

SECTION 07210 - BUILDING INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Insulation under slabs-on-grade.
 - 2. Foundation wall insulation (supporting backfill).
 - 3. Cavity wall insulation.
 - 4. Concealed building insulation.
 - 5. Safing insulation.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 4 Section "Unit Masonry" for insulation installed in cavity walls and masonry cells.
 - 2. Division 7 Section "Hot Fluid-Applied Waterproofing" for insulation installed with waterproofing.
 - 3. Division 7 Section "Single-Ply Membrane Roofing" for insulation specified as part of roofing construction.
 - 4. Division 9 Section indicated below for insulation installed as part of metal-framed wall and partition assemblies:
 - a. "Gypsum Board Assemblies."

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for each type of insulation product specified.
- C. Samples for verification in full-size units of each type of exposed insulation indicated for each color specified.

1.4 QUALITY ASSURANCE

- A. Single-Source Responsibility for Insulation Products: Obtain each type of building insulation from a single source with resources to provide products complying with requirements indicated without delaying the Work.

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1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering insulation products that may be incorporated in the work include, but are not limited to, the following:
1. Extruded-Polystyrene Board Insulation for Under Slab-On-Grade: ASTM C 578, Type IV, 1.60 CF density, with maximum flame- spread and smoke- developed indices of 75 and 450, respectively.
 - a. Styrofoam SE by Dow Chemical Co., or Architect approved equal.
 2. Extruded-Polystyrene Panels:
 - a. Dow Chemical Co.
 - b. UC Industries, Inc.; Owens-Corning Co.
 3. Molded-Polystyrene Board Insulation for CMU Inserts:
 - a. AFM Corporation.
 - b. DiversiFoam Products.
 - c. Grace: W. R. Grace & Co. (Conn.); Construction Products Division.
 - d. Manufacturers with a third-party certification program satisfying model building code mandatory requirements for foam plastics.
 4. Glass-Fiber Insulationfor stud walls:
 - a. CertainTeed Corporation.
 - b. Knauf Fiber Glass GmbH.
 - c. Owens-Corning Fiberglas Corporation.
 - d. Schuller International, Inc.

2.2 INSULATING MATERIALS

- A. General: Provide insulating materials that comply with requirements and with referenced standards.
1. Preformed Units: Sizes to fit applications indicated; selected from manufacturer's standard thicknesses, widths, and lengths.

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- B. Molded-Polystyrene Board Insulation: Rigid, cellular polystyrene thermal insulation formed by expansion of polystyrene resin beads or granules in a closed mold to comply with ASTM C 578 for type and with other requirements indicated below:

- 1. Federal Standard: FS HH-I-1972/1, Class 1 (nonreinforced core) or 2 (reinforced core).

- C. Faced Mineral-Fiber Blanket Insulation: Thermal insulation combining mineral fibers of type described below with thermosetting resins to comply with ASTM C 665, Type III, Class A (blankets with reflective vapor-retarder membrane facing and flame spread of 25 or less); with foil-scrim-kraft, foil-scrim, or foil-scrim-polyethylene vapor-retarder membrane on 1 face. R-19.

2.3 VAPOR RETARDERS

- A. Polyethylene Vapor Retarder: ASTM D 4397, 6 mils thick, with maximum permeance rating of 0.13 perm.
- B. Foil-Polyester Film Vapor Retarder: 2 layers of 0.5-mil- (0.013-mm-) thick polyester film laminated to an inner layer of 1-mil- (0.025-mm-) thick aluminum foil, with maximum water-vapor transmission rate in flat condition of 0.0 g/h x sq. m and with maximum flame-spread and smoke-developed indices of 15 and 5, respectively.
- C. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor retarder manufacturer for sealing joints and penetrations in vapor retarder.

2.4 AUXILIARY INSULATING MATERIALS

- A. Adhesive for Bonding Insulation: Product with demonstrated capability to bond insulation securely to substrates indicated without damaging insulation and substrates.

2.5 INSULATION FASTENERS

- a. Not Used

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements of Sections in which substrates and related work are specified and to determine if other conditions affecting performance of insulation are satisfactory. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of substances harmful to insulations or vapor retarders, including removing projections capable of puncturing vapor retarders or that interfere with insulation attachment.

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3.3 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and application indicated.
- B. Install insulation that is undamaged, dry, unsoiled, and has not been exposed at any time to ice and snow.
- C. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. of insulation to produce thickness indicated, unless multiple layers are otherwise shown or required to make up total thickness.

3.4 INSTALLATION OF PERIMETER AND UNDER-SLAB INSULATION

- A. On vertical surfaces, set units in adhesive applied according to manufacturer's written instructions. Use adhesive recommended by insulation manufacturer.
- B. Protect top surface of horizontal insulation from damage during concrete work by applying protection board.

3.5 INSTALLATION OF GENERAL BUILDING INSULATION

- A. 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.
- B. 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 as recommended by insulation manufacturer.

3.6 INSTALLATION OF VAPOR RETARDERS

- A. General: Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage system as indicated. Extend vapor retarder to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.
- B. Seal overlapping joints in vapor retarders with adhesives or vapor-retarder tape according to vapor retarder manufacturer's instructions. Seal butt joints and fastener penetrations with vapor-retarder tape. Locate all joints over framing members or other solid substrates.
- C. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarder.

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- D. Repair any tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarder.

3.7 PROTECTION

- A. General: Protect installed insulation and vapor retarders from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 07210