

SECTION 07 21 13**THERMAL INSULATION****PART 1 - GENERAL****1.1 DESCRIPTION:**

- A. This section specifies thermal insulation for buildings.

1.2 RELATED WORK

- A. Sustainable Design: Section 01 81 11
- B. Insulation for window installation: Section 08 51 13, ALUMINUM WINDOWS.

1.3 SUBMITTALS:

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's Literature and Data:
1. Insulation, each type used
- C. Certificates: Stating the type, thickness, and "R" value (thermal resistance) of insulation to be installed.

1.4 STORAGE AND HANDLING:

- A. Store insulation materials in weathertight enclosure.
- B. Protect insulation from damage from handling, weather and construction operations before, during, and after installation.

1.5 APPLICABLE PUBLICATIONS:

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only.
- B. American Society for Testing and Materials (ASTM):
- C553-08.....Mineral Fiber Blanket Thermal Insulation for
Commercial and Industrial Applications
- C578-10.....Rigid, Cellular Polystyrene Thermal Insulation
- C591-09.....Unfaced Preformed Rigid Cellular
Polyisocyanurate Thermal Insulation
- C612-10.....Mineral Fiber Block and Board Thermal
Insulation
- E84-10.....Surface Burning Characteristics of Building
Materials

PART 2 - PRODUCTS**2.1 INSULATION - GENERAL:**

- A. General: Provide thermal insulation to fill any openings / gaps between existing construction and new windows.
- B. Where thermal resistance ("R" value) is specified or shown for insulation, the thickness shown on the drawings is nominal. Use only insulation with actual thickness that is not less than that required to provide the thermal resistance specified.
- C. Where "R" value is not specified for insulation, use the thickness shown on the drawings or as required to completely fill cavity.
- D. Where more than one type of insulation is specified, the type of insulation for each use is optional.

2.2 THERMAL INSULATION:

- A. Unfaced, Glass-Fiber Blanket Insulation: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.
- B. Closed-Cell Polyurethane Foam Insulation: ASTM C 1029, Type II, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84
 - 1. Minimum density of 24 kg/cu. m (1.5 lb/cu. ft.), thermal resistivity of 43 K x m/W at 24 deg C (6.2 deg F x h x sq. ft./Btu x in. at 75 deg F).
 - 2. Shall be adequate/safe for use in window installations (i.e. will not place excessive pressure on window frame).
- C. Mineral Fiber Batt or Blankets: ASTM C665. Maximum flame spread of 25 and smoke development of 450 when tested in accordance with ASTM E84.
- D. Thickness as required to fit tight against cavity.

2.11 TAPE:

- A. Pressure sensitive adhesive on one face.
- B. Perm rating of not more than 0.50.

PART 3 - EXECUTION**3.1 INSTALLATION - GENERAL**

- A. Install batt or blanket insulation with tight joints and filling framing void completely. Seal cuts, tears, and unlapped joints with tape.

- B. Fit insulation tight against adjoining construction and penetrations, unless specified otherwise.
- C. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials.
 - 1. Glass-Fiber Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 40 kg/cu. m (2.5 lb/cu. ft.).
 - 2. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.

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