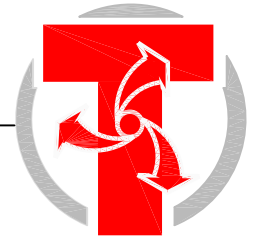


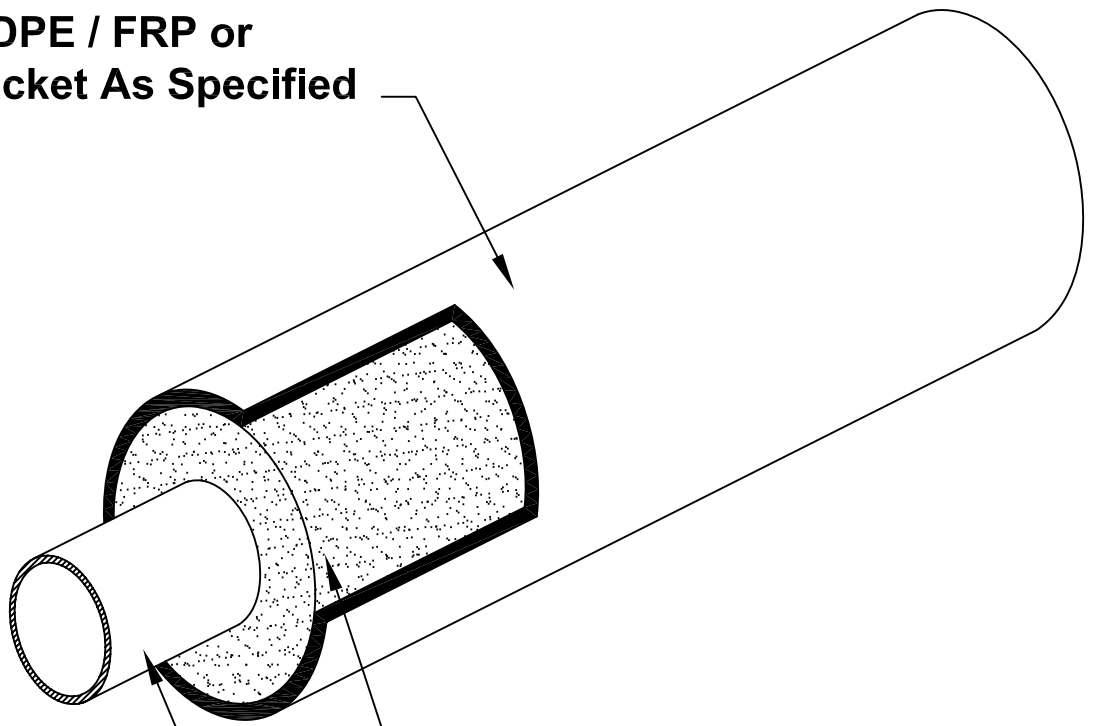
# TRICON COPPER PIPE SYSTEM



For Applications Up To 250° F Below And Above Ground

- Chilled Water
- Condensate
- Condenser Water
- Domestic Hot Water
- Heating Hot Water
- Potable Water
- Process Piping

**PVC / HDPE / FRP or  
Metal Jacket As Specified**



**Polyurethane Foam Insulation**

**Copper Service Pipe As Specified**



**TRICON**  
Piping Systems, Inc. ®

P.O. Box 361, Canastota, New York 13032  
Tel: 315.697.8787 Fax: 315.697.8788

**TABLE 1**

Pipe Size	Minimum Insulation Thickness	PVC Jacket O.D.	PVC Jacket Wall
1/2"	1.88"	4.50"	.070"
3/4"	1.74"	4.50"	.070"
1"	1.62"	4.50"	.070"
1 1/4"	1.50"	4.50"	.070"
1 1/2"	1.37"	4.50"	.070"
2"	1.94"	6.14"	.070"
2 1/2"	1.69"	6.14"	.070"
3"	1.44"	6.14"	.070"
4"	1.94"	8.16"	.080"
6"	1.94"	10.20"	.100"

**Service Pipe:**

The service pipe shall be Type "K", or Type "L" hard drawn seamless copper tubing to ASTM B-88 and WW7-799. Refrigerant piping shall meet ASTM B-280, Type ACR and ASME 31.5. Straight lengths of piping will be supplied in 20 ft. lengths with 6" of piping exposed at each end for field joint fabrication.

**Insulation:**

The insulation shall be a foamed in place closed cell polyurethane which completely fills the annular space between the carrier pipe and the exterior casing. The insulation shall have the following physical properties:  
 Minimum Density (lb./cu. ft.) 2.0                      ASTM D-1621,  
 90-95 % Closed Cell                                      ASTM D-2856  
 "K" Factor BTU/Hr. sq. ft. °F/in. 147                      ASTM C-177

**Exterior Casing:** \*

The exterior casing shall be  
 (1) Seamless, extruded white **PVC** Type 1, Grade 1, Class 12454-B per ASTM D-1784 or  
 (2) High Density Polyethylene (**H.D.P.E.**) with the following physical properties:  
 ASTM D-3350...Resin Type III, Grade P34  
 ASTM D-633...Ultimate Elongation 850%  
 ASTM D-633...Tensile Yield Strength 3300 psi  
 ASTM D-790...Tangent Flexural Modules 175,000 psi  
**No polyethylene tape casings will be allowed.**

**Sub-Assemblies:**

All fittings, anchors, end seals, other sub-assemblies shall be prefabricated or field fabricated dependant upon engineer's option and/or site conditions.

**Field Joints:**

After soldering and hydrostatic testing, PVC jacketed straight field joints shall be insulated with polyurethane foam to the thickness specified, PVC sleeve and pressure sensitive tape. HDPE jackets will use polyurethane foam and a heat shrinkable sleeve.

**Expansion/Contraction Compensation:**

Expansion and contraction within the piping system shall be accommodated with factory prefabricated internal expansion elbows, z-bends, expansion loops, and anchors specifically designed for each application. External expansion

**TABLE 2**

Pipe Size	Minimum Insulation Thickness	HDPE Jacket O.D.	HDPE Jacket Wall
1/2"	1.79"	4.50"	.150"
3/4"	1.66"	4.50"	.150"
1"	1.54"	4.50"	.150"
1 1/4"	1.41"	4.50"	.150"
1 1/2"	1.29"	4.50"	.150"
2"	2.12"	6.63"	.150"
2 1/2"	1.87"	6.63"	.150"
3"	1.62"	6.63"	.150"
4"	1.76"	8.00"	.150"
6"	1.76"	10.00"	.175"

compensation can be provided with the use of flexible foam bolsters.

**Installation:**

**No Piping shall be installed in standing water. Trenches shall be maintained dry until final field closure is complete.**

The installing contractor shall handle the piping system in accordance with the directions furnished by the manufacturer and as approved by the architect and engineer. The carrier piping shall be hydrostatically tested to 1-1/2 times the operating pressure, or as specified in the contract documents. The test shall be maintained for a minimum time of 1 hour. **EXERCISE DUE CARE WHEN INSTALLING AND TESTING THE PIPING SYSTEM.**

**Backfill:**

A 4-inch layer of sand or fine gravel, less than 1/2" in diameter, shall be placed and tamped in the trench to provide uniform bedding for the **Copper** system. Once the system is in place, the trenches shall be carefully backfilled with similar material and hand tamped in 6" layers until a minimum of 12" above the top of the preinsulated pipe has been achieved. The remainder of the backfill shall be void of rocks, frozen earth and foreign material. The trench shall be compacted to comply with H-20 Highway loading.

**Accessories:** Heat Tracing

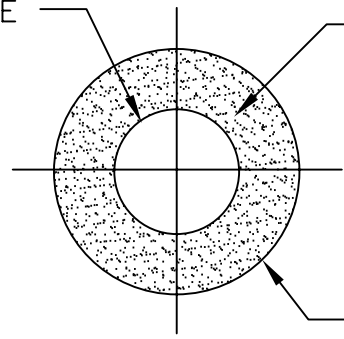
**System Options:**

- \* Optional metallic casings for above ground applications include, Spiral Lockseam in Galvanized, Aluminum or Stainless Steel.
- \* Optional non-metallic casings for below grade offered include, Filament Wound FRP.
- \* Insulation thickness will vary depending on the type of insulation specified and the operating temperature.

Contact your Tricon representative for available sizes and system options.

**Tricon Piping Systems, Inc.    Tel: 315-697-8787**  
**P.O. Box 361                                      Fax: 315-697-8788**  
**Canastota, NY 13032                      www.triconpiping.com**

COPPER SERVICE PIPE  
(TYPE K OR L)



POLYURETHANE  
FOAM INSULATION

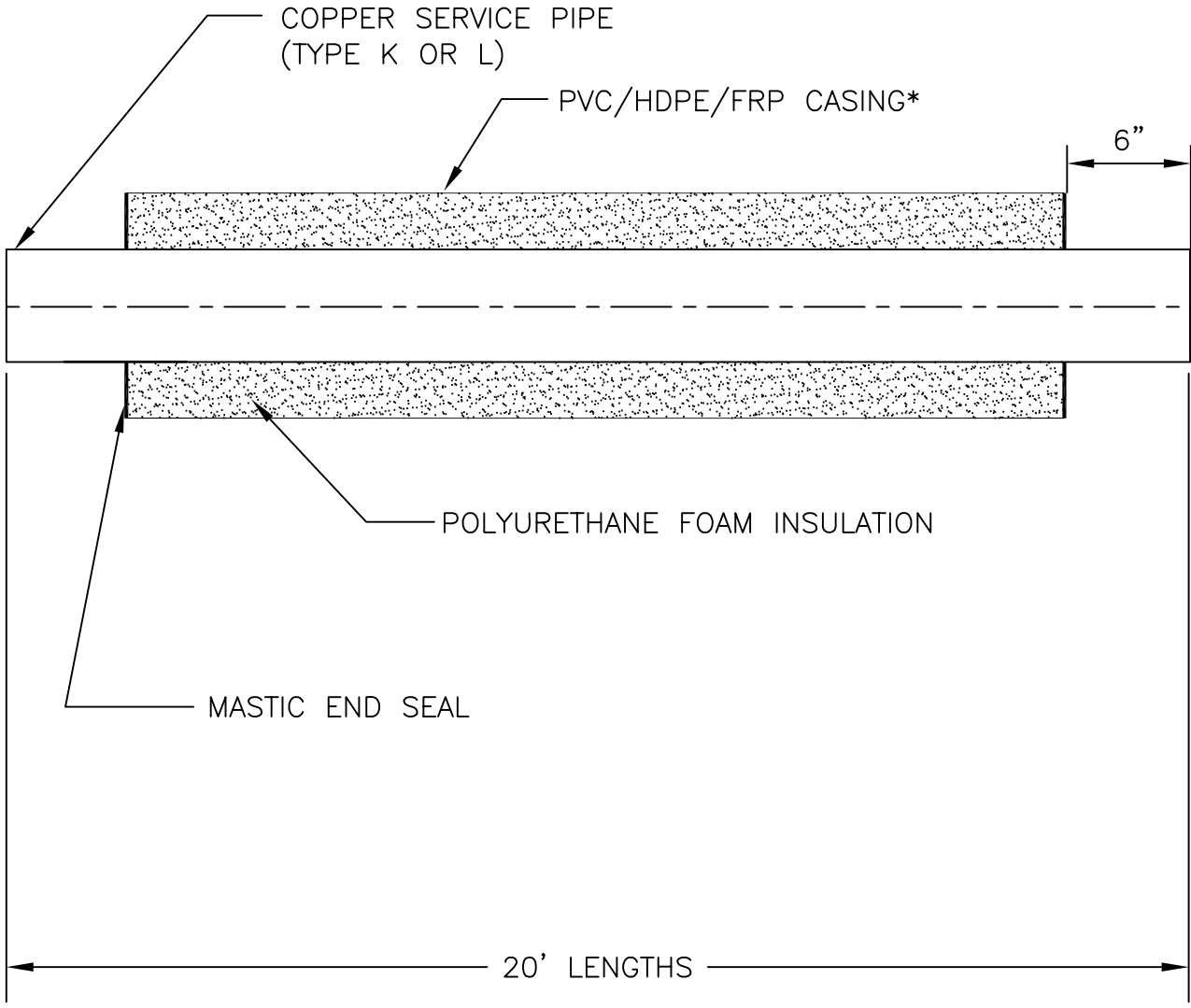
PVC/HDPE/FRP CASING\*

END VIEW  
NOT TO SCALE

COPPER SERVICE PIPE  
(TYPE K OR L)

PVC/HDPE/FRP CASING\*

6"



POLYURETHANE FOAM INSULATION

MASTIC END SEAL

20' LENGTHS

\* OPTIONAL METAL JACKET AVAILABLE FOR ABOVE GRADE APPLICATION.

COPPER STRAIGHT LENGTH DETAIL

TRICON COPPER

Date: 03/09/06

Dwg. No.:Cu-1

Rev.:

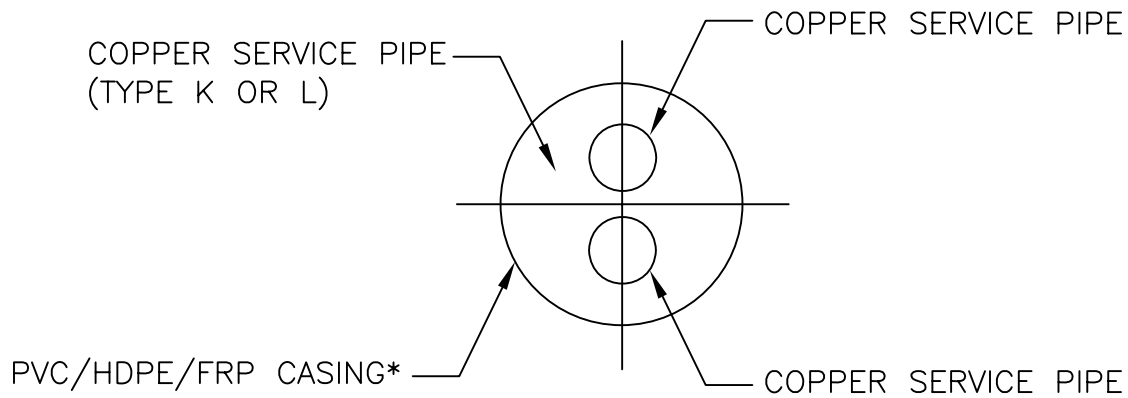


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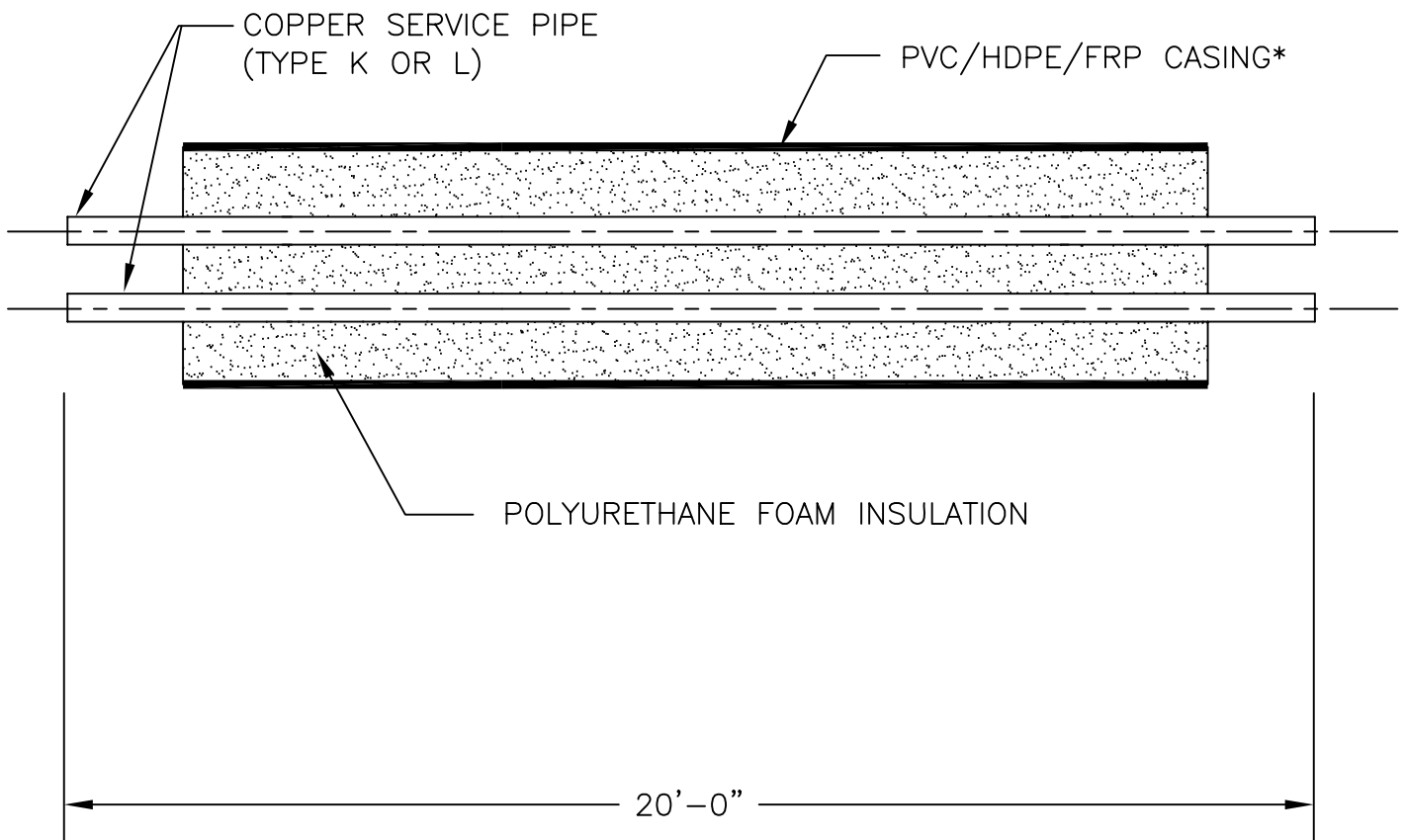
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END VIEW  
NOT TO SCALE



\* OPTIONAL METAL JACKET AVAILABLE FOR ABOVE GRADE APPLICATION.

DOUBLE COPPER STRAIGHT LENGTH DETAIL

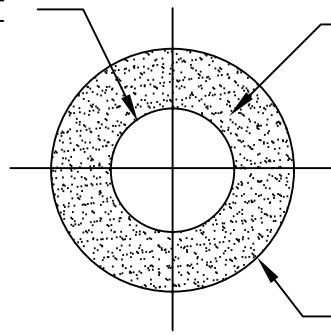
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COPPER SERVICE PIPE  
(TYPE K OR L)

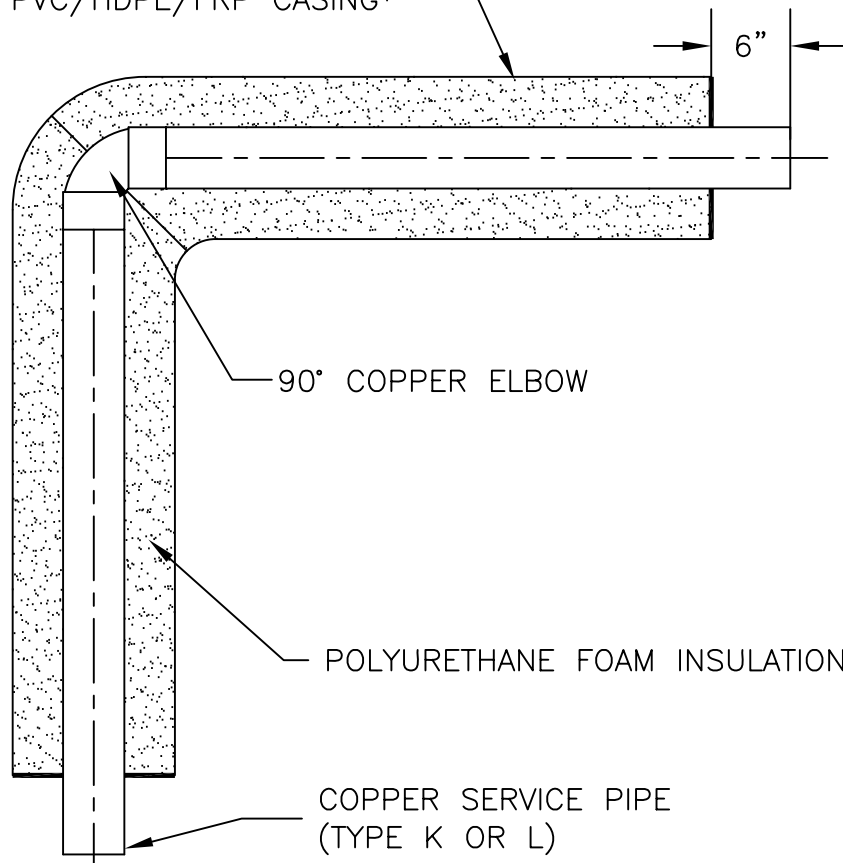


POLYURETHANE FOAM INSULATION

PVC/HDPE/FRP CASING\*

END VIEW  
NOT TO SCALE

PVC/HDPE/FRP CASING\*



6"

90° COPPER ELBOW

POLYURETHANE FOAM INSULATION

COPPER SERVICE PIPE  
(TYPE K OR L)

\* OPTIONAL METAL JACKET AVAILABLE FOR ABOVE GRADE APPLICATION.

COPPER PREFABRICATED 90° ELBOW DETAIL

TRICON COPPER

Date: 03/09/06

Dwg. No.: Cu-2

Rev.:



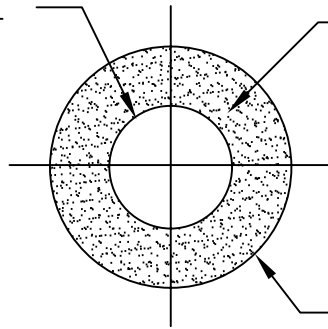
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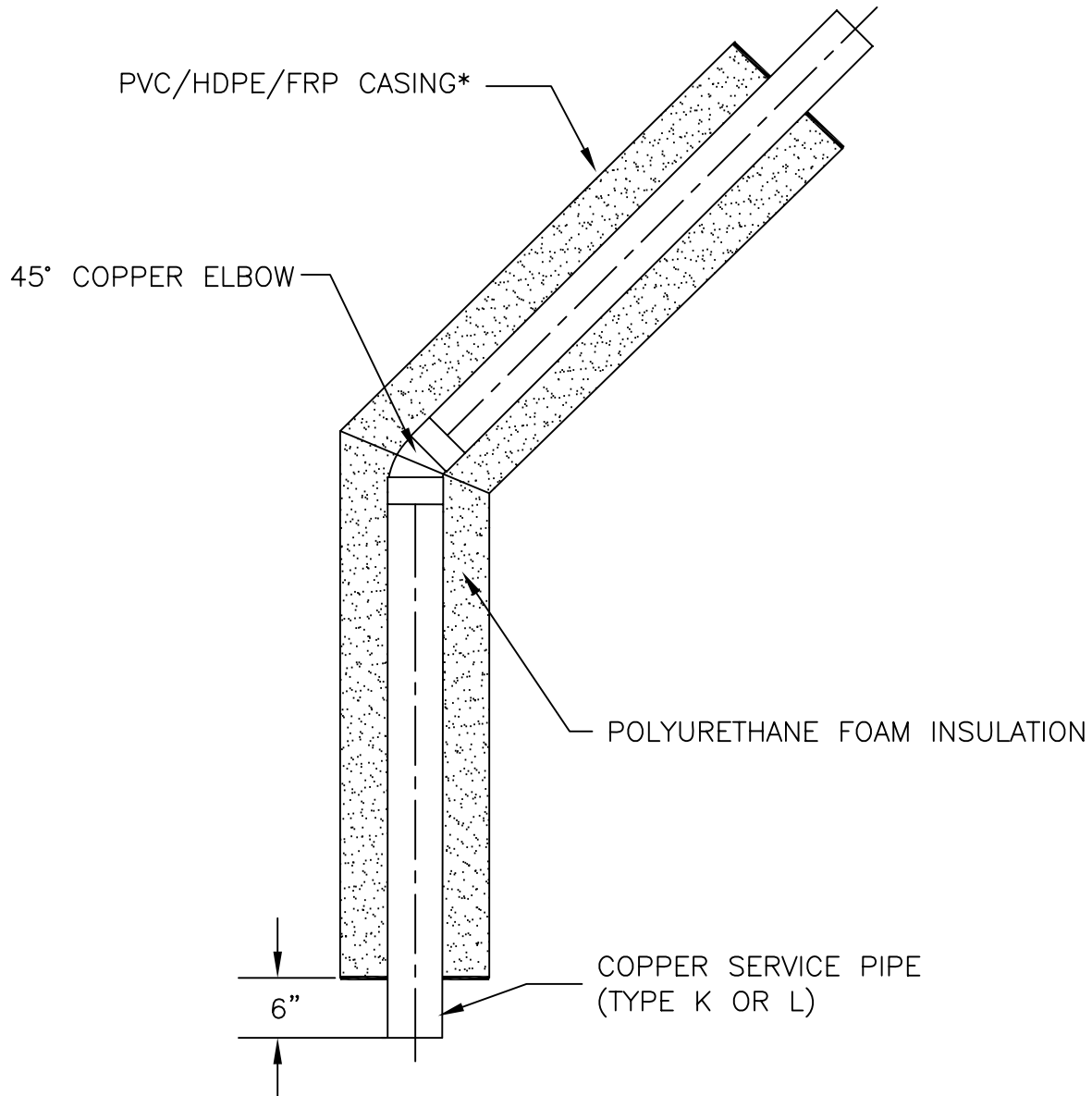
COPPER SERVICE PIPE  
(TYPE K OR L)



POLYURETHANE FOAM INSULATION

PVC/HDPE/FRP CASING\*

END VIEW  
NOT TO SCALE



PVC/HDPE/FRP CASING\*

45° COPPER ELBOW

POLYURETHANE FOAM INSULATION

COPPER SERVICE PIPE  
(TYPE K OR L)

6"

\* OPTIONAL METAL JACKET AVAILABLE FOR ABOVE GRADE APPLICATION.

COPPER PREFABRICATED 45° ELBOW DETAIL

TRICON COPPER

Date: 03/09/06

Dwg. No.: Cu-3

Rev.:



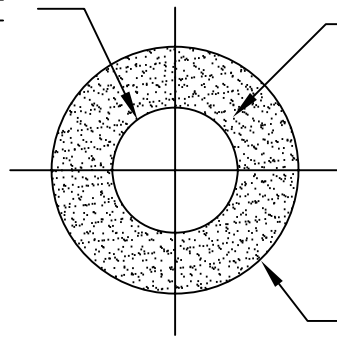
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COPPER SERVICE PIPE  
(TYPE K OR L)



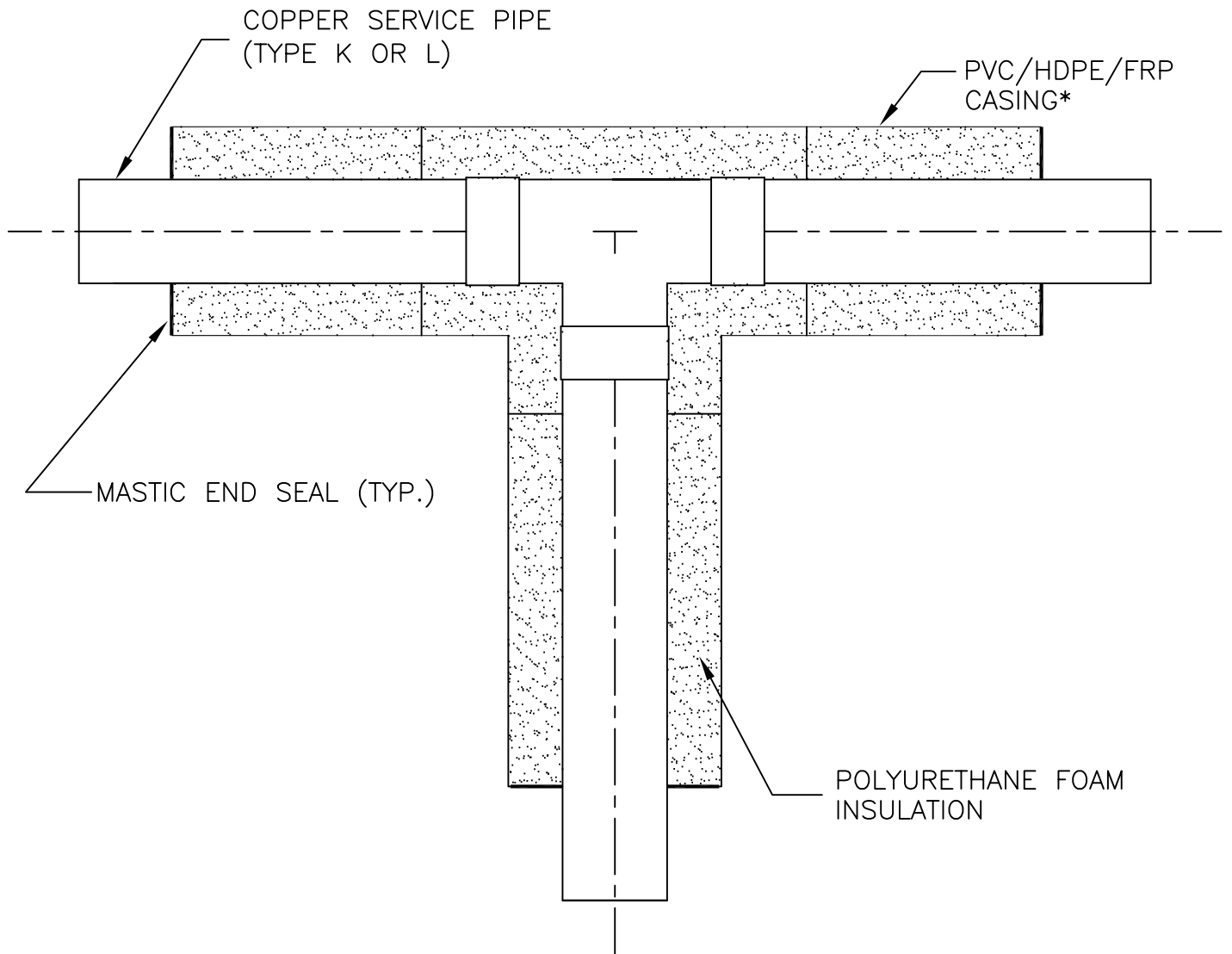
POLYURETHANE FOAM INSULATION

PVC/HDPE/FRP CASING\*

END VIEW  
NOT TO SCALE

COPPER SERVICE PIPE  
(TYPE K OR L)

PVC/HDPE/FRP  
CASING\*



MASTIC END SEAL (TYP.)

POLYURETHANE FOAM  
INSULATION

\* OPTIONAL METAL JACKET AVAILABLE FOR ABOVE GRADE APPLICATION.

COPPER TEE DETAIL

TRICON COPPER

Date: 03/09/06

Dwg. No.: Cu-4

Rev.:

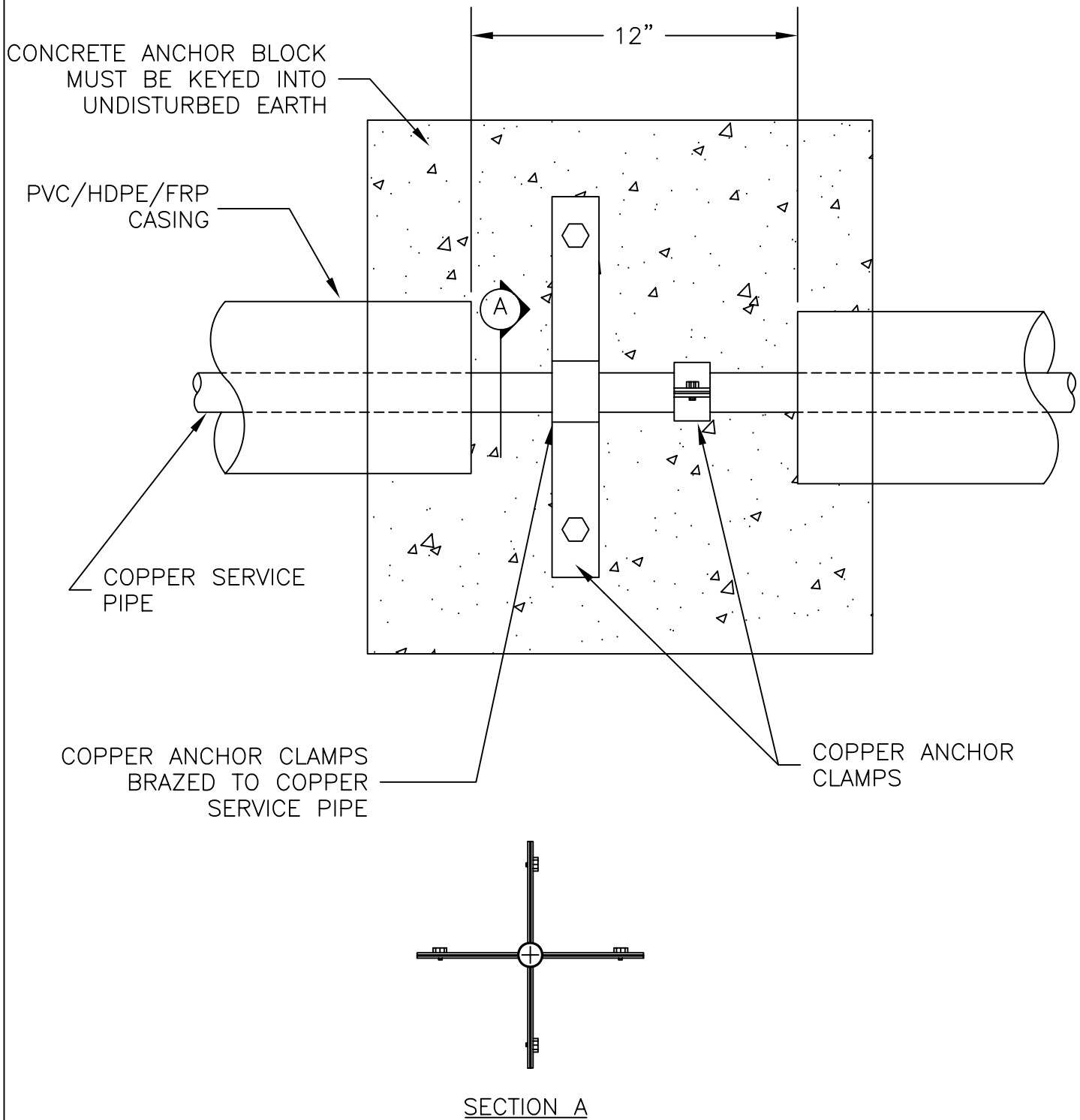


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NOTE: CONCRETE ANCHOR BLOCK MUST BE KEYED INTO UNDISTURBED EARTH.  
AMOUNT OF CONCRETE BELOW ANCHOR MAY CHANGE ACCORDING TO PIPE SIZE.

COPPER ANCHOR DETAIL

TRICON COPPER

Date: 03/09/06

Dwg. No. Cu-5

Rev.:



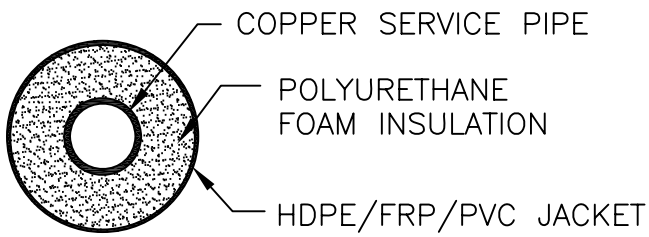
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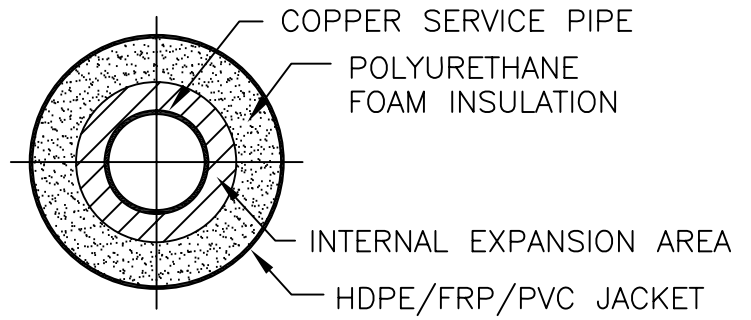
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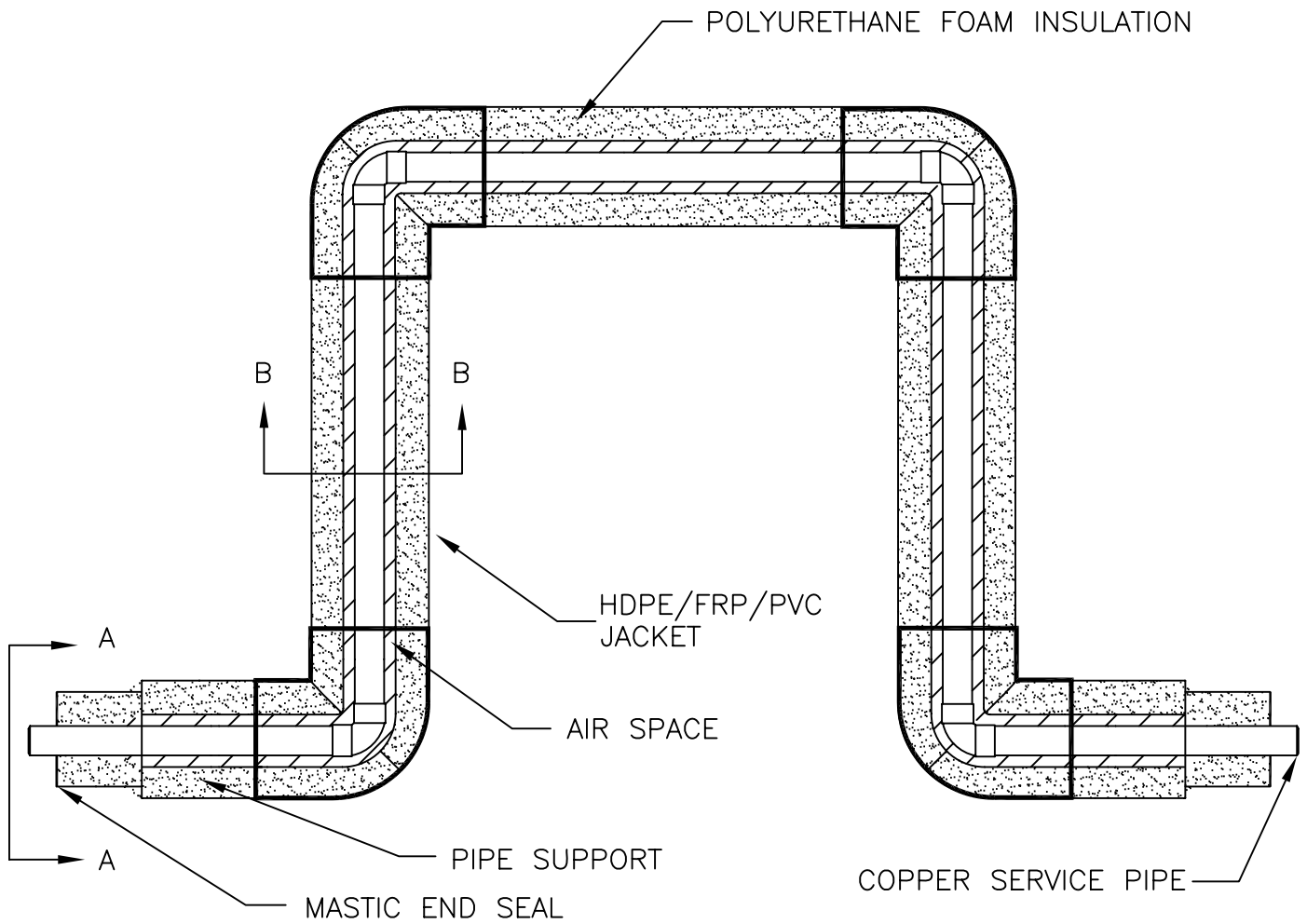




SECTION A-A



SECTION B-B



COPPER INTERNAL EXPANSION LOOP

TRICON COPPER

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Dwg. No. Cu-6

Rev.:

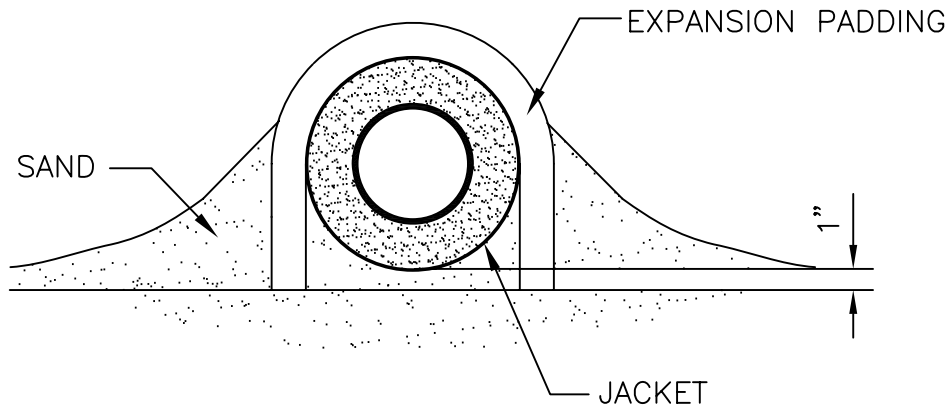


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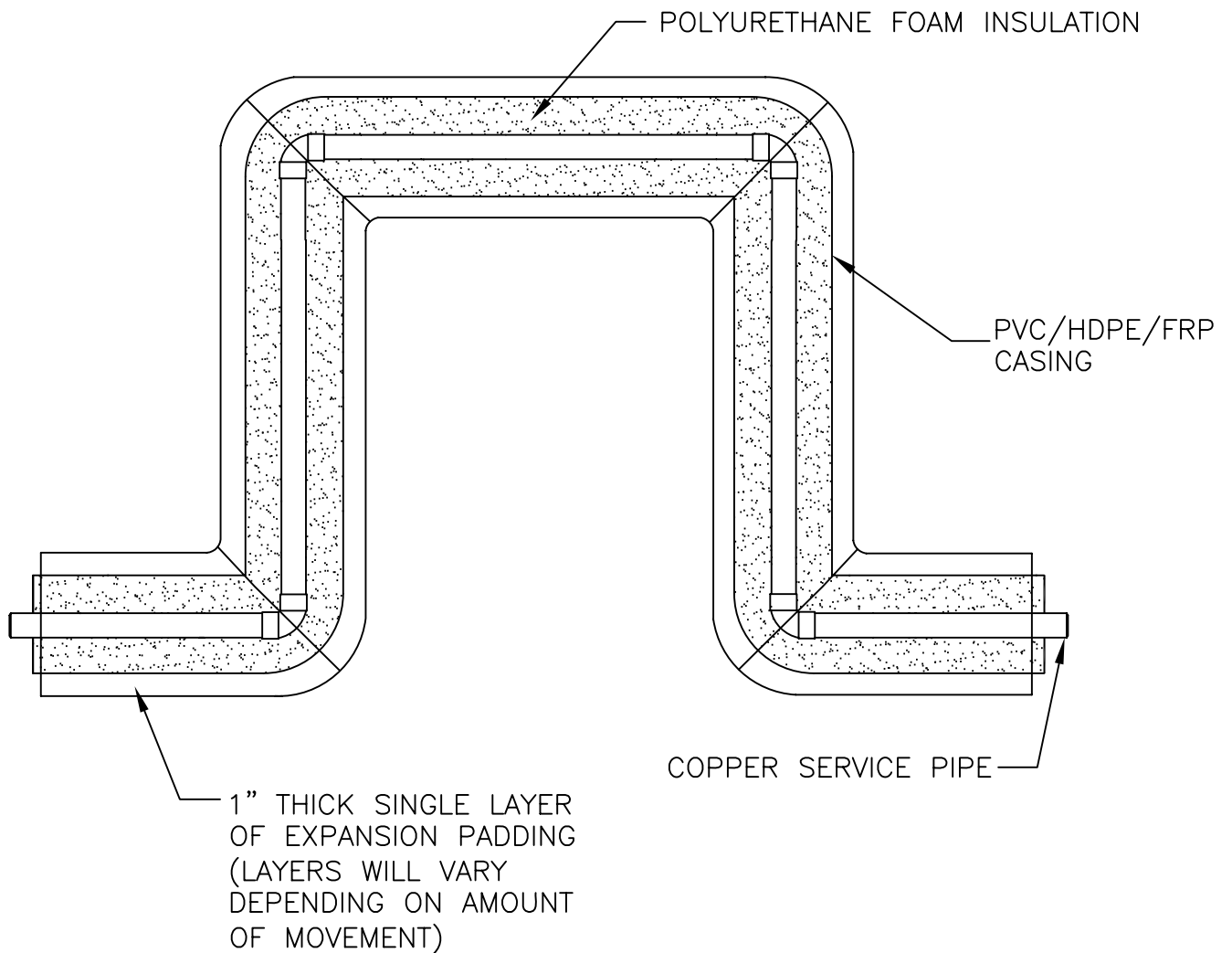
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1. EXPANSION PADDING MATERIAL IS SUPPLIED IN PRECUT LENGTHS AND WIDTHS.
2. WRAP PADDING AROUND THE JACKET FOR A SNUG FIT. HOLD IN PLACE WITH BEDDING SAND.



COPPER LOOP DETAIL WITH EXTERNAL EXPANSION PADDING



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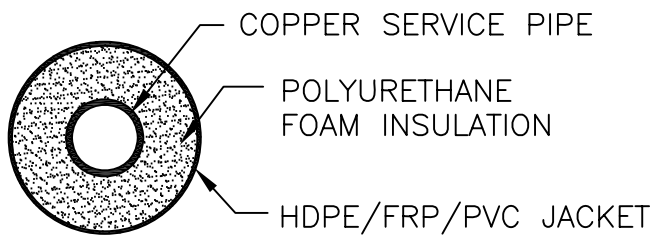
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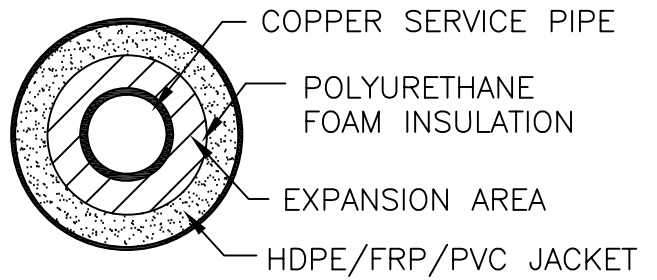
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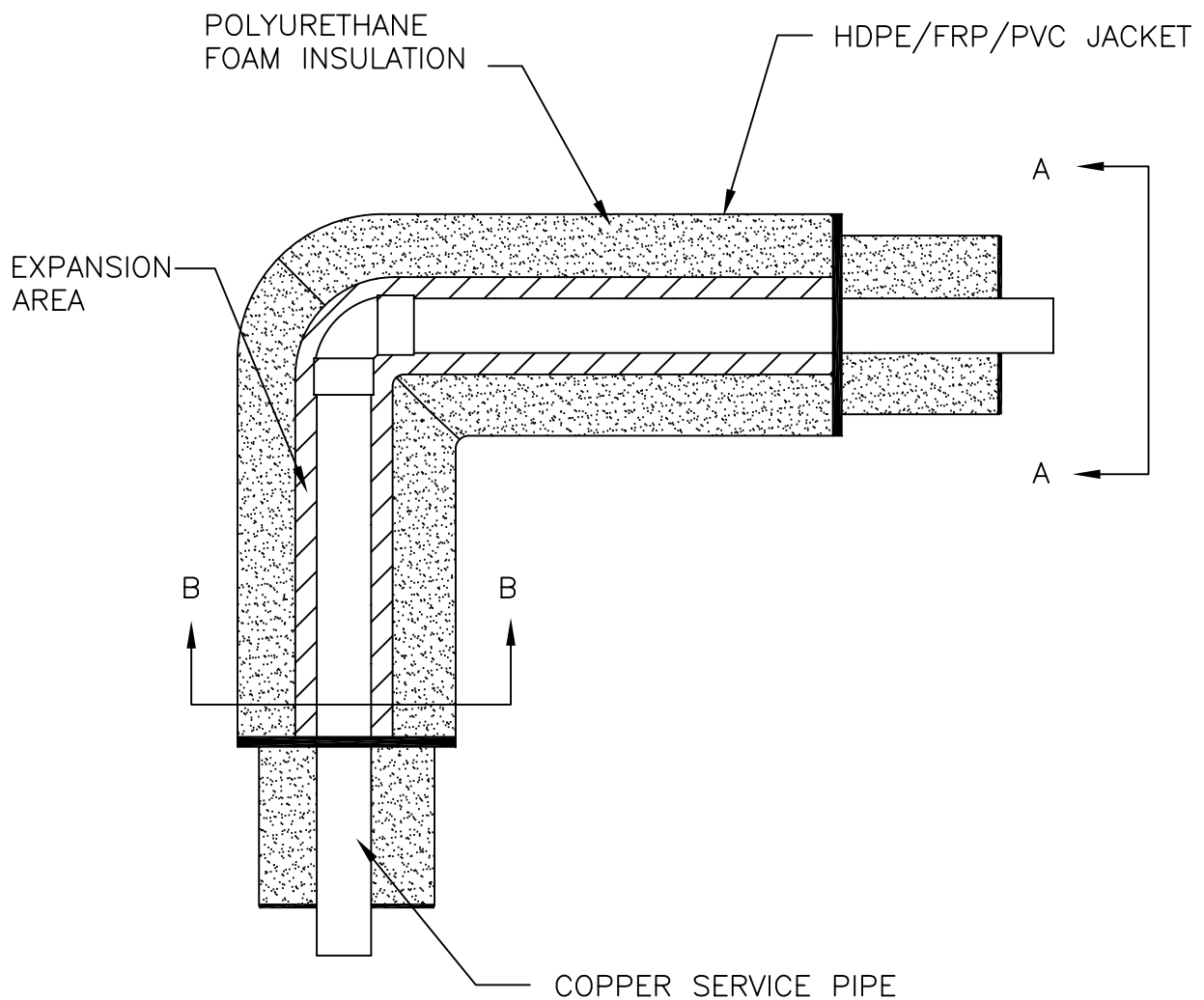
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SECTION A-A



SECTION B-B



COPPER EXPANSION 90° ELBOW DETAIL  
 WITH INTERNAL EXPANSION

TRICON COPPER

Date: 03/09/06

Dwg. No. Cu-7

Rev.:

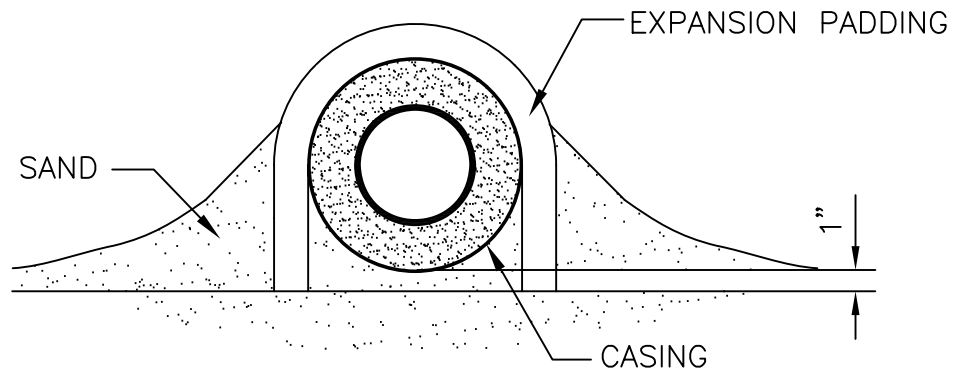


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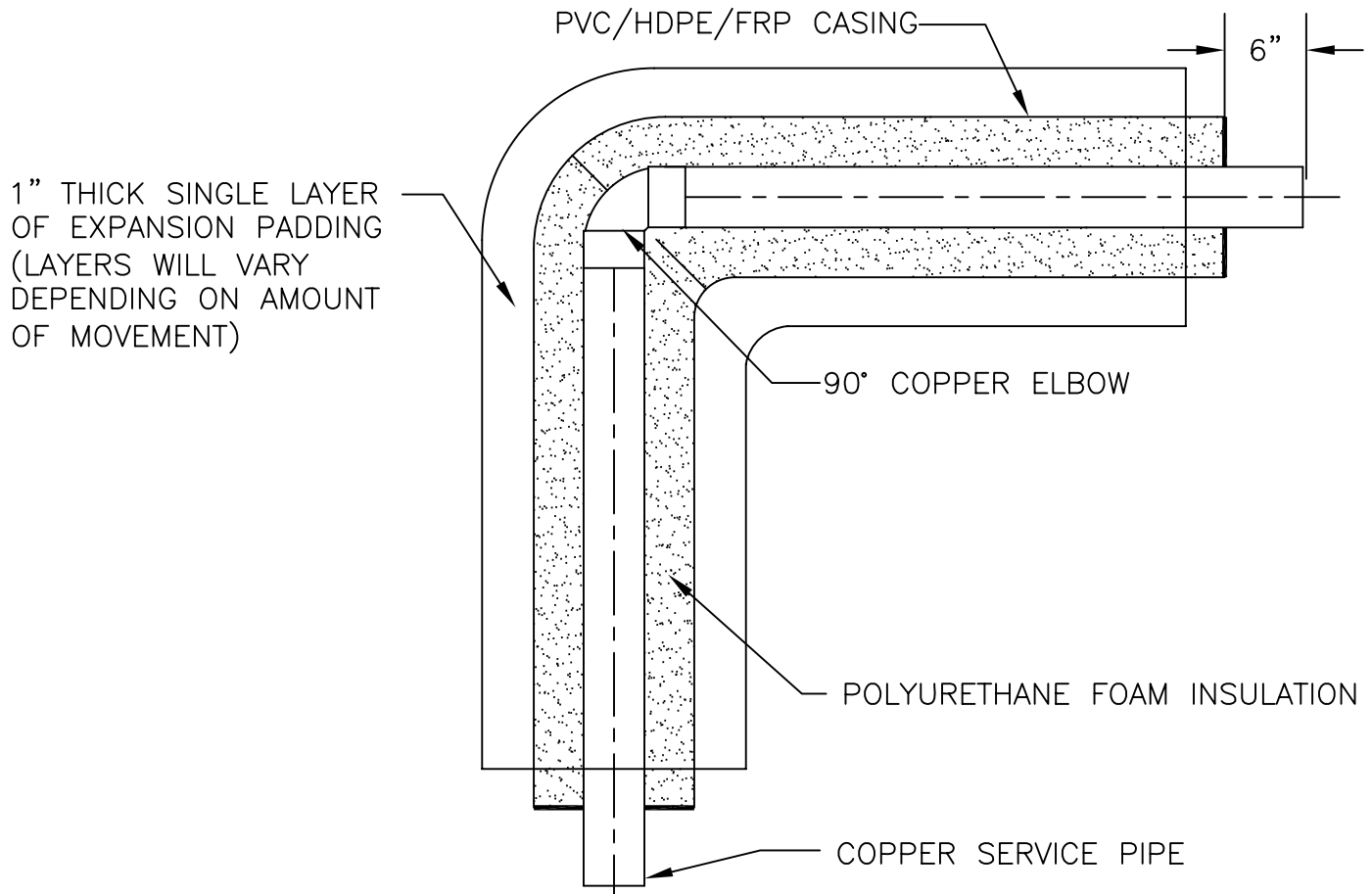
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1. EXPANSION PADDING MATERIAL IS SUPPLIED IN PRECUT LENGTHS AND WIDTHS.
2. WRAP PADDING AROUND THE JACKET FOR A SNUG FIT. HOLD IN PLACE WITH BEDDING SAND.

NOTE: MAKE SURE TO COVER THE 90° ELBOW COMPLETELY.



COPPER EXPANSION 90° ELBOW DETAIL  
WITH EXTERNAL PADDING

TRICON COPPER

Date: 03/09/06

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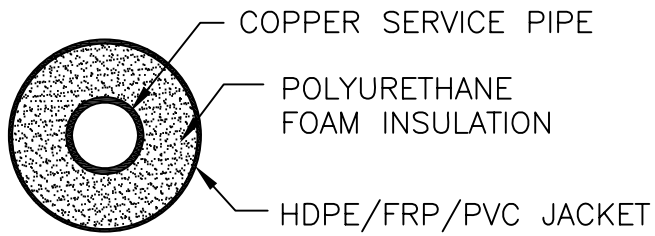


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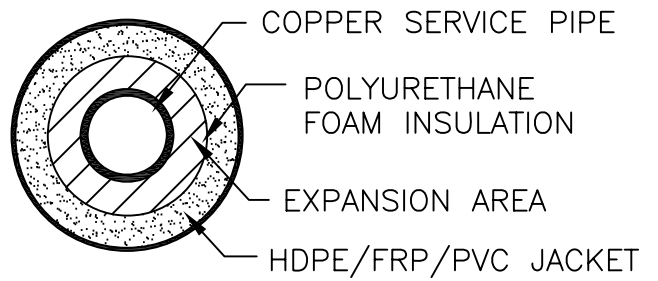
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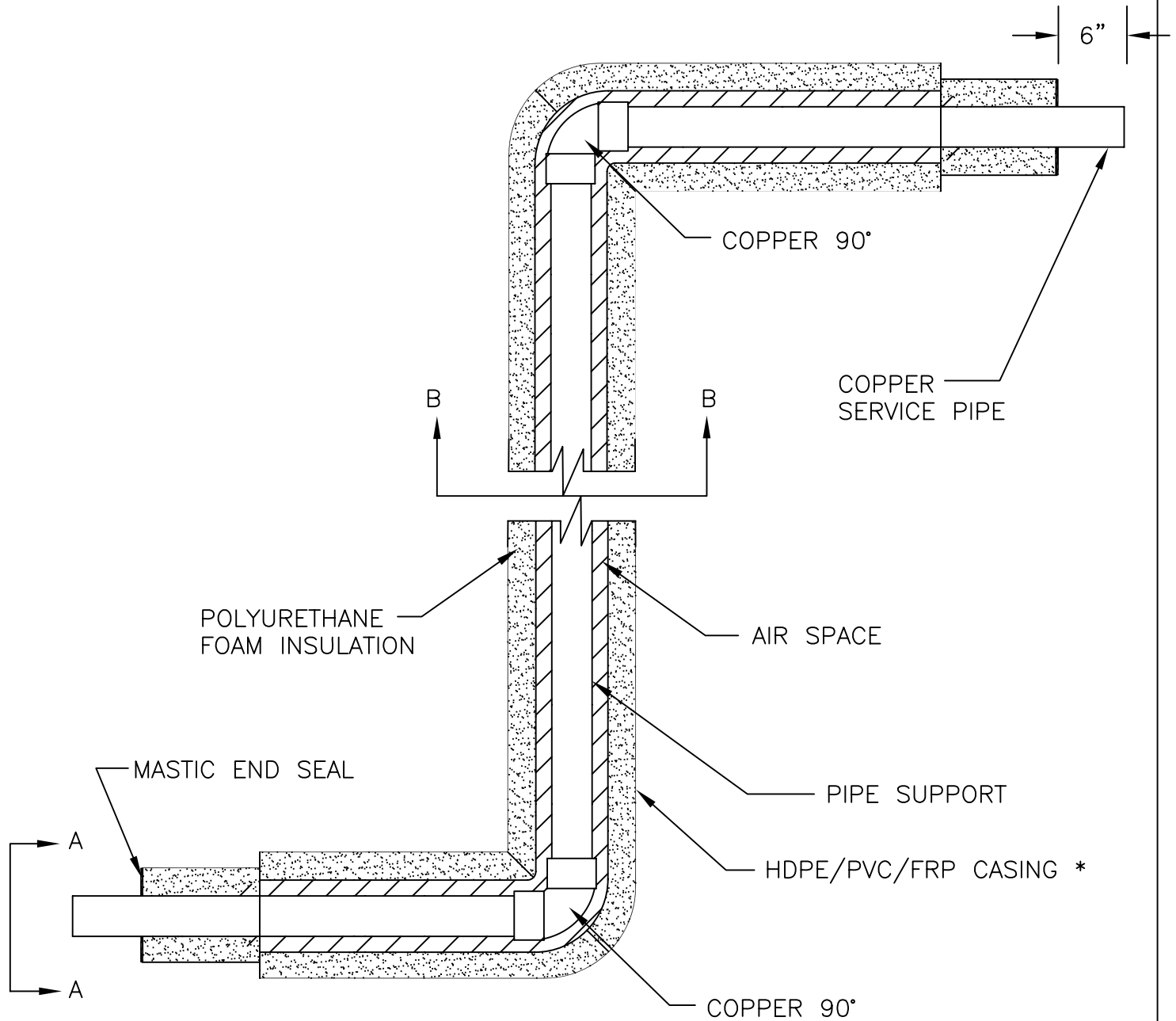
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SECTION A-A



SECTION B-B



\* CONSULT MANUFACTURER FOR ADDITIONAL CASINGS

COPPER EXPANSION "Z" BEND DETAIL  
WITH INTERNAL EXPANSION

TRICON COPPER

Date: 03/09/06

Dwg. No.: Cu-8

Rev.:

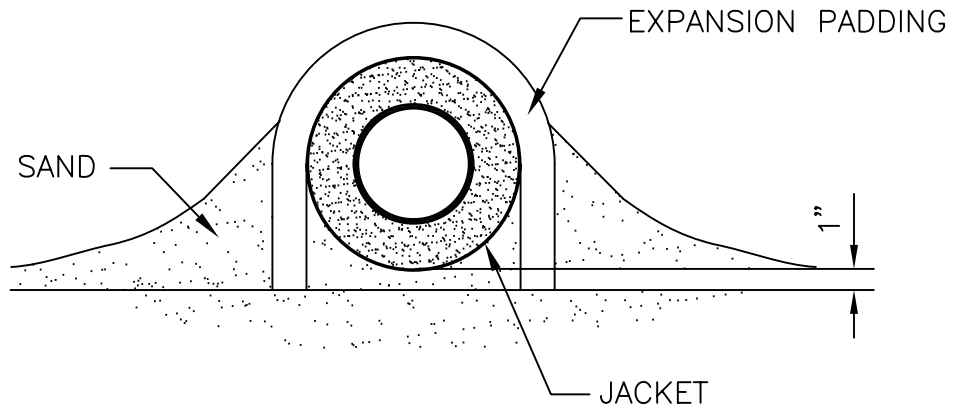


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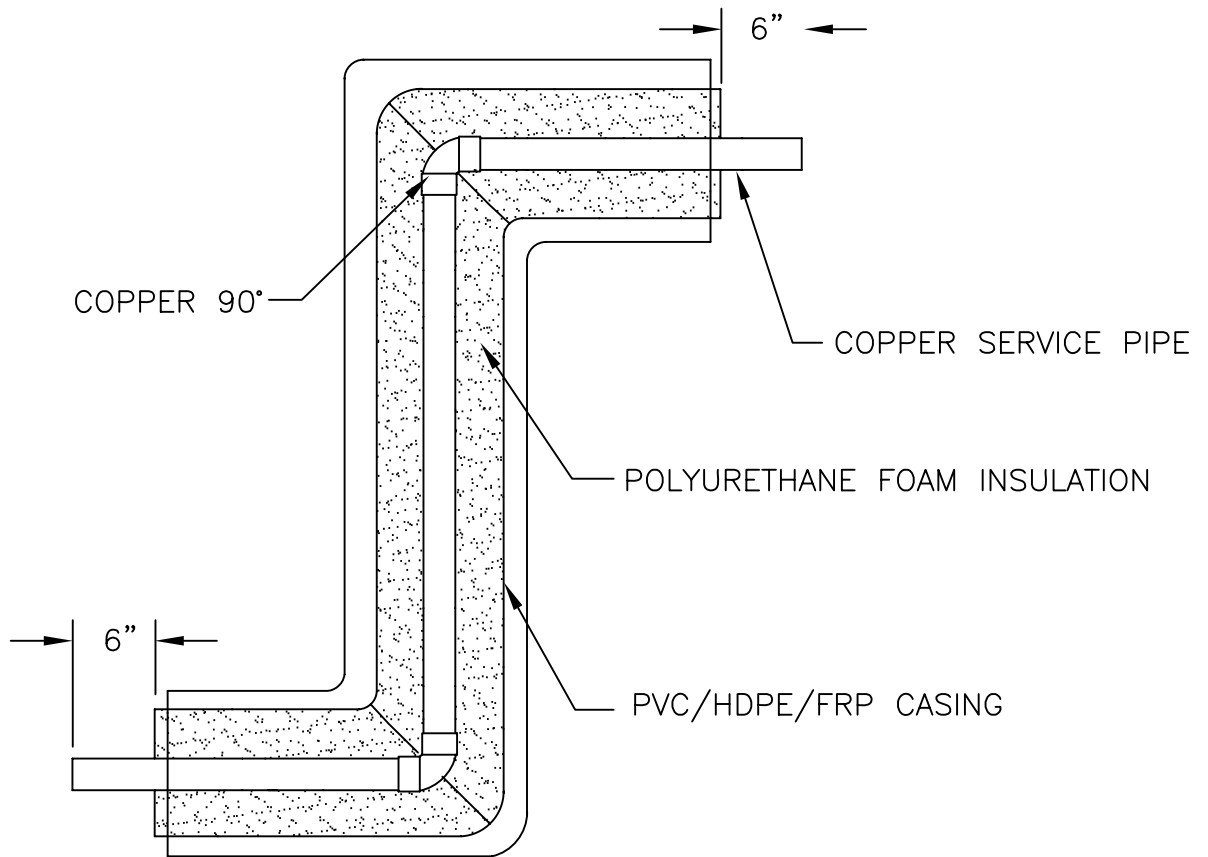
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1. EXPANSION PADDING MATERIAL IS SUPPLIED IN PRECUT LENGTHS AND WIDTHS.
2. WRAP PADDING AROUND THE JACKET FOR A SNUG FIT.  
HOLD IN PLACE WITH BEDDING SAND.



COPPER EXPANSION "Z" BEND DETAIL  
WITH EXTERNAL PADDING

TRICON COPPER

Date: 03/09/06

Dwg. No.: Cu-8A

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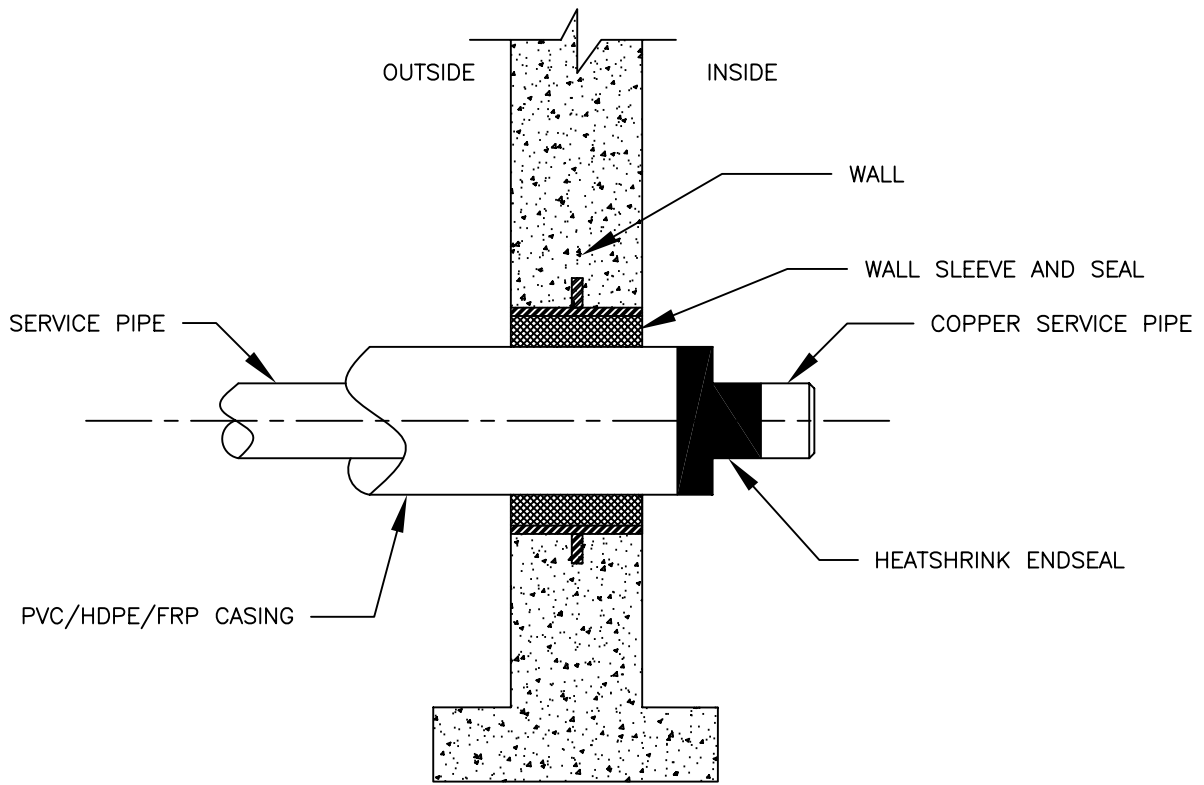


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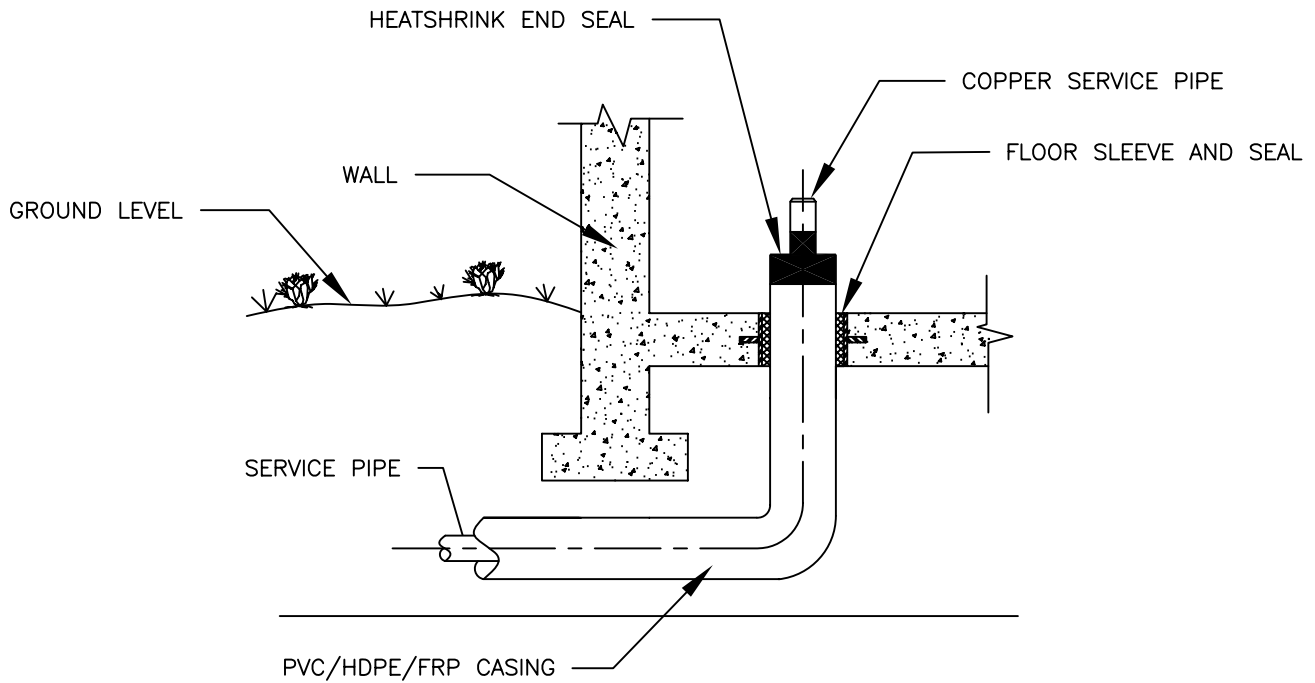
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WALL PENETRATION DETAIL



BUILDING RISER DETAIL

HEATSHRINK END SEAL DETAIL

TRICON COPPER

Date: 03/09/06

Dwg. No.: Cu-9

Rev.:



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