

# Energy Task Force

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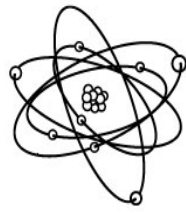
## Pre-insulated Pipe

2475 Clark St • Apopka, FL 32703 • 407-523-3770 • 407-523-3722

### ETF-MT Product Specification

Pre-insulated piping system designed for above ground or direct buried Chilled Water, Hot Water and all other 45° to 250° medium temperature systems.

- Carrier Pipe:** Schedule 40 A53 ERW Steel.
- Insulation:** Polyurethane foam: K Factor 0.14, Density 2.0 to 3.0 PCF, 90-95% closed cell conforming to mil spec -1-24172 and ASTM-C-591 completely filling the annular space between carrier pipe and jacket. Maximum service temperature of 250°
- Jacketing Material:** High impact seamless polyvinyl chloride (PVC) class 12454 B compound conforming to ASTM 1784 Type 1, Grade 1. For jacket thickness see attached schedule.
- End Seal:** Mastic material end seal factory applied to insulation ends.
- Insulation of Straight Joints:** Prior to joining carrier pipe a PVC sleeve is slid onto jacketing on either side of joint. After welding and hydro testing, the PVC sleeve is slid in place and sealed with pressure sensitive tape. Polyurethane foam is then mixed and poured into the annular space and sealed watertight.
- Fittings:** All fittings are welded in the field and insulated utilizing ETF fitting insulation kits. Fitting kits consist of hard shell mitered PVC matching the thickness of jacket, polyurethane foam and pressure sensitive tape. The use of Zestons or Proto's are not allowed.
- Backfilling:** Underground systems shall be buried in a trench of not less than 24 inches deeper than the top of the pipe jacket and not less than 18 inches wider than the combined O.D. of all piping systems. Backfill should be tamped compactly in place. No rock shall be used in the first foot of the backfill. To meet H-20 highway loadings, there must be 24 inches from top of jacket to grade of the compacted fill.



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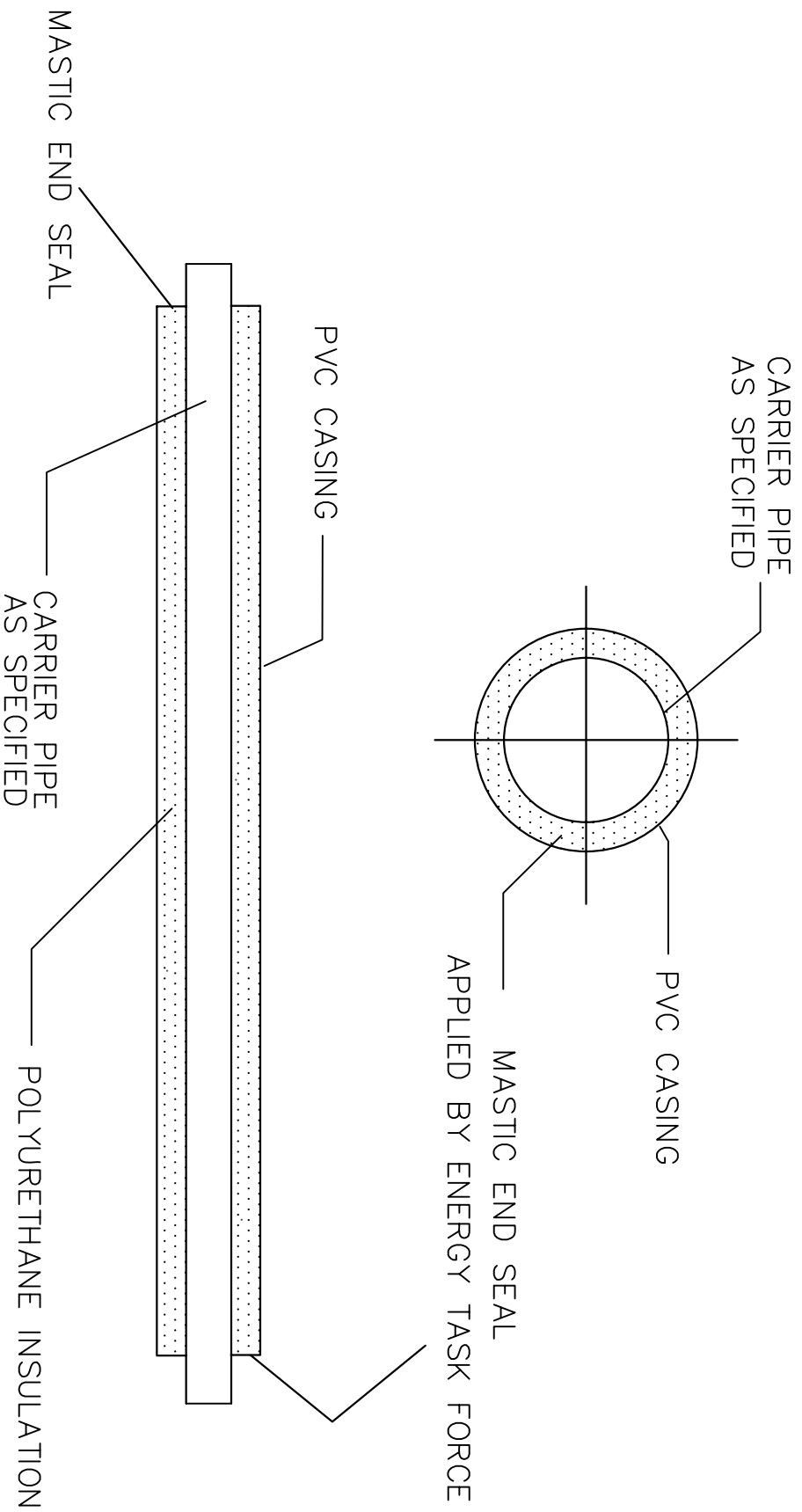
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**Table 1:** Specified Carrier Pipe / PVC Jacket

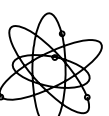
Nominal Pipe Size	Minimum Insulation Thickness	Nominal Jacket Size	Jacket Thickness
1/2"	1.27	3.5	60 mils
3/4"	1.16	3.5	60 mils
1"	1.03	3.5	60 mils
1 1/4"	1.17	4.0	60 mils
1 1/2"	2.07	6.0	70 mils
2"	1.81	6.0	70 mils
2 1/2"	1.56	6.0	70 mils
3"	1.25	6.0	70 mils
4"	1.75	8.0	80 mils
5"	1.22	8.0	80 mils
6"	1.68	10.0	100 mils
8"	1.68	12.0	120 mils
10"	1.64	14.0	140 mils
12"	1.46	16.0	160 mils

### ETF LLC WARRANTY

ETF LLC warrants its products only to the extent that it will replace those proved to have manufactured defects, within a one-year period from date of delivery. ETF must be provided an opportunity to inspect an alleged defective product and the installation application. This warranty does not provide for the expenses incurred for removal, re-installation or consequential damages arising from the defective material. There is no warranty other than that described above, and no one is authorized to issue any other warranty related to ETF LLC products.

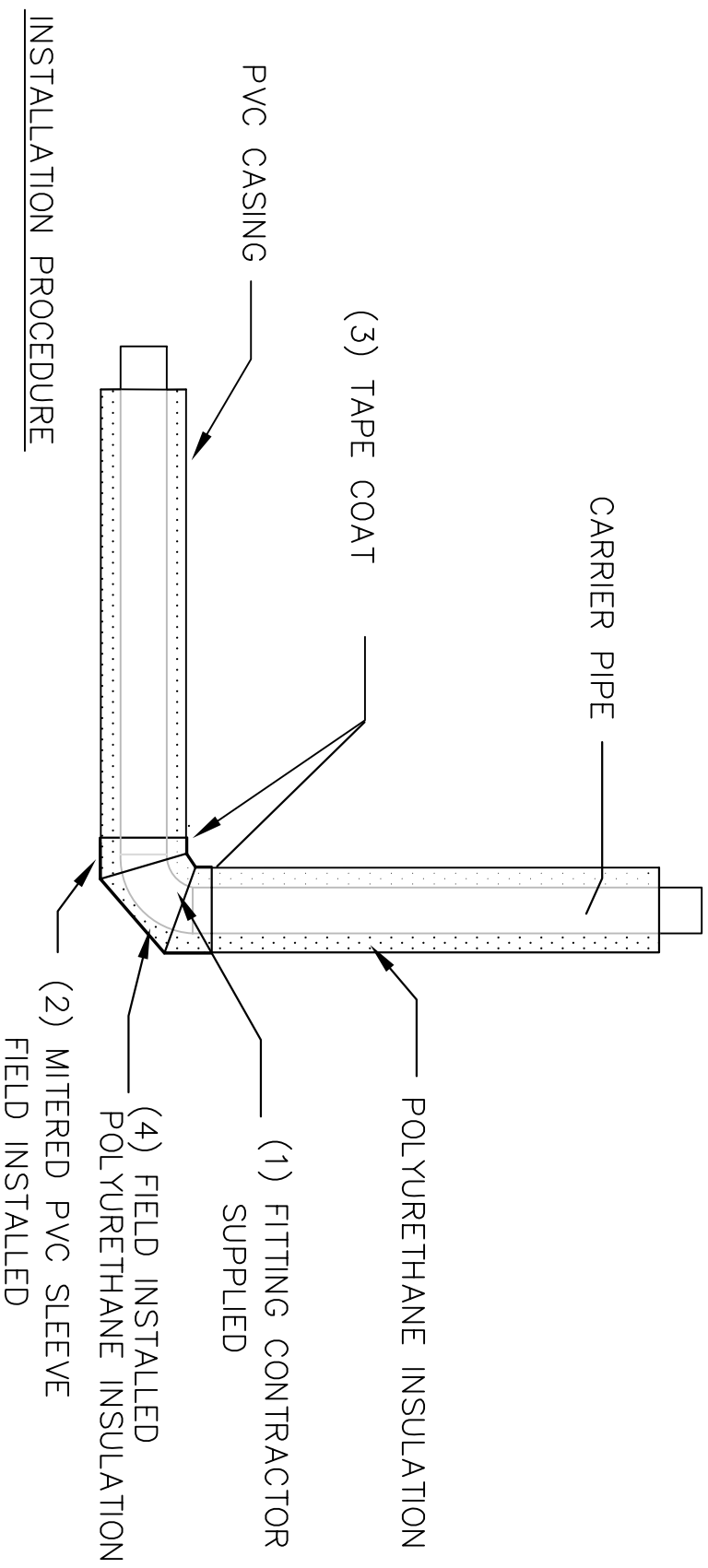


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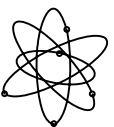


**ETF WEST LLC**  
**PRE-INSULATED PIPE**

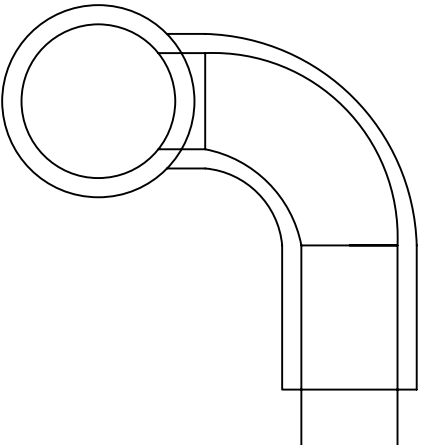
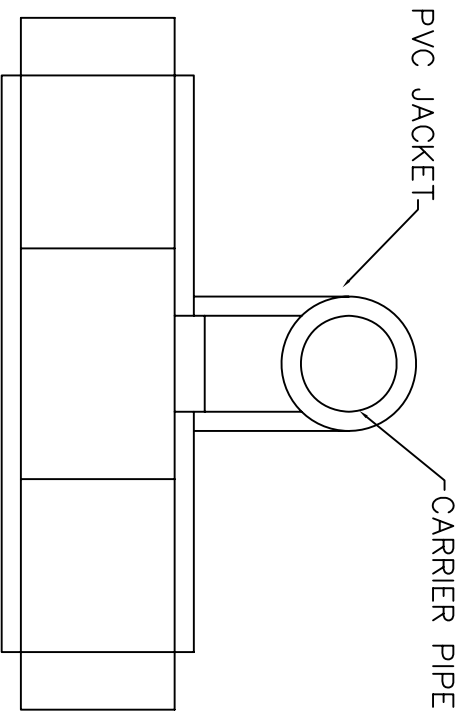
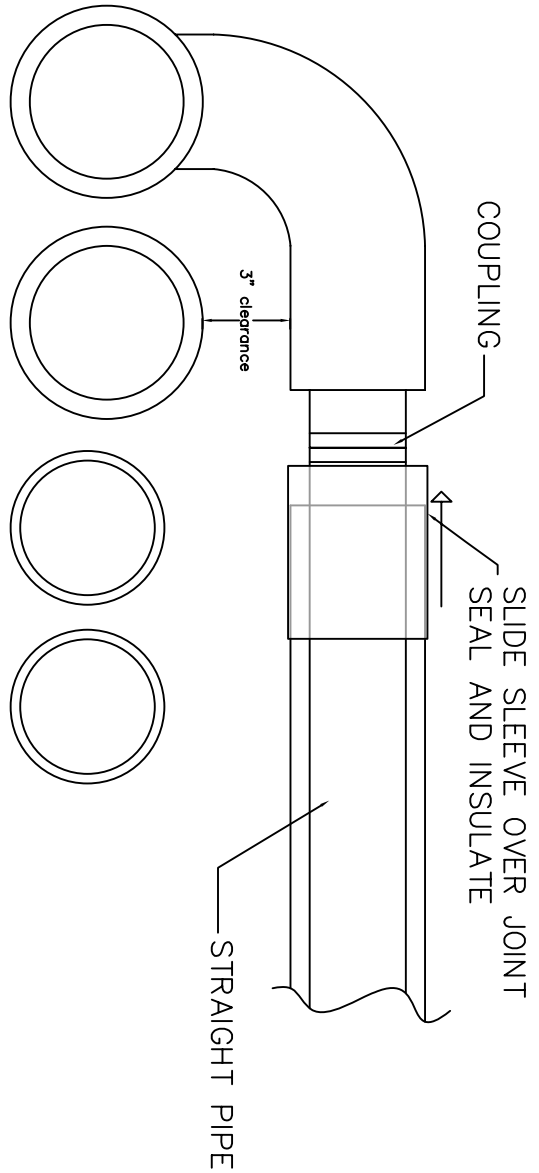
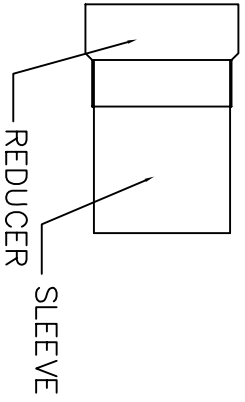
SCALE	NTS	DRAWN BY	LG
DATE	8/2/04		
STRAIGHT PIPE		DWG #	
21' OR 42' LENGTHS			



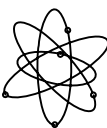
- (1) PRIOR TO WELDING THE FITTING  
SLIDE PVC MITERED SLEEVES OVER JACKET
- (2) WELD CONTRACTOR SUPPLIED FITTING
- (3) AFTER FITTING HAS BEEN TESTED,  
SLIDE MITERED SLEEVES INTO POSITION
- (4) APPLY TAPE COAT TO ALL JOINTS  
BE SURE THE CASING IS DRY AND CLEAN
- (5) DRILL 1" HOLE IN THE TOP CENTER OF THE  
MITER, MIX A & B FOAM 1:1 RATIO AS PER  
MIXING CHART, ONCE FOAM IS MIXED,  
POUR INTO HOLE AND LET RISE. TRIM  
EXCESS FOAM AND APPLY 1 WRAP  
OF TAPE COAT

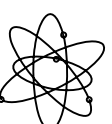
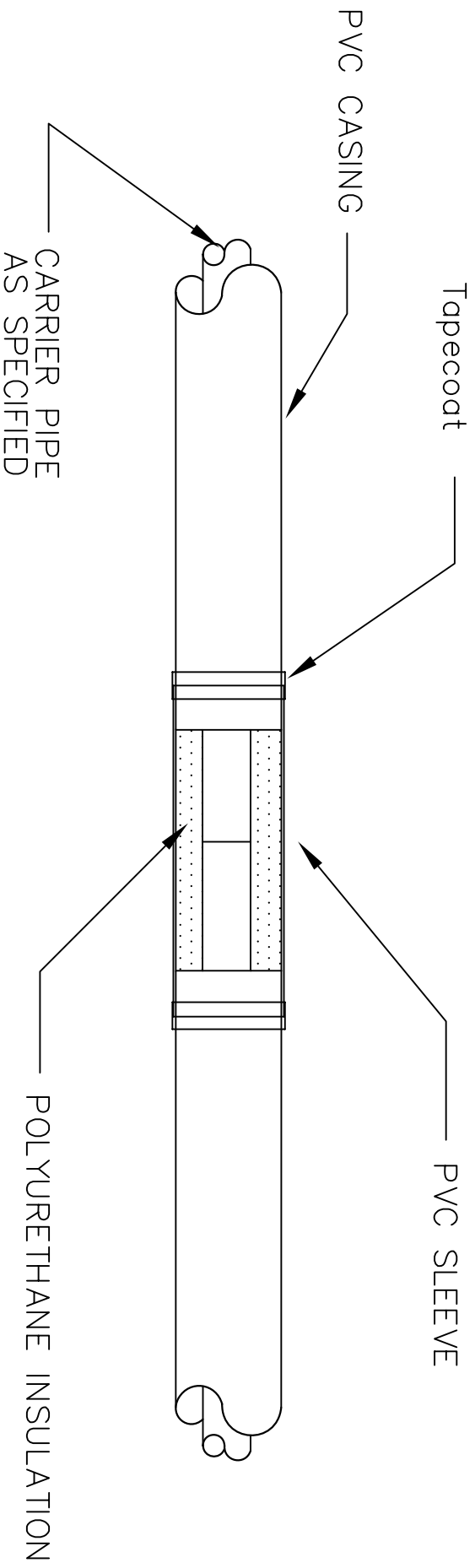
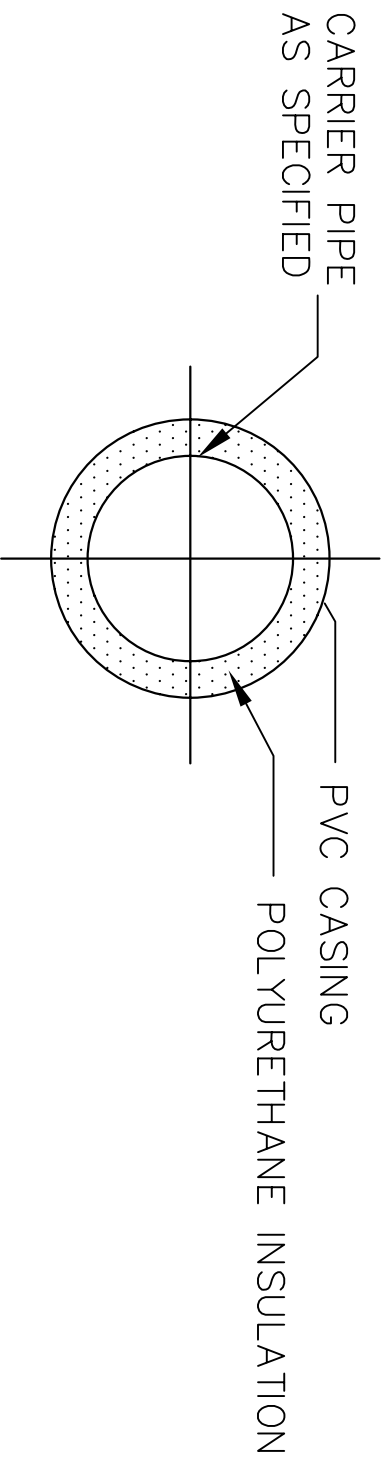
 <b>ETF WEST LLC</b> <b>PRE-INSULATED PIPE</b>		7700 WEST OLIVE AVE - PEORIA, AZ 85345 - 623-878-4377 - 623-878-6683	
SCALE	NTS	FIELD INSTALLATION PROCEDURE	DRAWN BY LG
DATE	8/2/04	90 / 45 DEGREE ELBOW KITS	DWG #

**NOTE:**  
 IF THE BRANCH OR RUN PIPE IS  
 TO BE REDUCED, ETF WILL PROVIDE  
 A REDUCING SLEEVE



TEE CAN ALSO BE ROLLED AT A  
 45° ANGLE AND HAVE A 45° FITTING  
 INPLACE OF A 90° FITTING

 <b>ETF WEST LLC</b> <b><u>PRE-INSULATED PIPE</u></b>	
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SCALE	NTS
DATE	8/2/04
<b>PREFABRICATED          CROSS OVER TEE</b>	
DRAWN BY	LG
DWG #	



**ETF WEST LLC**  
**PRE-INSULATED PIPE**

7700 WEST OLIVE AVE - PEORIA, AZ 85345 - 623-878-4377 - 623-878-6683

SCALE  
 NTS

DATE  
 8/2/04

FIELD JOINT DETAIL

DRAWN BY  
 LG  
 DWG #