

## **SECTION 15180 - INSULATION**

### **PART 1 - GENERAL**

#### **1.01 ITEMS INCLUDED:**

- A. Insulation of piping and ductwork.

#### **1.02 RELATED WORK:**

- A. Section 15010 - General Provisions - Mechanical.
- B. Section 15100 - Basic Materials and Methods - Mechanical.
- C. Section 15400 - Plumbing.
- D. Section 15650 - Heating, Ventilating and Air Conditioning.
- E. Section 15800 - Air Distribution.

#### **1.03 SUBMITTALS:**

- A. See Section 01340 and Section 15010 - General Provisions - Mechanical.

### **PART 2 - PRODUCTS**

#### **2.01 INSULATION MATERIALS:**

- A. Specified products, or approved equal meeting ASTM standards and UL or FIA approved, manufactured by Armstrong, Benjamin Foster, Certain-Teed, Johns-Manville, Kaylor, Owens Corning, Pabco, Pittsburgh Plate Glass, St. Gobain or Zeston are acceptable.
- B. All fiberglass insulation shall have composite (insulation, jacket or facing, and adhesive used to adhere to facing or jacket to the insulation) fire and smoke hazard rating as tested by procedure ASTM E-84, NFPA 255 and UL 723 not exceeding: Flame Spread 25 -Smoke Developed 50. Accessories, such as adhesives, mastic, cements and tapes for fitting shall have the same component ratings as listed above.

#### **2.02 MINIMUM THICKNESS:**

##### **A. Minimum thickness of piping insulation is:**

- 1. 1/2" Fiberglass with vapor barrier jacket for all domestic cold water.
- 2. 1" Fiberglass with standard jacket cover for all domestic hot water.
- 3. Condensate drain piping in the ceiling space shall be insulated same as cold water piping.
- 4. Roof Drain bodies and horizontal roof drain piping, at the top floor, shall be insulated same as cold water piping.

##### **B. Minimum thickness of ductwork insulation is:**

- 1. 2" #1 fiberglass blanket with vapor barrier jacket on concealed supply air, outside air, mixed air and return air ducts where duct liner is not specified. (Duct liner is covered under Air Distribution).

### **PART 3 - EXECUTION**

## **SECTION 15180 - INSULATION**

### **3.01 GENERAL:**

- A. Insulation shall be applied on clean dry surfaces. Insulation on all cold surfaces where vapor barrier jackets are used shall be applied with a continuous, unbroken vapor seal. Hangers, supports, anchors, etc., that are secured directly to cold surfaces must be adequately insulated and vapor-sealed to prevent condensation. No staples will be allowed in vapor barriers on cold surfaces. Unsatisfactory installation will be rejected and shall be removed and replaced.
- B. All joints will be joined with adhesive. All insulation installed on piping or equipment outside the building and exposed to the weather shall be flexible foamed plastic and shall have two coats of finish, type as recommended by the insulation manufacturer.

### **3.02 PIPING INSULATION INSTALLATION:**

- A. Insulate all domestic water piping systems including valves, fittings, and unions and flanges as hereinafter described. All valves, flanges and fittings shall be insulated with rigid fiberglass premolded fittings with jacket to match adjacent insulation. Zeston or equal PVC fitting covers are acceptable except when installed in supply or return air handling plenums. Fitting covers in cold piping insulation shall be installed to achieve an effective vapor barrier.
- B. Inserts of foam glass, asbestos-free calcium silicate or rigid foamed plastic shall be installed at all hangers for cold piping. Pipe insert thickness shall be equal to the adjoining insulation. Provide a vapor barrier if the adjacent insulation has a vapor barrier. The length of the inserts for each pipe size shall not be less than the following:
  - 1. 1/2" to 2-1/2", 6" long.
  - 2. 3" to 6", 9" long.
- C. Fiberglass insulation (ASTM-C547) shall be made in premolded sections and have an average thermal conductivity not to exceed 0.24 BTU-in square foot/-hour at mean temperature of 75 F. Joints shall butted firmly together. Longitudinal jacket laps and butt strips shall be smoothly secured with Benjamin Foster 82-07 adhesive or equal. Outward clinch staples shall be used on laps as required; for insulation over hot water lines only.
- D. The termination of all covering shall be as required to allow for pipe expansion without damage to covering and the ends of the covering fitted with protector cups.
- E. Flexible foamed insulation shall be slipped on to refrigerant suction piping to avoid longitudinal seams, and all joints vapor barrier cemented.

### **3.03 DUCT INSULATION INSTALLATION:**

- A. 3-1/2" thick blanket duct insulation shall be applied to diffuser tops of supply duct system. (Rectangular ducts to be lined.)
- B. Blanket duct insulation shall be attached with adhesive applied to 6" strips, 12" on center. Surfaces over 24" wide shall, in addition, have stick clips fasteners 18" on center. Joints shall be taped with matching facing materials. Insulations shall be installed with foil type vapor barrier.

**END OF SECTION 15180**