

SECTION 07 21 00
THERMAL INSULATION

PART 1 – GENERAL

1.1 SUMMARY

- A. Furnish and install the following:
 - 1. Mineral wool blanket insulation.
 - 2. Spray Foam insulation.
 - 3. Loose fill mineral wool insulation.

1.2 RELATED REQUIREMENTS

- A. Section 06 10 00 - ROUGH CARPENTRY: Wood blocking, nailers.
- B. Section 07 27 16 - SHEET MEMBRANE AIR BARRIERS: Self-adhesive elastomeric sheet membrane air barrier system.
- C. Section 09 81 00 - ACOUSTICAL INSULATION: Acoustical batt insulation between framing members.

1.3 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.
 - 1. ASTM C 203 - Breaking Load and Flexural Properties of Block Type Thermal Insulation.
 - 2. ASTM C 518 - Thermal Transmission Properties by Means of the Heat Flow Meter.
 - 3. ASTM C 553 - Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications.
 - 4. ASTM C 578 - Preformed Cellular Polystyrene Thermal Insulation.
 - 5. ASTM C-612 - Mineral Fiber Block and Board Thermal Insulation.
 - 6. ASTM C665-01e1 Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
 - 7. ASTM D 1621 - Compressive Properties of Rigid Cellular Plastics.
 - 8. ASTM E 136 - Behavior of Materials in a Vertical Tube Furnace at 750°C.
 - 9. ASTM E 84 - Surface Burning Characteristics of Building Materials.
 - 10. ASTM E 96 - Water Vapor Transmission of Materials.
 - 11. All applicable federal, state and municipal codes, laws and regulations for thermal insulation.
- B. Definitions:
 - 1. The term "R-Value" referred to herein refers to the thermal resistance of the insulation alone and does not allow consideration of air spaces or other factors.

1.4 SUBMITTALS

- A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
 - 1.5 Product Data: Manufacturer's product data sheets, specifications, performance data, physical properties for each item furnished hereunder.

1.6 QUALITY ASSURANCE

- A. General: Notify the Architect where conflicts apply between referenced standards and existing materials, and existing methods of construction.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Delivery and Acceptance Requirements:
 - 1. Do not deliver items to the site, until all specified submittals have been submitted to, and approved by, the Architect.
 - 2. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer or supplier.
- B. Storage and Handling Requirements:
 - 1. Store and handle materials following manufacturer's recommended procedures, and in accordance with material safety data sheets.
 - 2. Protect materials from damage due to moisture, direct sunlight, excessive temperatures, surface contamination, corrosion and damage from construction operations and other causes.
- C. Damaged material: Remove any damaged or contaminated materials from job site immediately, including materials in packages containing water marks, or show evidence of mold.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
 - 1. Fibrex Insulations Inc., Sarnia, Ontario
 - 2. Thermafiber Inc., Wabash IN.
 - 3. Roxul, Inc., Milton, Ontario. (Formerly Rock Wool Manufacturing Company)

2.2 MATERIAL

- A. Mineral-Wool Blanket, Unfaced 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, per ASTM E 84; passing ASTM E 136 for combustion characteristics.
- B. Foil-Faced, Mineral-Wool Board Insulation (Type D): ASTM C 612; faced on one side with foil-scrim or foil-scrim-polyethylene vapor-retarder; with maximum flame-spread and smoke-developed indexes of 25 and 5, respectively, per ASTM E 84.
- C. Nominal density of 8 lb/cu. ft., Type III, thermal resistivity of 4.35 deg F x h x sq. ft./Btu x in. at 75 deg F

- D. Mineral-Wool Loose fill, ASTM C 764, with maximum flame-spread and smoke-developed indexes of 0, per ASTM E 84; passing ASTM E 136 for combustion characteristics.
- E. Acoustical batt insulation: Mineral wool fiber insulation batts, conforming to ASTM C665, Type 1, ASTM C612, and ASTM C553 with a nominal density of 2.5 pounds per cubic foot, nominally 3-1/2 inches thick.
- F. Spray Polyurethane Foam, Froth-Pak by Dow Chemical Company.
- 1. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - Flame-Spread Index: 25 or less.
 - Smoke-Developed Index: 350 or less.
- 2. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.

2.3 ACCESSORIES

- A. Staples, tape, adhesives and fasteners required for the proper and complete installation for work of this Section shall be as recommended by each respective manufacturers of each insulation type.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification of Conditions: Inspect all surfaces and verify that they are in proper condition to receive the work of this Section.
 - 1. Beginning of installation means acceptance of existing substrate and project conditions.

3.2 INSTALLATION

- A. Mineral fiber insulation in exterior wall cavities:
 - 1. Adhere to manufacturer's instructions for conditions of installation.
 - 2. Install full thickness of insulation over the entire surface to be installed as indicated. Ensure tight fit around penetrating elements and abutting construction. All voids and or gaps should be filled, minimizing the potential for thermal bridging. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
 - 3. Install mechanical fastening as per the manufacturer's recommendations, and in conformance with building code.
 - 4. At the completion of a day's work, all exposed edges should be temporary sealed and or lapped by a moisture retardant barrier.
 - 5. Vapor-Retarder-Faced Blankets: Tape joints and ruptures in vapor-retarder facings, and seal each continuous area of insulation to ensure airtight installation.

3.3 CLEANING

- A. Clean work under provisions of Section 01 70 00 – EXECUTION.
- B. Daily clean work areas by sweeping and disposing of debris, and scraps.

END OF SECTION