

**SECTION 07 21 00**  
**BUILDING INSULATION**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section includes:
  - 1. Interior rigid building insulation.
  - 2. Interior batt insulation.

**1.2 SUBMITTALS**

- A. Product Data: Submit Manufacturer's data, installation instructions, limitations and recommendations. Include certification and test data substantiating R-Values and combustibility of each type of insulation.

**1.3 QUALITY ASSURANCE**

- A. Fire-Test-Response Characteristics: Provide insulation and related materials with fire-test-response characteristics as required by code, as determined by testing identical products per ASTM E 84 for surface-burning characteristics, by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Batt and Blanket Insulation:
    - a. Johns-Manville
    - b. Owens-Corning Fiberglas Corp.
    - c. Certainteed
  - 2. Polystyrene Board Insulation:
    - a. DiversiFoam Products.
    - b. Dow Chemical Company.
    - c. Owens Corning.

**2.2 INSULATING MATERIALS**

- A. Extruded-Polystyrene Board Insulation: ASTM C 578, Type IV, 1.60 lb/cu. ft. , with maximum flame-spread and smoke-developed indices of 75 and 450, respectively. Provide 30 pounds per square inch compressive strength under concrete slab at freezer and refrigerator locations.
  - 1. Thickness: As indicated on Drawings.
- B. Glass fiber batts: Batts shall be a single thickness to meet the required R-value.
  - 1. Unfaced Mineral-Fiber Blanket Insulation: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indices of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
  - 2. Faced Mineral-Fiber Blanket Insulation: ASTM C 665, Type III, Class A; Category 1, faced with foil-scrim-kraft, foil-scrim, or foil-scrim-polyethylene vapor-retarder membrane on one face.

- 3. R-Values: As indicated on Drawings.
- C. Fire Safing Insulation: As specified in Section 07840 – Through Penetration Firestop Systems.
- D. Acoustical Batt Insulation: As specified in Section 09820 – Acoustical Insulation.

## **2.3 ACCESSORIES**

- A. Adhesive: Product with demonstrated capability to bond insulation securely to substrates indicated without damaging insulation and substrates and as approved by insulation manufacturer.
- B. Adhesively Attached, Spindle-Type Anchors with Washers: Plate formed from perforated galvanized carbon-steel sheet, 0.030 inch thick by 2 inches square, welded to projecting steel spindle with a diameter of 0.105 inch and length capable of holding insulation of thickness indicated securely in position with 1-1/2- inch- square or diameter self-locking washers complying with the following:
  - 1. Washers formed from 0.016-inch- thick galvanized steel sheet, with beveled edge for increased stiffness, sized as required to hold insulation securely in place.
  - 2. Where anchors are located in ceiling plenums provide capped self-locking washers incorporating a spring steel insert to ensure permanent retention of cap.
- C. Anchor Adhesive: Product with demonstrated capability to bond insulation anchors securely to substrates indicated without damaging insulation, fasteners, and substrates.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for Sections in which substrates and related work are specified and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Clean substrates of substances harmful to insulations, or of interfering with insulation attachment.
  - 1. Concrete Substrates: Verify that concrete materials have dried sufficiently and have attained optimum moisture content.

### **3.3 INSTALLATION**

- A. General:
  - 1. Do not install insulation until the Construction has progressed to the point that inclement weather will not damage or wet the insulation material.
  - 2. Install insulation to comply with insulation manufacturer's written instructions applicable to products and application indicated.
  - 3. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

4. Seal joints between closed-cell (nonbreathing) insulation units by applying adhesive, mastic, or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant.
  5. Install materials in a manner that will maximize continuity of thermal envelope. Use a single layer of insulation wherever possible to achieve indicated requirements, unless otherwise indicated.
  6. Cut and fit tightly around obstructions and fill voids with insulation.
  7. Remove projections that interfere with placement.
- B. Interior Board Insulation:
1. Install board insulation at locations as indicated on Drawings.
  2. Insulate small areas between closely spaced framing members, pipe, conduit or other obstruction by cutting and fitting insulation materials as required to maintain the integrity of the insulation.
  3. Fit ends snugly or overlap.
  4. Under Refrigerators/Freezers: Install under slab and turn up at edge to match adjacent panels. Coordinate installation with equipment manufacturer.
- C. Batt Insulation: Install mineral-fiber blankets in cavities formed by framing members according to the following requirements:
1. Use blanket widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.
  2. Place blankets in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
  3. Metal-framed wall cavities where cavity heights exceed 96 inches support unfaced blankets mechanically and support faced blankets by taping stapling flanges to flanges of metal studs.
  4. Concrete substrates: Install by adhesively attached, spindle-type insulation anchors as follows:
    - a. Fasten insulation anchors to concrete substrates with insulation anchor adhesive according to anchor manufacturer's written instructions.
    - b. Apply insulation standoffs to each spindle to create cavity width indicated between concrete substrate and insulation.
    - c. After adhesive has dried, install board insulation by pressing insulation into position over spindles and securing it tightly in place with insulation-retaining washers, taking care not to compress insulation below indicated thickness.
    - d. Where insulation will not be covered by other building materials, apply capped washers to tips of spindles.

### 3.4 CLEANING

- A. During the course of the Work and on completion of the Work, remove excess materials, equipment and debris and dispose of away from premises. Leave Work in clean condition.
- B. Protection: Take precautions to protect insulation, both during and after installation, from damage of any kind until covered.

END OF SECTION