

**SECTION 07 21 23  
LOOSE-FILL INSULATION**

SPEC WRITER NOTE: Delete text between // // not applicable to project. Edit remaining text to suit project.

**PART 1 - GENERAL**

**1.1 SUMMARY**

A. Section Includes: Loose-fill insulation // with vapor barrier // at attic floors.

**1.2 RELATED WORK**

SPEC WRITER NOTE: Update and retain references only when specified elsewhere in this section.

A. Section 07 21 13, THERMAL INSULATION: Loose-Fill Insulation for Masonry Walls.

**1.3 APPLICABLE PUBLICATIONS**

A. Comply with references to extent specified in this section.

B. ASTM International (ASTM):

C612-14(2019).....Mineral Fiber Block and Board Thermal Insulation.

C728-17a.....Perlite Thermal Insulation Board.

C739-17.....Cellulosic Fiber (Wood-Base) Loose-Fill Thermal Insulation.

C764-19.....Mineral Fiber Loose Fill Thermal Insulation.

C1015-17.....Installation of Cellulosic and Mineral Fiber Loose-Fill Thermal Insulation.

D4397-16.....Polyethylene Sheeting for Construction, Industrial, and Agriculture Applications.

C. National Fire Protection Associations (NFPA):

211-19.....Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliances.

D. Occupational Safety and Health Administration (OSHA):

Code of Federal Regulations 29 CFR 1910, Occupational Safety and Health Act (OSHA).

**1.4 SUBMITTALS**

A. Submittal Procedures: Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

B. Manufacturer's Literature and Data:

1. Description of each product.
2. Include copy of packaging label.
3. Installation instructions.

C. Samples:

1. Loose-fill insulation: 0.5 liter (1 pint).
2. Blocking: 150 mm (6 inch) long.
3. Vapor Retarder: 150 mm x 150 mm (6 inch by 6 inch).

D. Sustainable Construction Submittals:

SPEC WRITER NOTE: Retain sustainable construction submittals appropriate to product.

1. Recycled Content: Identify post-consumer and pre-consumer recycled content percentage by weight.

**1.5 DELIVERY**

- A. Deliver products in manufacturer's original sealed packaging.
- B. Mark packaging, legibly. Indicate manufacturer's name or brand, type, production run number, and manufacture date.
  1. Include referenced specification number, type and class as applicable, recommended method of installation (pneumatic or pouring), minimum net weight of insulation, coverage charts, R-values, and required warning statements.
- C. Before installation, return or dispose of products within distorted, damaged, or opened packaging.

**1.6 STORAGE AND HANDLING**

- A. Store products indoors in dry, weathertight facility.
- B. Protect products from damage during handling and construction operations.

**1.7 WARRANTY**

SPEC WRITER NOTE: Always retain construction warranty. FAR includes Contractor's one year labor and material warranty.

- A. Construction Warranty: FAR clause 52.246-21, "Warranty of Construction."

**PART 2 - PRODUCTS**

**2.1 PRODUCTS - GENERAL**

- A. Provide insulation from one manufacturer.
- B. Sustainable Construction Requirements:

SPEC WRITER NOTE: Specify products containing greatest recycled content practicable to maximize material recovery. See EPA Comprehensive Procurement Guidelines (CPG) for guidance about individual products and available recycled content. Section 01 81 13 sets overall project recycled content requirements.

1. Insulation Recycled Content:
2. Loose-Fill Insulation: 75 percent total recycled content, minimum.
3. Mineral Fiber: 75 percent total recycled content, minimum.
4. Perlite: 23 percent total post-consumer recycled content, minimum.

## **2.2 LOOSE-FILL INSULATION**

- A. Cellulosic or Wood Fiber Loose-fill: ASTM C739.
- B. Mineral Fiber Loose-fill: ASTM C764, Type I or II.

## **2.3 ACCESSORIES**

- A. Blocking: Wood, metal, mineral fiber or perlite boards, or other materials approved by Contracting Officer's Representative.
  1. Mineral Fiber Board: ASTM C612, Type IB.
  2. Perlite Board: ASTM C728.
- B. Vapor Retarder: ASTM D4397; 0.20 mm (8 mil) thick polyethylene sheeting conforming.
  1. Tape: Self-adhesive type with maximum perm rating matching vapor retarder.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine locations receiving loose-fill insulation according to ASTM C1015. Identify the following:
  1. Defects in electrical fixtures, equipment, wiring, junction boxes, receptacles, and switches.
  2. Openings through which loose-fill insulation material may escape.
  3. Air ducts with unsealed joints.
- B. Report unsatisfactory conditions to Contracting Officer's Representative.
- C. Do not install insulation until unsatisfactory conditions are corrected.

### **3.2 PREPARATION**

- A. Examine and verify substrate suitability for product installation.
- B. Protect existing construction and completed work from damage.

- C. Install blocking in accordance ASTM C1015 and as indicated.
1. Opening Blocking:
    - a. Install blocking around // attic trap doors, // ceiling access-panels, // and // vents // if the level to which the unsettled insulation will be installed exceeds their height.
    - b. Cover openings into attic with temporary blocking to prevent insulation from falling into opening, including spaces enclosed by blockings.
  2. Device Blocking: Install blocking 50 mm (2 inches) above height of finished insulation installation to ensure devices requiring maintenance or servicing remain accessible after insulation is installed.
  3. Heat Producing Device Blocking: Minimum clearances for blocking around heat producing devices.
    - a. Masonry Chimneys: 100 mm (4 inches) from outside face of masonry servicing fired equipment operating at maximum 800 degrees C (1500 degrees F).
    - b. Other Chimneys, Vents, Breechings, and Stacks: Minimum clearances as required by NFPA 211.

### **3.3 INSTALLATION**

- A. Install products according to manufacturer's instructions // and approved submittal drawings //.
1. When manufacturer's instructions deviate from specifications, submit proposed resolution for Contracting Officer's Representative consideration.
- B. Vapor Retarder:
1. // Where space is accessible, // install vapor retarder below insulation. Do not install a vapor retarder over existing insulation.
  2. Install without tears, breaks, or ruptures interfering with vapor retarder effectiveness and continuity.
  3. Lap joints in vapor retarder to ensure continuous seal. Tape laps to retain vapor barrier in place.
  4. Use self-adhesive tape for sealing joints and holes in the vapor retarder.
- C. Insulation:
1. Install insulation according to ASTM C1015.

2. Fit the attic side of // trap doors // and // access panels // with perlite or mineral fiber insulation boards. // Insulate attic side of trap doors unless prevented by retractable ladder. //

SPEC WRITER NOTE: Ensure space over insulation is vented. For preliminary design use an R-value of 3.1 per 25 mm (1 inch) for calculation of minimum thickness of insulation. Since density will vary from 9.5 to 32 kg/sq. m (0.6 to 2.0 pcf) and insulation will settle after blowing, initial thickness will exceed maximum thickness; thus bag count is critical.

3. Install insulation in sufficient depth to provide thermal value specified after insulation settlement.
4. Pneumatic installation:
  - a. Use lowest air pressure according to manufacturer's instructions.
  - b. Do not blow insulation into electrical devices and vents opening into insulated spaces.
5. Install insulation and allow natural settlement to final density. Do not tamp or rod insulation.

**3.4 FIELD QUALITY CONTROL**

- A. Post Installation Procedures: According to ASTM C1015.

**3.5 CLEANING**

- A. Remove excess insulation.
- B. Remove temporary blockings over openings.

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