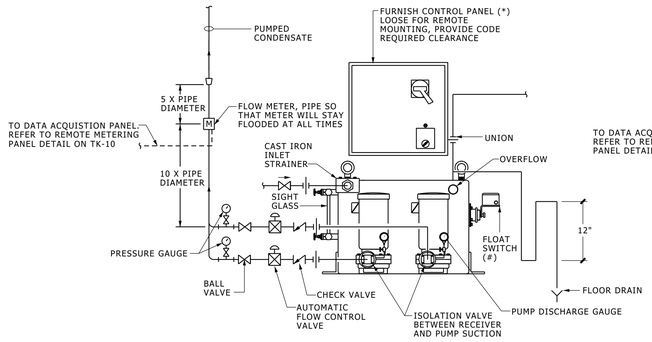
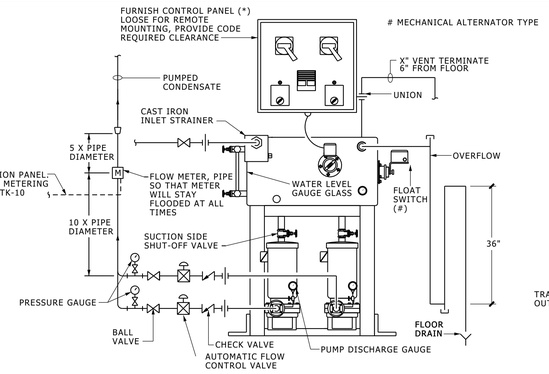


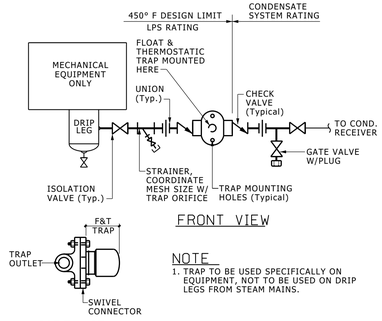
FLOOR MTD. CONDENSATE RETURN UNIT DETAIL

NO SCALE D 15582 02 06 09.dgn



ELEVATED CONDENSATE RETURN UNIT DETAIL

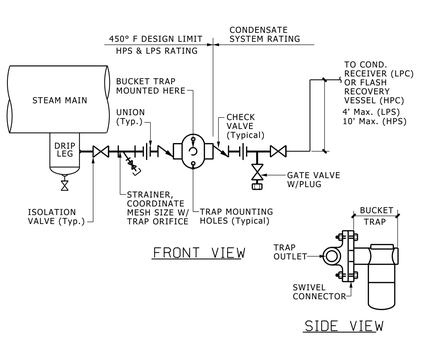
NO SCALE D 15582 01 06 09.dgn



NOTE
1. TRAP TO BE USED SPECIFICALLY ON EQUIPMENT, NOT TO BE USED ON DRIP LEGS FROM STEAM MAINS.

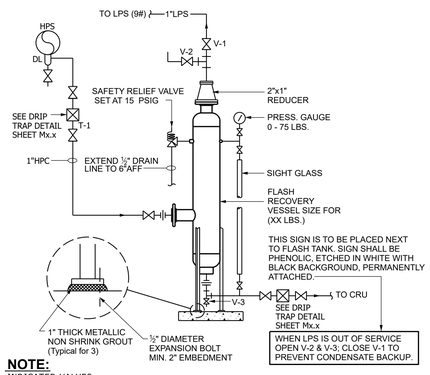
F&T STEAM TRAP ASSEMBLY DETAIL

NO SCALE D 15525 01 11 09.dgn



BUCKET STEAM TRAP ASSEMBLY DETAIL

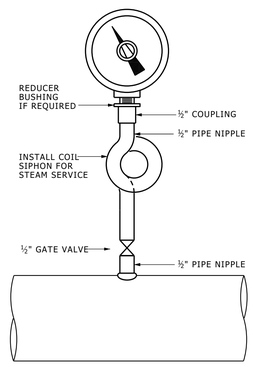
NO SCALE D 15525 05 11 09.dgn



NOTE:
INDICATED VALVES (V-1, V-2 & V-3) SHALL BE LABELED W/ BRASS TAGS

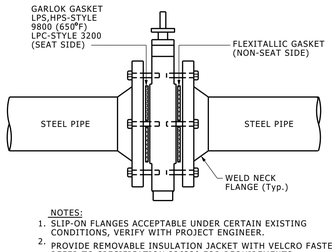
FLASH TANK DETAIL

NO SCALE



PRESSURE GAUGE DETAIL

NO SCALE D 15130 002 05 04.dgn

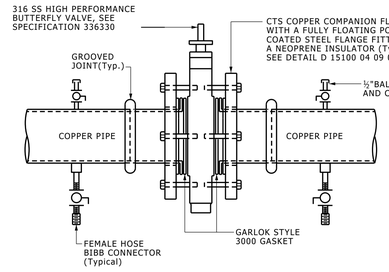


NOTES:
1. SLIP-ON FLANGES ACCEPTABLE UNDER CERTAIN EXISTING CONDITIONS, VERIFY WITH PROJECT ENGINEER.
2. PROVIDE REMOVABLE INSULATION JACKET WITH VELCRO FASTENERS. REFER TO SPECIFICATION 336330 FOR REQUIREMENTS.

APPLIES TO HP BUTTERFLY VALVES ON LPS, HPS & LPC PIPING

VALVE INSTALLATION DETAIL

NO SCALE D 15100 01 04 09.dgn

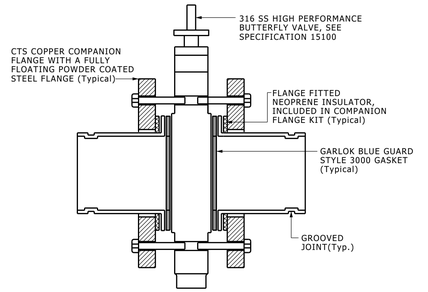


DHW VALVES NOT INSULATED

APPLIES TO DHW PIPING

VALVE INSTALLATION DETAIL

NO SCALE D 15100 02 04 09.dgn

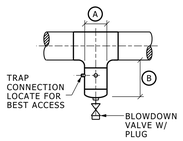


APPLIES TO COPPER PIPING

COMPANION FLANGE INSTALLATION DETAIL

NO SCALE D 15100 04 09 07.dgn

VERTICAL



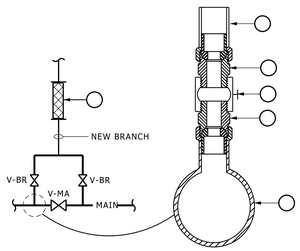
HORIZONTAL

SIZING SCHEDULE				
PIPE SIZE (IN)	A SIZE (IN)	B LENGTH (IN)	TRAP CONN. SIZE (IN)	BLOW DOWN SIZE (IN)
<4"	3"	6"	¾"	1"
4"	3"	6"	¾"	2"
6"	4"	9"	¾"	2"
8"	6"	11"	¾"	2"
10,12"	8"	18"	¾"	2"
14,16"	12"	24"	1"	2"
18,20"	16"	30"	1"	2.5"
24"	20"	36"	1"	2.5"

NOTES
1. USE TEE THRU 16" PIPE AND WELDOLET FOR LARGER SIZES.

STEAM DRIP LEG DETAIL

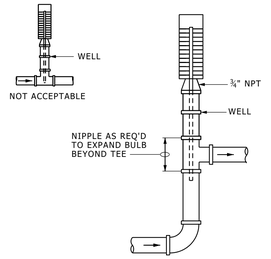
NO SCALE D 15525 02 10 04.dgn



KEY NOTES
1. 6" COPPER REDUCING TEE.
2. CAST BRASS UNION W/ THREADED END ONE SIDE AND SWEAT CONNECTION OTHER SIDE.
3. BRONZE BALL VALVE UP TO 2" BRANCH, BUTTERFLY VALVE FOR 2½" & LARGER.
4. COPPER BRANCH PIPING.
5. FOR 2" TUBING AND BELOW, 18" MIN. FLEXIBLE COPPER METAL HOSE.
   FOR 2½" TUBING AND ABOVE, 18" MIN. FLEXIBLE STAINLESS STEEL METAL HOSE WITH STAINLESS STEEL FLANGES.

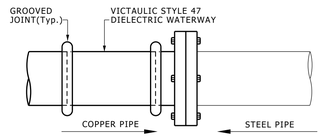
DHW BRANCH PIPING DETAIL

NO SCALE



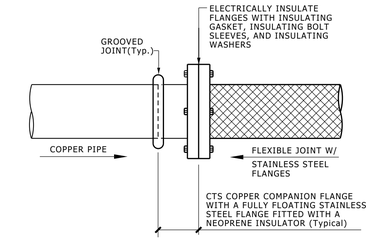
THERMOMETER INSTALLATION DETAIL

NO SCALE FOR PIPING 1" THRU 2" D 15130 001 05 04.dgn



DIELECTRIC CONNECTION DETAIL

NO SCALE



NOTE:
BELLOWS EXPANSION JOINT SHALL BE 316 STAINLESS STEEL

APPLIES TO DHW EXPANSION JOINTS

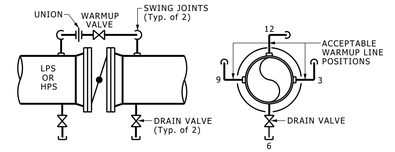
EXPANSION JOINT DETAIL

NO SCALE D 15125 02 09 07.dgn

APPLIES TO DHW PIPING

FLEXIBLE HOSE INSTALLATION DETAIL

NO SCALE



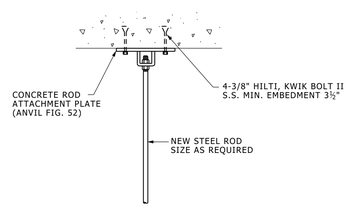
SIDE VIEW SECTION

WARMUP LINE SIZING SCHEDULE			
LOW PRESSURE STEAM (9# LPS)		HIGH PRESSURE STEAM (60# HPS)	
SERVICE SIZE	WARMUP LINE SIZE	SERVICE SIZE	WARMUP LINE SIZE
≥14"	2"	≥14"	1½"
≥8"-<14"	1½"	≥8"-<14"	1"
<8"	1"	<8"	¾"

NOTES
1. DRAIN VALVES TO BE LOCATED AT BOTTOM, WARMUP VALVE TO BE LOCATED AT 9, 12 OR 3 O'CLOCK POSITIONS.
2. PROVIDE SWING JOINTS TO ALLOW FOR EXPANSION & CONTRACTION.
3. DRAIN AND WARM UP VALVES SHALL BE GATE VALVES.

WARM UP VALVE DETAIL

NO SCALE D 15100 03 09 07.dgn



TUNNEL ATTACHMENT DETAIL

NO SCALE

UNIVERSITY OF MICHIGAN
ARCHITECTURE, ENGINEERING AND CONSTRUCTION
ARCHITECTURE & ENGINEERING
326 East Hoover, Mail Stop B
Ann Arbor, MI 48109-1002
Phone: 734-764-3414
Fax: 734-936-3334

TUNNEL TOOL-KIT

REFERENCE DETAILS, SUPPORTS & SECTIONS

For

Design Professionals Use if Deemed Applicable and Adequate for Project

Not For Construction

UM TUNNEL TOOL KIT REFERENCE DETAILS, SUPPORTS & SECTIONS
FOR DESIGN PROFESSIONAL USE IF DEEMED APPLICABLE & ADEQUATE
APPROVED BY
AEC - Architecture & Engineering
REPRESENTING
AF/BB — DRAWN BY
WPG — PROJECT LEAD
CVW/VSM — DESIGNED BY
REVIEWED BY

MARK	ISSUED FOR/REVISIONS	DATE
•	New Master	• 03/20/15
•	Tunnel Group Revision	• 08/08/12
•	Hydronics Group Revision	• 10/04/07
•	~~Waste Oil Boiler~~ Revision	• ~~08/28/03~~
•	~~New Master~~	• ~~06/28/03~~
•	~~Draft Print for Review~~	• ~~05/28/03~~

Tunnels

Tool Kit

University Of Michigan
Ann Arbor , MI

UNIVERSITY OF MICHIGAN
ARCHITECTURE, ENGINEERING AND CONSTRUCTION
326 East Hoover, Mail Stop E
Ann Arbor, MI 48109-1002
Phone: 734-763-3020
Fax: 734-763-3238

P0000XXXX — U OF M PROJECT NO.
XXXX — BUILDING NO.

SHEET TITLE: **Tunnels**

Steam System Equipment & Accessories Typical Details

SHEET NO.
TK-6

SHEET NO. 8 OF 13 SHEET FILE NO. TK-6 04 15.dgn

10/19/2023 1:45:03 PM pschmand Q:\AES\PROJECT TYPES\TUNNELS\TUNNEL TOOL-KIT\CAD\TK-06 Rev 2023_10_20.dgn