

SECTION 072100 - THERMAL INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Glass-fiber blanket insulation.
 - 2. Foam-plastic board insulation.
 - 3. Spray polyurethane foam insulation.
- B. Related Sections include the following:
 - 1. Division 09 Section "Gypsum Board" for installation in wood-framed assemblies of insulation specified by referencing this Section.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. LEED Submittals: Follow submittal requirements of Division 01 Section "Submittal Requirements" and provide product data on the LEED Materials Documentation Cover Sheet attached as an Appendix to Division 01 Section "Sustainable Design and LEED Requirements."
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency for insulation products.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of building insulation through one source from a single manufacturer.
- B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
 - 1. Surface-Burning Characteristics: ASTM E 84.
 - 2. Fire-Resistance Ratings: ASTM E 119.

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3. Combustion Characteristics: ASTM E 136.

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.
- B. Protect plastic insulation as follows:
 1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
 2. Protect against ignition at all times. Do not deliver plastic insulating materials to Project site before installation time.
 3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
 2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 MATERIALS, GENERAL

- A. Meet requirements of LEED for Homes Mid-Rise 2010 Credit MR 2.2 as defined in Division 01 Section "Sustainable Design and LEED Requirements" for this type of material.

2.3 GLASS-FIBER BLANKET INSULATION

- A. Available Manufacturers:
 1. CertainTeed Corporation. (20% recycled content)
 2. Guardian Fiberglass, Inc. (30% post consumer, 5% post industrial)
 3. Johns Manville. (18% post consumer, 7% post industrial)
 4. Knauf Fiber Glass. (recycled content NA)
 5. Owens Corning. (40% recycled content)

- B. Unfaced, Glass-Fiber Blanket Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

2.4 FOAM-PLASTIC BOARD INSULATION

- A. Rigid Insulation: Extruded-Polystyrene Board Insulation: ASTM C 578, of type and minimum compressive strength indicated below, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84:
 - 1. Available Products:
 - a. Foamular 250; Owens Corning.
 - b. Styrofoam by Dow Chemical Co.
 - c. Amofoam-CM by Tenneco Building Products
 - 2. Type IV, 1.60 lb/cu. ft. (26 kg/cu. m), unless otherwise indicated.
 - 3. Applications:
 - a. Foundation insulation.
 - b. Rigid insulation below concrete slab-on-grade.
 - c. Rigid insulation at exterior wall system.
 - d. Elsewhere as indicated on the drawings.

2.5 SPRAYED FOAM INSULATION

- A. Sprayed Polyurethane Foam Sealant for Perimeter of Doors and Windows: 1- or 2-component, foamed-in-place, polyurethane foam sealant, 1.5 to 2.0 lb/cu. ft. (24 to 32 kg/cu. m) density; flame spread index of 25 or less according to ASTM E 162; with primer and noncorrosive substrate cleaner recommended by foam sealant manufacturer.
 - 1. Products:
 - a. Great Stuff Window & Door by Dow
 - b. Froth-Pak by Insta-Foam Products, Inc.
 - c. Pur-Fill 1G by Todol Products, Inc.
 - d. Handi-Seal Window and Door Sealant by Fomo Products, Inc.
- B. Foamed-in-Place Insulation: Spray-in-place, high-density, plastic foam with closed-cell structure, conforming to the following:
 - 1. Flame/Smoke Properties: 25/500 in accordance with ASTM E84.
 - 2. R-Value per Inch: 6.9.
 - 3. Products:
 - a. Heatlok manufactured by Demilec. 817-640-4900.
 - b. Walltite by BSAF.
 - 4. Application: where spray insulation is indicated in the drawings.

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 for other conditions affecting performance.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

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

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, and unsoiled and that has not been left exposed at any time to ice, rain, 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. Water-Piping Coordination: If water piping is located within insulated exterior walls, coordinate location of piping to ensure that it is placed on warm side of insulation and insulation encapsulates piping.
- E. For preformed insulating units, provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units 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 insulation units in adhesive applied according to manufacturer's written instructions. Use adhesive recommended by insulation manufacturer.
 - 1. If not otherwise indicated, extend insulation a minimum of 48 inches below exterior grade line.
 - 2. If not otherwise indicated, extend insulation to top of footing.
- B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.

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- C. Protect below-grade insulation on vertical surfaces from damage during backfilling by applying protection course with joints butted. Set in adhesive according to insulation manufacturer's written instructions.
- D. Protect top surface of horizontal insulation from damage during concrete work by applying protection course with joints butted.

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. Install mineral-fiber insulation in cavities formed by framing members according to the following requirements:
 - 1. Use insulation 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 insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
 - 3. Maintain 3-inch clearance of insulation around recessed lighting fixtures.
- C. Apply self-supported, spray-applied cellulosic insulation according to manufacturer's written instructions. Do not apply insulation until installation of pipes, ducts, conduits, wiring, and electrical outlets in walls is completed and windows, electrical boxes, and other items not indicated to receive insulation are masked. After insulation is applied, make it flush with face of studs by using method recommended by insulation manufacturer. Allow insulation to dry for 24 hours before enclosing insulation with wall covering.
- D. Apply foamed-in-place insulation, by spray or froth method to a uniform monolithic density without voids into miscellaneous voids and cavity spaces where shown.

END OF SECTION 072100