

TERRA-GARD

Guide Specifications

GENERAL

All underground and aboveground chilled water, condensate return, and hot water lines with fluid temperatures up to 250 degrees shall be TERRA-GARD type, as manufactured by PERMA-PIPE. All straight sections, fittings, anchors and other accessories shall be factory fabricated to job dimensions. Each system layout shall be computer analyzed by the piping system manufacturer to determine stress on the carrier pipe and anticipated thermal movement of the service pipe. The system design shall be in strict conformance with ANSI B31.1, latest edition. Factory trained field technical assistance shall be provided for critical periods of installation; unloading, field joint instruction and testing.

No field insulated fittings or anchors will be allowed.

SERVICE PIPE (for alternate service pipe selections, contact PERMA-PIPE-Pipe for specification details)

Internal piping shall be ASTM A53 ERW or A53/A106 seamless (choose one) standard weight carbon steel, except for condensate return lines which shall be Schedule 80. All joints shall be butt-welded for 2½ inches and greater, and socket or butt-welded for 2 inches and below. Where possible, straight sections shall be supplied in 40-foot random lengths with piping exposed at each end for field joint fabrication.

ACCESSORIES

End seals, gland seals and anchors shall be designed and factory fabricated to prevent the ingress of moisture into the system.

INSULATION

Service pipe insulation shall be injected into the PVC casing annular spaces. The polyurethane foam shall completely fill the casing. The polyurethane foam shall be .16k-factor, R141B blowing agent, nominal 2 pound per cubic foot density. The following are the minimum casing sizes

Pipe Size (In.)	Casing Size
3/4, 1 & 1.25"	3
1½ & 2"	4
2.5 & 3"	5
4 & 5"	8'
6"	10"
8"	12"

10'

14"

PROTECTIVE JACKET

All preinsulated sections shall be PVC casing of 60mils for casing size 3", 70mils for 4", 80mils for 8", 100mils for 10", 120mils for 12" and 140mils for 14" .All fittings and anchors of the insulated piping system shall be prefabricated to job dimensions. No field insulated kits will be allowed.

FIELD JOINTS

The internal pipe shall be hydrostatically tested to 150 psig or 1½ times the operating pressure, whichever is greater. Insulation shall then be poured in place into the field weld area. All field applied insulation shall be placed only in straight sections. Field insulation of fittings shall not be acceptable. The mold for the polyurethane shall be made of clear adhesive backed polyester film. The installer shall seal the field joint area with a heat shrinkable adhesive backed wrap. All insulation and coating materials for making the field joint shall be furnished by the piping system manufacture..

BACKFILL

A 4-inch layer of sand or fine gravel shall be placed and tamped in the trench to provide a uniform bedding for the pipe. The entire trench width shall be evenly backfilled with a similar material as the bedding in 6-inch compacted layers to a minimum height of 6 inches above the top of the insulated piping system. The remaining trench shall be evenly and continuously backfilled in uniform layers with suitable excavated soil.

PERMA-PIPE, Inc.
A Subsidiary of MFRI, Inc.
7720 North Lehigh Avenue
Niles, Illinois 60714
U.S.A.

Phone: (847) 966-2235 ext. 2850 or 2859
Fax: (847) 470-1204
E-mail:
marketing@permapipe.com
webmaster@permapipe.com