

Updated: July 1, 2010

A. Fiberglass:

1. Fiberglass Insulation Material Data

- a. Density: 3½ lb/ft<sup>3</sup>, 650°F rating
- b. K Factor: 0.25 at 100°F
- c. Flame Spread: 25 max (composite rating)
- d. Smoke Developed: 50 max (composite rating)
- e. Fuel Contributed: 50 max (composite rating)

2. PVC Covers: <sup>1</sup>

- a. PVC insulated fitting covers (e.g. Zeston) should be sized to fit snugly and match pipe insulation thickness.
- b. Have something in the specifications that says we will test periodic fittings (at our expense) and they better have insulation under them. If not, the contractor will replace all the fittings (at their expense).
- c. PVC jacket to be 0.030" for light traffic areas & 0.060" for high traffic areas.

3. Service Jacket:

- a. Usually we use a high density white kraft paper, fiberglass reinforced service jacket bonded to aluminum foil. We do not want the insulation cover to be stapled. Use extra glue as required but no staples.

B. Elastomeric:

- 1. Elastomeric insulation elbows coverings shall be in at least three pieces (not two pieces cut at 45 degrees).
- 2. Do not use elastomeric foam on pipe where the working temperature is greater than 130°F.<sup>2</sup>

C. Steam Piping & Fittings:

- 1. All steam piping and fittings should be insulated.
- 2. Insulate fittings with pre-formed fiberglass pieces or removable, re-installable insulated blankets.<sup>3</sup>

D. Steam Fittings Blanket Covers:

- 1. We want the contractor to prefabricate and install custom fit removable and reusable insulation covers on all hot systems; including all valves, appurtenances, regulators, and bypasses 2" IPS and larger. That means the contractor must measure all items requiring insulation covers and be

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<sup>1</sup> Some contractors have been known to leave out the insulation under the PVC covers, especially at elbows and fittings. With PVC covers these are some precautions we want you to take.

<sup>2</sup> This item is critical. DO NOT USE ELASTOMERIC INSULATION ON HOT PIPES.

<sup>3</sup> Specifications usually address insulating steam pipes but frequently miss insulating the fittings. Be sure your specification addresses fittings.

responsible for the installation and proper fit. Installation will be after all testing of the steam lines.

- a. The removable and reusable insulation cover will be installed as one unit, rather than two or more components requiring separate installations.
- b. Tie-downs, anchor straps, & buckles can be used to secure the removable/reusable insulation covers in place. Do not allow lacing hooks and wire.
- c. Insulation covers should overlap permanent insulation by at least 2”.
- d. For operating temperatures between 100°F and 550°F, the insulation core material will be 1000°F rated ET-blanket.
- e. Jacket material hot face can be either silicone impregnated fiberglass fabric (having a minimum density of 16 oz. /cubic yard) or Teflon impregnated fiberglass fabric of similar density.
- f. The cold face will be weatherproofed with the same fabric as the hot face.
- g. All covers are to be sewn (stapled or hog-ringed covers are not acceptable). Sewing thread should be Teflon coated fiberglass with 20# tensile strength and 1500 yards /lb weight.
- h. Insulation core thickness shall be 1” nominal thickness on temperatures up to 450°F. Over 450°F requires 2” nominal thickness.<sup>4</sup>

E. Refrigeration Piping & Fittings:

1. When exterior to the building (exposed) then bundle the pipes together and cover the bundle with a weatherproof jacket.
2. At the wall penetration for refrigerant piping be careful to detail the sleeve, and insulation through the wall. This is particularly important for bundled pipes.

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<sup>4</sup> One manufacturer that supplies the type of blanket we want is Advance Thermal Corp. 548 North York Road, Bensenville, Illinois 60106, Ph. (630) 595-5150

**Table 1**

<b>Minimum Insulation Thickness</b>			
<b>Duty</b>	<b>Pipe Size</b>	<b>Type</b>	<b>Minimum Thickness</b>
Low Pressure Steam (up to 15 psig)	Up to 1¼ "	A	1½"
	1½" and Larger	A	2"
High Pressure Steam (over 15 psig)	Up to 1¼ "	A	2½"
	½" to 4"	A	3"
	4" and larger	A	4"
Steam Condensate	All	A	1"
Chilled Water	Up to 1½"	A or B or C	1" ½" ½"
		A C	1" 1"
Condenser Water	Up to 2"	A or B	½" ½"
		A	1"
AHU Condensate	All	A or B	½" ½"
Roof Drains & bodies	All	A	½"
Hot Water Heating run-outs	Up to 2"	A	1"
Hot Water Heating Mains	Up to 2"	A	1"
	2½" and larger	A	1½"
Heat Recovery Piping	All	A	1"
Refrigerant	All	B	Per manufacturer recommendation

"A" is fiberglass  
 "B" is elastomeric  
 "C" is Dow Corning - Trymer