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**SECTION 23 07 13**  
**DUCT INSULATION****PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. Duct insulation.
- B. Insulation jackets.

**1.2 RELATED REQUIREMENTS**

- A. Section 07 84 00 - Firestopping.
- B. Section 09 91 23 - Interior Painting: Painting insulation jackets.
- C. Section 23 05 53 - Identification for HVAC Piping and Equipment.
- D. Section 23 31 00 - HVAC Ducts and Casings: Glass fiber ducts.

**1.3 REFERENCE STANDARDS**

- A. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus 2021.
- B. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation 2014 (Reapproved 2019).
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2023.
- D. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials 2022a.
- E. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials Current Edition, Including All Revisions.

**1.4 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

**PART 2 PRODUCTS****2.1 REGULATORY REQUIREMENTS**

- A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84, UL 723, ASTM E84, or UL 723.

**2.2 FIBERGLASS DUCT WRAP INSULATION DI-2**

- A. Mineral-Fiber Blanket Insulation: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 553, Type II and ASTM C 1290, Type III with factory-applied FSK jacket.
- B. Comply with ASTM E84, NFPA 90A, or NFPA 90B.
- C. Maximum Thermal Conductivity: 0.29 Btu x in./h x sq. ft. x deg F mean temperature.
- D. Water-Based Liner Adhesive: Comply with NFPA 90A or NFPA 90B and with ASTM C 916.
- E. 2" wide tape for sealing joints.
- F. For outdoor installations, insulation jacket shall be 20 mill PVC or 0.016 inch aluminum.

**2.3 GLASS FIBER, RIGID DI-4**

- A. Manufacturer:
  - 1. CertainTeed Corporation: [www.certainteed.com/#sle](http://www.certainteed.com/#sle).

2. Johns Manville: [www.jm.com/#sle](http://www.jm.com/#sle).
  3. Knauf Insulation: [www.knaufinsulation.com/#sle](http://www.knaufinsulation.com/#sle).
  4. Owens Corning Corporation; 700 Series FIBERGLAS Insulation: [www.ocbuildingspec.com/#sle](http://www.ocbuildingspec.com/#sle).
  5. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Insulation: ASTM C612; rigid, noncombustible blanket.
1. K Value: 0.24 at 75 degrees F, when tested in accordance with ASTM C518.
  2. Maximum Service Temperature: 450 degrees F.
  3. Maximum Water Vapor Absorption: 5.0 percent.
  4. Maximum Density: 8.0 lb/cu ft.
- C. Vapor Barrier Jacket:
1. Kraft paper with glass fiber yarn and bonded to aluminized film.
  2. Moisture Vapor Permeability: 0.02 perm inch, when tested in accordance with ASTM E96/E96M.
  3. Secure with pressure sensitive tape.
- D. Outdoor installation shall have white EPDM covering.

**PART 3 EXECUTION****3.1 EXAMINATION**

- A. Test ductwork for design pressure prior to applying insulation materials.
- B. Verify that surfaces are clean, foreign material removed, and dry.

**3.2 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.

**3.3 SCHEDULES**

- A. Acceptable duct insulation materials and thicknesses are identified for each system. If more than one material is listed for a piping system, selection from materials listed is Contractor's option.
- B. Manufacturer shall validate and provide documentation indicated that schedule thickness meets ASHRAE 90.1 insulation requirements.
- C. Rectangular Sheet Metal, Installed Within Building Thermal Envelope:

Service	Insulation Spec No.	Thickness, Inches
Supply Air	DI-2	1-1/2
Return Air	DI-2	1-1/2
Exhaust Air/Relief Air	Not Required	N/A
Outdoor Air	DI-4	1-1/2

- D. Round Sheet Metal, Installed Within Building Thermal Envelope:

Service	Insulation Spec No.	Thickness, Inches
Supply Air	DI-2	1-1/2
Return Air	DI-2	1-1/2
Exhaust Air	Not Required	N/A
Outdoor Air	DI-2	1-1/2

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Relief Air	Not Required	N/A
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**END OF SECTION 23 07 13**