

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. Foundation insulation.
 - 2. Concealed building insulation.
 - 3. Foam-in-place insulation.
 - 4. Steel door frame insulation.
- B. Related Sections include the following:
 - 1. Division 4 Section "Unit Masonry Assemblies" for insulation installed in cavity walls and masonry cells.
 - 2. Division 7 Section "Fluid-Applied Air/Vapor Barrier System."
 - 3. Division 7 Section Thermo Plastic Membrane Roofing for insulation specified as part of roofing construction.
 - 4. Division 9 Section "Gypsum Board Assemblies" for provision in metal-framed assemblies of interior acoustical insulation.
 - 5. Division 15 Sections for insulation on ducts, piping, and equipment.

1.3 DEFINITIONS

- A. Thermal Resistivity: Where the thermal resistivity of insulation products are designated by "r-values," they represent the reciprocal of thermal conductivity (k-values). Thermal conductivity is the rate of heat flow through a homogenous material exactly 1 inch thick. Thermal resistivities are expressed by the temperature difference in degrees F between the two exposed faces required to cause one BTU to flow through one square foot per hour at mean temperatures indicated.

1.04 SUBMITTALS

- A. General: Submit in accordance with Section 01330.
- B. Product Data: For each type of product indicated.

1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of building insulation through one source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- 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.
3. Combustion Characteristics: ASTM E 136.

1.6 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.

1.7 COORDINATION

- A. Coordinate installation of insulation with installation of air/vapor barrier system.
- B. Complete installation of exterior insulation prior to heating building interior.

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. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.
 2. Products: Subject to compliance with requirements, provide one of the products specified.

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.
- B. Foundation and Under Slab Insulation: Extruded-polystyrene board insulation, ASTM C 578, TypeIV, 1.60 lb./cu. ft., unless otherwise indicated, with maximum flame-spread and smoke- developed indices of 75 and 450, respectively:
 1. Thickness: 2 inches, unless indicated otherwise.

2. Edge Treatment: Tongue and groove or shiplap edges.
 3. Products:
 - a. Styrofoam; Dow Chemical Company.
 - b. Foamular 250; Owens Corning.
 - c. Amofoam; Tenneco Building Products.
- C. Rigid Insulation: Extruded-polystyrene board insulation, ASTM C 578, Type IV; 25.0 psi minimum compressive strength; 1.60 lb./cu. ft., unless otherwise indicated, with maximum flame-spread and smoke-developed indices of 75 and 450, respectively:
1. Thickness: 1, 2 and 3 inches, as indicated.
 2. Edge Treatment: Tongue and groove or shiplap edges.
 3. Products:
 - a. Styrofoam; Dow Chemical Company.
 - b. Foamular 250; Owens Corning.
 - c. Amofoam; Tenneco Building Products.
- D. Foam-In-Place Insulation: On-site foam-in-place insulation shall be Froth-Pac 1.75-25 FS Class 1 foam manufactured by Insta-Foam Products, Inc., or approved equal.
- E. Sound Attenuation Blankets (Acoustical Insulation): See Division 9 Section "Gypsum Board Assemblies."

2.3 INSULATION FASTENERS

- A. Insulation Fastener with Locking Plate: Factory-coated steel fasteners and 3-inch diameter plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening insulation through gypsum sheathing and into cold-formed metal framing not less than 3/4-inch.
1. Product: OMG ASAP 3P; OMG Roofing Products, Agawam, MA 01001; phone: (800) 633-3800.

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 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.

1. If printed instructions are not available or do not apply to project conditions,

consult manufacturer's technical representative for specific recommendations before proceeding with installation of insulation.

- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left 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. Apply single layer of insulation to produce thickness indicated, unless multiple layers are otherwise shown or required to make up total thickness.

3.4 INSTALLATION OFFOUNDATION 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.
 - 1. Extend insulation to top of footing, unless indicated otherwise.
- B. Protect top surface of horizontal insulation from damage during concrete work by applying protection board. Refer to drawings for locations-sizes

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. Fill voids in thermal envelope not covered by the work of other sections.
- 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.
- C. Fasten rigid board insulation over air/vapor barrier applied to weather-resistant gypsum sheathing using insulation fastener with locking plate. Threads of screws shall penetrate through the insulation and gypsum sheathing into cold-formed metal framing not less than 3/4- inch. Fastener must be tight enough to prevent the plate fromturning, but shall not be overdriven causing the skin of insulation board to fracture.
 - 1. Space anchors according to insulation manufacturer's written instructions for insulation type, thickness, and application indicated.

3.6 INSTALLATION OF FOAM-IN-PLACE INSULATION

- A. Install foam-in-place insulation sealant to a minimum depth of 1 inch, sealing deck flutes and construction cracks and gaps where outside air and cold can infiltrate, providing an airtight building envelope.
- B. Install foam-in-place insulation in upper portion of stud cavity to provide continuous thermal barrier between roof insulation and insulation outboard of building sheathing.

3.7 INSULATING STEEL DOOR FRAMES

- A. Exterior Frames: Steel door frames in exterior walls shall be filled with rigid insulation. Cut rigid insulation slab the full width of frame throat and insert continuous slab into door frame head and jambs before frame is installed. After frame is installed, fill remaining gap between rigid insulation and air/vapor barrier with foam-in-place insulation.

3.8 PROTECTION

- A. Protect installed insulation 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