

SECTION 230713 - DUCTWORK INSULATION

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Ductwork insulation.
- B. Insulation jackets.

1.2 RELATED WORK

- A. Section 230553 - Identification for HVAC Piping and Equipment.
- B. Section 233100 - HVAC Ducts and Casings.
- C. Section 233300 - Air Duct Accessories.

1.3 REFERENCES

- A. ANSI/ASTM C553 - Mineral Fiber Blanket and Felt Insulation.
- B. ANSI/ASTM C612 - Mineral Fiber Block and Board Thermal Insulation.
- C. UL 723 - Surface Burning Characteristics of Building Materials.
- D. ASTM E84 - Surface Burning Characteristics of Building Materials.

1.4 QUALITY ASSURANCE

- A. Submit product data under provisions of Section 013300.
- B. Include product description, list of materials and thickness for each service, and locations.
- C. Submit manufacturer's installation instructions under provisions of Section 013300.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Johns Manville.
- B. Certainteed.
- C. Knauf.
- D. Armstrong.
- E. Dow.
- F. Substitutions: Approved equal under provisions of Section 012500.

2.2 MATERIALS

- A. Type A: .75 pcf Flexible glass fiber; ANSI/ASTM C553; commercial grade; 'k' value of .27 at 75 degrees F; 0.002 inch foil reinforced kraft facing for air conditioning ducts.

- B. Type B: 3.0 pcf Rigid glass fiber; ANSI/ASTM C612 Class 1; value of 0.23 at 75 degrees F; 0.002 inch white kraft-foil facing for air conditioning ducts.
- C. Type D: Expanded, closed cell elastomeric, flexible insulation with 12 mil white laminate covering: ANSI/ASTM C534; 'k' value of .27 at 75 degrees F. Armacell Arma Tuff.
- D. Adhesives: Fire-retardant type. Compatible with insulation, Armstrong 520, Benjamin Foster 85-75, Childers Chil-Seal CP-50A MV1 coating and adhesive or approved equal.
- E. Lagging Adhesive: Fire resistive to UL 723.
- F. Impale Anchors: Galvanized steel, 12 gage, welded to duct.
- G. Joint Tape: Self-adhesive type matching insulation jacket.

2.3 JACKETS

- A. Indoors - Factory applied vapor barrier facing of type specified with insulation.
- B. Outdoors - Aluminum jackets, ASTM B209, 0.20 inches thick, smooth finish.
- C. Mechanical Rooms – 8 oz. canvas jacket.

2.4 ACCESSORIES

- A. Adhesives: Compatible with insulation. Armstrong 520, Benjamin Foster 85-75, Childers Chil-Seal CP-50A MV1 coating and adhesive or approved equal.
- B. Insulation Bands: 3/4" wide, .007 inches thick aluminum.
- C. Metal Jacket Bands: 3/8" wide, 0.15 inches thick aluminum.

PART 3 EXECUTION

3.1 PREPARATION

- A. Install materials after ductwork has been tested and approved.
- B. Clean surfaces for adhesives.
- C. Coordinate with other divisions so that duct mounted sensors, damper operators, etc. are installed with proper mounting brackets to allow insulation to run continuously around the perimeter of the duct, and so that all penetrations can be sealed to protect the integrity of the vapor barrier.

3.2 INSTALLATION

- A. Install materials in accordance with manufacturer's instructions.
- B. Type A Insulation:
 - 1. Prior to installing insulation, ducts shall be clean, dry and tightly sealed at joint.
 - 2. Duct insulation shall be cut to stretch out dimension recommended by manufacturer.
 - 3. Staple seams on 6" centers and then seal with self-adhesive joint tape. On ducts 24" or wider insulation shall be secured with pins welded to duct and speed clip washers on 18" centers on bottom of duct. Seal punctures with joint tape or vapor barrier mastic.

C. Type B Insulation:

1. Prior to installing insulation on ducts shall be clean, dry and tightly sealed at joints.
2. Insulation shall be secured to ductwork with pins welded to duct at 12" centers and no more than 3" from the edges of the insulation. Provide additional pins at cross breaking on ducts. Provide clips over pins and pressure sensitive patches or vapor sealing mastic.
3. At seams and butt joints ship lap edges and staple. Apply 3" wide pressures sensitive tape over seams. In lieu of ship lapping and stapling use 5" wide pressure sensitive tape.

D. Type D Insulation:

1. Secure insulation to ductwork with smooth side out using insulation manufacturer's adhesive on both contacting surfaces.
2. Fill joints with insulation manufacturer's adhesive.
3. Apply layers with staggered seams secured with insulation manufacturer's adhesive where necessary to obtain specified thickness.
4. Surface Finish: Apply two coats of insulation manufacturer's protective finish as recommended by manufacturer.
5. For installations in animal husbandry area seal joints with white mastic to provide a tight seal and smooth uniform appearance.

E. Continue insulation with vapor barrier through all wall penetrations, except at fire dampers.

3.3 SCHEDULE

DUCTWORK	TYPE	THICKNESS	FINISH
Supply Air Ductwork			
Concealed	A	1-1/2"	Foil Faced Kraft

END OF SECTION 230713