

MEA No.: 181001

SECTION 15400 – HVAC – INSULATION

1.1 GENERAL

- A. All applicable requirements of Section 15000 - HEATING, VENTILATING AND AIR CONDITIONING, GENERAL shall apply to this entire Section and shall have the same force and effect as if fully included herein.
- B. All insulations shall be as manufactured by Johns Manville, Owens Corning or Armstrong or approved equal. The execution of the work shall be under the direct control and supervision of the insulation manufacturer or his authorized representative, in strict accordance with the manufacturer's instructions and recommendations, the best practice of the trade and the intent of these Specifications. All insulation shall be tested for Fire and Smoke Hazard Classification ratings in accordance with ASTM E-84, NFPA 255 and UL 723. Ratings shall not exceed FHC 25/50.
- C. Do not omit insulation where piping passes through sleeves or hangers. Provide a galvanized sheet metal protector on the exterior of the bottom half of the covering, between the covering and the hanger, to prevent the hanger band from cutting into the insulation. High density insulation shall be used at each hanger. All piping shall be tested before insulation is applied or joints left uncovered until the tests have been performed.

1.2 SCOPE

- A. This Section of the Specifications covers the furnishing of all labor, materials, equipment and services necessary for and incidental to the installation of all insulation and accessories.

1.3 ITEMS TO BE INSULATED ARE AS FOLLOWS:

- A. Piping
  - 1. All refrigerant piping.
- B. Ductwork
  - 1. Supply ductwork and plenums.
  - 2. Return ductwork and plenums.
  - 3. Outside air ductwork and plenums.
  - 4. Exhaust air ductwork and plenums.

1.4 INSULATION THICKNESSES SHALL BE AS FOLLOWS:

- A. Piping

SYSTEM	PIPE SIZE INCHES	THICKNESS INCHES
Refrigerant	≤ 1.5	1
	> 1.5	1-1/2

B. Ductwork

SYSTEM	LOCATION	INSULATION TYPE	THICKNESS INCHES	R VALUE
Supply Ductwork	Concealed	Blanket	2.0	6.0
Supply Ductwork	Exposed in Unconditioned Space*	Board	1.5	6.8
Supply Plenums	All	Board	1.5	6.8
Return Ductwork	Concealed	Blanket	2.0	6.0
Return Ductwork	Exposed in Unconditioned Space*	Board	1.5	6.8
Return Plenums	All	Board	1.5	6.8
Outside Air Ductwork	All	Board	2.0	9.1
Outside Air Plenums	All	Board	2.0	9.1
Exhaust Air Ductwork	Concealed	Blanket	2.0	6.0

\*Unconditioned space includes attics, crawl spaces and mechanical rooms.

1.5 PREPARATION

- A. Surfaces prepared to receive insulation shall be clean, dry and free from extraneous materials. Do not apply insulation until systems have been tested, are free from leaks and have been approved.

1.6 INSULATING MATERIALS

A. Piping

- Refrigerant piping shall be insulated with a flexible closed cell insulation having a thermal conductivity of 0.27 Btu-In/(Hr-Ft<sup>2</sup>-°F) at 75 degree F mean temperature. Insulation shall be Armacell AP Armaflex pipe insulation or approved equal. All joints and longitudinal seams shall be sealed with Armacell Armaflex 520 adhesive or approved equal. Exterior pipe insulation shall be the same as interior insulation except insulation shall be painted with two coats of Armacell WB Armaflex finish or approved equal.

B. Ductwork

- Concealed ducts shall be insulated with flexible fiberglass blanket insulation having an aluminum foil facing reinforced with fiberglass scrim. Insulation shall have an installed R-value of 3.0 per inch thickness at 75 degrees F mean temperature and a density of one-pound per cubic foot. Insulation shall be secured to the duct with Childers CP-85 adhesive (or approved equal) or mechanical fasteners. Joints shall be sealed with sealing tape and adhesive. Insulation shall be Microlite Type 100 with FSK facing or approved equal.

2. Plenums and exposed ducts shall be insulated with non-flexible fiberglass board insulation having an aluminum foil facing reinforced with fiberglass scrim. Insulation shall have a thermal conductivity of  $0.22 \text{ Btu-In}/(\text{Hr-Ft}^2\text{-}^\circ\text{F})$  at 75 degrees F mean temperature and a density of six-pounds per cubic foot. Insulation shall be secured to ducts with adhesive or mechanical fasteners. Joints shall be secured with sealing tape and Childers CP-85 adhesive (or approved equal) or mechanical fasteners. Insulation shall be 817 Spin-Glas with FSK facing or approved equal.

END OF SECTION 15400