

SECTION 07 21 00  
BUILDING INSULATION

1 PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 specification sections apply to Work of this section.

1.2 SECTION INCLUDES

- A. Board thermal insulation at foundation wall perimeter, under plaza deck topping slab and under slabs on grade.
- B. Batt thermal insulation and vapor retarder in exterior wall and roof construction.
- C. Acoustical floor mat insulation.
- D. Acoustical board insulation.
- E. Acoustical batt insulation.

1.3 SYSTEM DESCRIPTION

- A. System performance to provide continuity of thermal barrier and vapor retarder at building enclosure elements.

1.4 SUBMITTALS

- A. Product Data: Submit data on insulation products, including thermal characteristics.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Install insulation adhesives in accordance with manufacturer's instructions.

2 PART 2 PRODUCTS

2.1 INSULATION MATERIALS

- A. Extruded Polystyrene Insulation: ASTM C578, cellular type, conforming to the following:
  - 1. Thermal Resistance: R of 5.0 per inch.
  - 2. Thickness: Thickness indicated on drawings.
  - 3. Compressive Strength: Minimum 25 psi.
  - 4. Water Absorption: In accordance with ASTM D2842 0.3 percent by volume maximum.
- B. Batt Insulation: ASTM C665, preformed glass fiber batt, conforming to the following:

1. Thermal Resistance: R of 21 for exterior walls.
  2. Facing: Unfaced.
- C. Under Slab Insulation / Moisture Barrier: Insulation Systems “Insul-Tarp”, ½” thick closed cell foam and an aluminum reflective material with a protective poly coating.
1. .002 perm rating when tested using ASTM E96, R of 7.54 when tested using ASTM C 518,
  2. Temperature Range - -60° to 180° F
  3. Fire Rating - Up to Class A-1,
  4. Reflectivity - Up to 97%,
  5. Perm Rate - 0.002,
  6. Tensile Strength - 45.0 lbs/in.,
  7. Bursting Strength - 90 psi –
  8. Puncture Resistance - 66 lbs per square inch.
  9. Overlap and tape all seams to provide a continuous vapor barrier. Seal all penetrations.
- D. Non-Expansive Spray Foam Insulation: spray applied high-performance non-expansive foam insulation system:
1. Thermal Resistance: R-3 minimum per inch, provide to seal and fill gaps at all door and window jamb rough openings, between panelized wood framing and where indicated. Provide window and door manufacture acceptance of product.
- E. Sill Seal Insulation: Between concrete/wood structural floor systems and sill plates where indicated, ¼” x 3 ½” or 5 ½” as indicated, Owens Corning FoamSealR Sill Plate Gasket, or equal.
- F. Acoustical Batt Insulation: Unfaced fiberglass batts, ASTM C 665, Type I; Owens Corning “Sonobatts”, or equal.
1. Thickness: Thickness indicated on drawings.

## 2.2 SPRAY FOAM INSULATION MATERIALS

- A. Polyurethane: Spray applied polyurethane, ASTM D 1622, closed cell insulation, 2.5 lbs./sf density, R-value of 6 per inch.

## 2.3 ADHESIVES

- A. Adhesive: Type recommended by insulation manufacturer for application.

## 2.4 ACCESSORIES

- A. Vapor Retarder: Clear polyethylene film, 6 mil thick.
- B. Tape: Polyester self-adhering type.

# 3 PART 3 EXECUTION

## 3.1 EXAMINATION AND PREPARATION

- A. Verify that substrate, adjacent materials, and insulation boards are dry and ready to receive insulation and adhesive.

### 3.2 INSTALLATION - FOUNDATION PERIMETER - BOARD INSULATION

- A. Apply adhesive and install boards on foundation perimeter. Stagger joints. Butt edges and ends tight to adjacent board and to protrusions.
- B. Place insulation boards under slab edge.

### 3.3 INSTALLATION – SLABS ON GRADE - BOARD INSULATION

- A. Place insulation boards under slabs on grade at perimeter.

### 3.4 INSTALLATION – SLABS ON GRADE – FLEXIBLE INSULATION AND VAPOR BARRIER

- A. Place flexible insulation and vapor barrier completely under slabs on grade.

### 3.5 INSTALLATION - BATT INSULATION

- A. Install insulation and vapor retarder in accordance with insulation manufacturer's instructions.
- B. Install in exterior walls and ceiling spaces without gaps or voids.
- C. Fit insulation tight in spaces. Leave no gaps or voids.
- D. Install friction fit insulation tight to framing members, completely filling prepared spaces.
- E. Place vapor retarder on warm side of insulation by securing in place. Extend vapor retarder tight to full perimeter of adjacent window and door frames and other items interrupting the plane of membrane. Tape seal in place.

### 3.6 SCHEDULES

- A. Slabs on Grade: R-10 (2") extruded polystyrene boards at perimeter of new slabs on grade, Dow Styrofoam Highload 40, or equal.
- B. Plaza Topping Slab: R-20 (4") extruded polystyrene boards at perimeter of new slabs on grade, Dow Styrofoam Highload 40, or equal.
- C. Foundation Perimeter Insulation: R-10 (2") Dow Styrofoam Square Edge on face of foundation walls.
- D. Exterior Wall Cavities: unfaced R-21 fiberglass batts in stud cavities with polyethylene vapor barrier on interior face of studs beneath gypsum board.
- E. Acoustical Insulation: 2-1/2" unfaced fiberglass batts in partition and floor/ceiling assemblies.

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