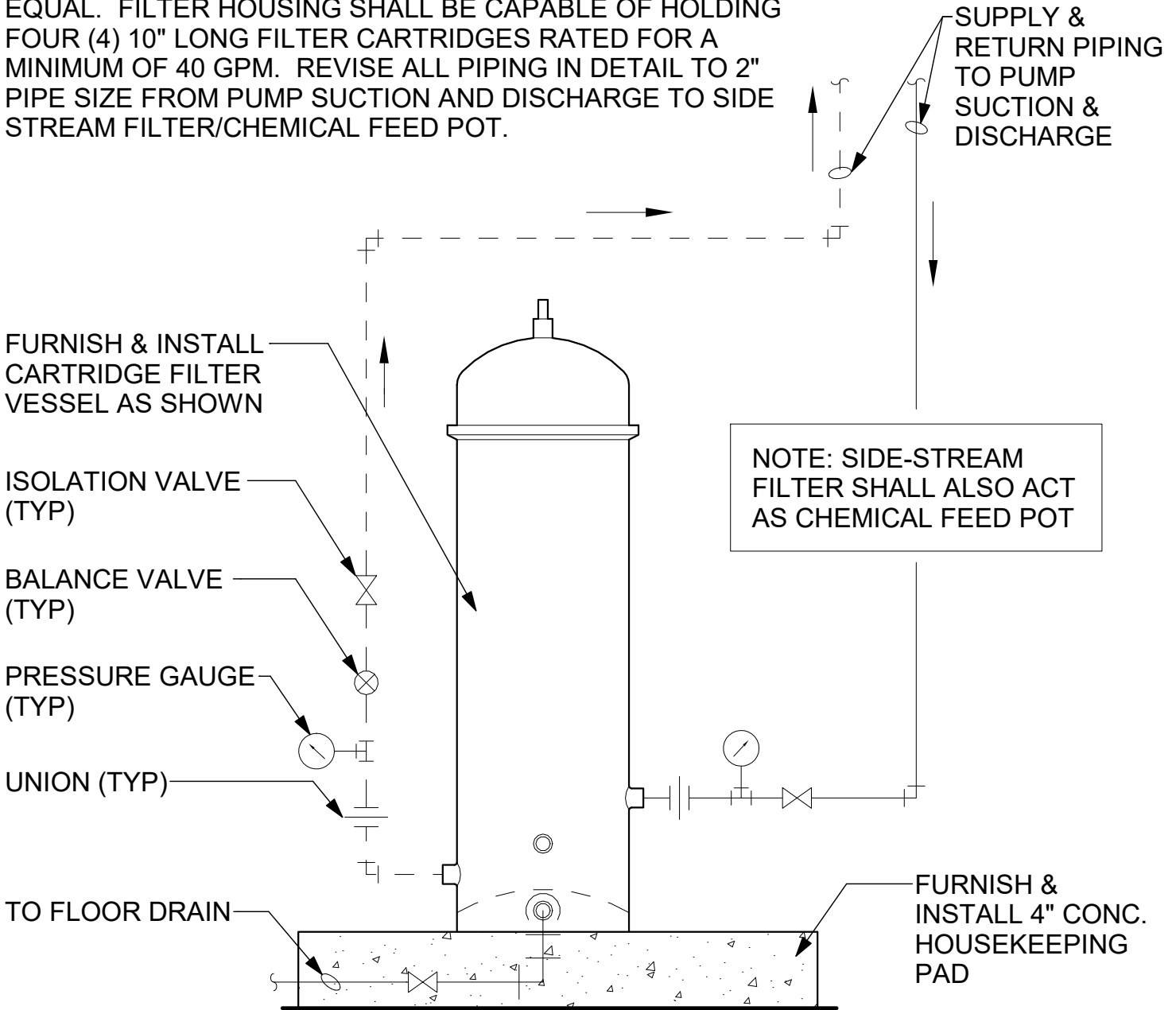
UNIT TYPE	A	B
DRAW THRU	2" PLUS X	X
BLOW THRU	1" MINIMUM	2X

WHERE X = STATIC PRESSURE IN PAN




1 CONDENSATE DRAIN PIPING DETAIL (AHU)
M7 NOT TO SCALE

CHILLED AND HEATING HOT WATER SYSTEM -
 PROVIDE SIDE STREAM FILTER MODEL SHELCO 4FOS1 OR
 EQUAL. FILTER HOUSING SHALL BE CAPABLE OF HOLDING
 FOUR (4) 10" LONG FILTER CARTRIDGES RATED FOR A
 MINIMUM OF 40 GPM. REVISE ALL PIPING IN DETAIL TO 2"
 PIPE SIZE FROM PUMP SUCTION AND DISCHARGE TO SIDE
 STREAM FILTER/CHEMICAL FEED POT.

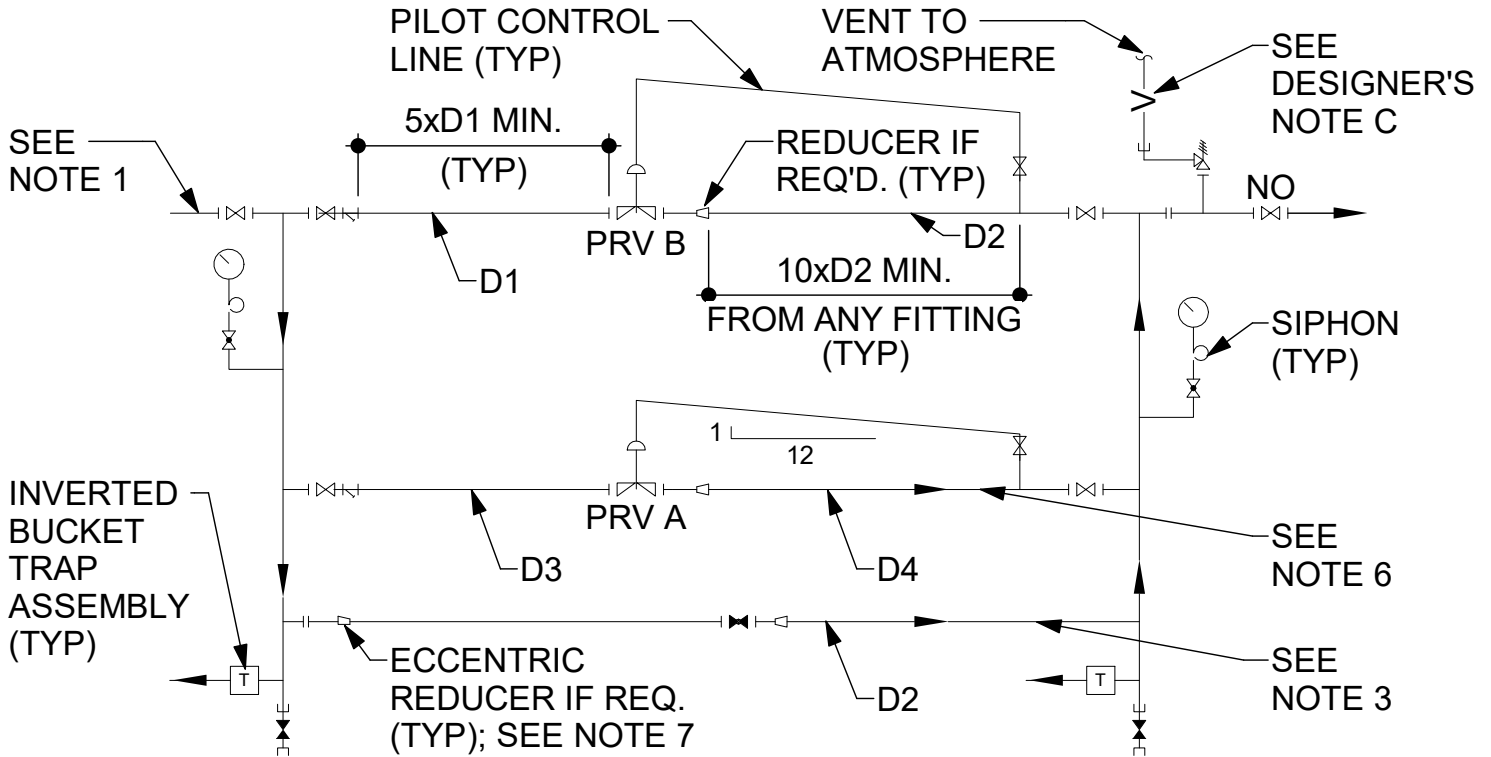


1 POT FEEDER / SIDE STREAM FILTER PIPING DETAIL
 M8 NOT TO SCALE

 FACILITIES PLANNING AND CONSTRUCTION Illinois State University 100 South Fell, Suite 102 • Normal, IL 61790-3390 • (309) 438-8606	POT FEEDER / SIDE STREAM FILTER PIPING DETAIL ISU FACILITIES STANDARDS Normal, IL 61761	PROJECT NO.	DATE
		Exhibit FS-23.2	
		SHEET	
		M8	

DESIGNER'S NOTES:

- A. MIDDLE PRV VALVE A AND UPPER PRV VALVE B (1-PRV1A, 1-PRV1B). USE SYSTEM PRESSURE FOR 1-PRV1A AND SET PRESSURE TO 13.8 kPA (2 PSIG) HIGHER.
- B. USE DUAL VALVE PRESSURE REDUCING STATION WHEN MINIMUM LOAD IS 10% OR LESS THAN PEAK LOAD.
- C. SAFETY VALVES SHALL BE SIZED TO PROTECT DOWNSTREAM SYSTEM FROM OVER PRESSURIZATION. VENT PIPE SHALL BE SIZED PER ASME REQUIREMENTS. VENTS FROM SAFETY VALVES SHALL RUN SHORTEST AND MOST DIRECT ROUTE TO OUTDOOR THRU ROOF. WHERE VENTS RUN IN FINISHED SPACE, THEY SHALL BE FURRED IN TO MATCH ADJACENT BUILDING CONSTRUCTION. IN UNFINISHED SPACE, PIPE SHALL BE COVERED ONLY. SAFETY VALVES SHALL BE LOCATED AS SHOWN ON FLOOR PLANS.
- D. PIPE DIMENSION SHALL BE AS INDICATED IN CONTRACT DRAWINGS OR BY MANUFACTURER'S RECOMMENDATION.
- E. DELETE DESIGNER'S NOTE PRIOR TO 100% CD REVIEW.




NOTES:

- 1. SEE FLOOR PLANS FOR PIPE SIZES.
- 2. SEE EQUIPMENT SCHEDULES FOR VALVE DATA AND PIPE SIZES. INSTALL VALVES AS RECOMMENDED BY MANUFACTURER.
- 3. BYPASS AND VENT SHALL BE SIZED TO MEET THE CAPACITY OF THE COMBINED CAPACITY OF TWO PRV'S.
- 4. PROVIDE NECESSARY UNIONS FOR REMOVAL OF VALVE WITH THREADED CONNECTIONS.
- 5. SLOPE PILOT CONTROL LINE FROM PRESSURE REDUCING VALVE TO DOWNSTREAM STEAM PIPING; MINIMUM SLOPE SHALL BE 1"/12" (25mm/300mm).
- 6. PROVIDE MINIMUM 5 PIPE DIAMETERS STRAIGHT PIPE UPSTREAM AND MINIMUM 10 PIPE DIAMETERS STRAIGHT PIPE DOWNSTREAM OF ALL PRV'S.
- 7. ALL UPSTREAM REDUCERS SHALL BE ECCENTRIC IF REQUIRED.

STEAM PRESSURE REDUCING STATION DOUBLE VALVE (1/3 & 2/3)

1
M9

NOT TO SCALE

 FACILITIES PLANNING AND CONSTRUCTION Illinois State University 100 South Fell, Suite 102 • Normal, IL 61790-3390 • (309) 438-8606	STEAM PRESSURE REDUCING STATION DOUBLE VALVE (1/3 & 2/3) ISU FACILITIES STANDARDS Normal, IL 61761	PROJECT NO.	DATE
		Exhibit FS-23.2	
		SHEET	
		M9	