

**SECTION 07210**

**BUILDING INSULATION**

**PART 1 - GENERAL**

1.1 SECTION REQUIREMENTS

- A. EXTERIOR ENVELOPE INCLUDING WALLS, ROOFS, FOUNDATIONS  
SEE SCHEDULE BELOW
- B. INTERIOR ENVELOPE .  
SEE SCHEDULE BELOW

1.2 QUALITY ASSURANCE REQUIREMENTS

- A. Contractor inspections and written certifications are required before concealment. PCI representative to inspect - Project log of inspections to be maintained.
  - 1. Foundations before backfill
  - 2. Exterior wall/joist space
  - 3. Exterior wall after rigid insulation installed
  - 4. Firestops @ corridors and fire separation partitions
  - 5. Partitions for sound attenuation control
  - 6. No Piping should be run above the insulation at roofs or on the cold side of insulation. This includes water, sprinkler or any wet piping

1.3. PERFORMANCE REQUIREMENTS

A. EXTERIOR ENVELOPE:

<u>location</u>	<u>R=</u>	<u>Notations</u>	<u>installed</u>
1. Foundation walls	2" rigid	Foundation walls/(outside) total of 4'-0" vertical plus full horizontal dimension	soil pressure
2. Exterior framed walls	2" rigid	Over Exterior Sheathing	mech. fasten
3. Exterior wall @ misc.space	R19 fiberglass	Vapor barrier insulation mechanically fastened without compressing batts {friction fit not acceptable}	pins or strapping
4. Roofs	3" rigid R21	Min. thickness to achieve R21 under EPDM Roofing	mech. fasten

B. INTERIOR ENVELOPE:

<u>location</u>	<u>R=</u>	<u>Notations</u>	<u>installed</u>
1. room separations		3-1/2" or 6" sound attenuation blankets at metal studs	friction
2. Corridor Walls		3 1/2 or 6" sound attenuation blankets at studs	staple
3. ceilings		Not required.	gravity
4. pipe chase part'ns		2 layers of 3 1/2" sound attenuation blankets at each stud	
5. mechanical rooms		6" unfaced fiberglass in 6" stud wall - 6 mil poly	friction
6. elevator shafts		Not Required Alternate kraft paper or foil faced batts.	stapled
7. toilet partitions		3 1/2" sound attenuation blankets [where indicated]	friction

C. SPECIAL CONDITIONS:

1. FSK 25 exposed vapor barrier required where not covered with drywall in direct contact
2. If foil faced is used – installer to unfold flaps & attach to face of stud [attaching to side of stud not acceptable]
3. All materials to be asbestos free.

D. CODE REQUIREMENTS:

1. All insulation in roof and wall assemblies shall be approved for use without an additional thermal barrier in accordance with Local Building Codes.
2. Local Code Criteria – IBC 2003.

E. INSTALLER QUALIFICATIONS:

1. An experienced installer with a minimum of five years experience, who will be present on the project site at all times when installation work is in progress.
2. Pre Installation Meetings:

- a. A Roofing Pre-Installation Meeting will be held on site.

Attendees: Owner, Architect, Owner's insurer, if applicable; testing and inspecting agency representative; roofing Installer; roofing system manufacturer's representative; deck Installer; and installers whose work interfaces with or affects roofing, including installers of insulation, roof accessories and roof-mounted equipment:

Topics:

1. Review methods and procedures related to roofing installation, including manufacturer's written instructions
2. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening
3. Review flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing.
4. Review governing regulations and requirements for insurance, certificates, and inspection and testing, if applicable.
5. Review temporary protection requirements for roofing system during and after installation.
6. Review roof observation and repair procedures after roofing installation.
7. Document proceedings, including corrective measures or actions required, and furnish copy of record to each participant.

- b. Pre-Task Envelope Meeting: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty requirements.

1. Before Insulation installation, a meeting will be held on site to review work to be accomplished.

2. Attendees: [Notify Attendees at least seven days prior to meeting.]

- a. Architect / Engineer of Record
- b. Construction Manager/General Contractor. – Project Manager and Superintendent
- c. Installer Owner & on-site Foreman must attend and must be English literate
- d. Independent Testing Agency.

e. Other Subcontractors: subs concerned with siding and trim & adjacent construction installation. [i.e. window, brick, waterproofing, flashing, sheet metal, metal panel, roofing, site work, etc].

3. Verify required submittals have been reviewed; verify acceptance of sample and mock-up.

4. Record minutes of meeting; distribute to attendees within 7 days of meeting & beginning work.

**F. FIRE-TEST-RESPONSE CHARACTERISTICS:**

1. Provide insulation materials which are identical to those whose fire-test-response characteristics, as listed for each material or assembly of which insulation is a part, have been determined by testing, per methods indicated below, by UL or other testing and inspecting agency acceptable to authorities having jurisdiction.
  - a. Surface Burning Characteristics: ASTM E-84
  - b. Fire Resistance Ratings: ASTM E-119
  - c. Combustion Characteristics: ASTM E-136

**PART 2 - PRODUCTS**

- A. Batt insulation, fiberglass: Thermal, exterior walls and alternate ceilings.
  1. Acceptable manufacturers:
    - a. CertainTeed Corporation.
    - b. Johns Manville Corp.
    - c. Owens Corning.
  2. Characteristics:
    - a. Type: Un-faced Fiberglass batts; width equal to framing spacing; 6 mil poly vapor barrier. Alternative: faced insulation with integral nailing flanges installed over wood framing or required to maintain rating over metal framing
    - b. Facing:  
Typical: Kraft faced; ASTM C665-86, Type II, Class C; 1.0 perm rating maximum.  
Foil faced required by U.L. Assembly at shear walls
    - c. Flame spread rating by BOCA and ICBO as Class A, SBCII and NFiPA as Class 1 batts flame spread of 25 or less and smoke developed 50 or less where left exposed and required by code for building type: Flame resistant foil scrim faced; ASTM C665-86, Type III, Class A; 1.0 perm rating maximum; flame spread of 25 or less.
- B. Rigid extruded polystyrene insulation (XEPS): Thermal, exterior walls and foundations
  1. Acceptable products; perimeter insulation:
    - a. Amoco Foam Products, Inc.; Amifoam® CM, square edge.
    - b. Dow Chemical U.S.A.; Styrofoam SB, Score Board or SE, Square Edge.
    - c. Owens Corning; FormulaR 250 SE. Edges: Square.
  2. Characteristics:
    - a. Material: Extruded, closed cell, CFC-12 free, polystyrene boards meeting ASTM C578-87a, Type IV for use in perimeter applications.
    - b. Density: 2.0 PCF, minimum.
    - c. "K" Value at 75 degrees F.: 0.20.
    - d. Compressive strength ASTM D1621-73: 15 minimum.
- C. Sound insulation:
  1. In-wall sound attenuation batts (SAB):
    - a. Acceptable products:  
CertainTeed Products Corp.; Sound Control Batt.  
Johns Manville Corp.; Sound-SHIELD.  
Owens Corning; Quiet Zone Sound Attenuation Batt Insulation.  
USG Acoustical Products Company.
    - b. Characteristics:
      - 1) Material: ASTM C665-88, Type III FS faced flexible mineral fiber batt.
      - 2) Nominal density: 2.5 PCF.
      - 3) Thickness: 3½" unless otherwise indicated on Drawings, follow stricter criteria. Provide double layer at chase walls.
      - 4) Size: Furnish batts net stud width, minimum; no odd sized pieces permitted.
      - 5) Combustibility; ASTM E136-82: Noncombustible.
      - 6) Surface burning characteristics; ASTM E84-87:
        - a) Flame spread: 15.

**ARCHITECTURE**

- b) Smoke developed: Ten.
- 2. Lay-in ceiling sound batts:
  - a. Acceptable products:
    - 1) CertainTeed Products Corp.; Sound Control Batts.
    - 2) Johns Manville Corp.; Grid-SHIELD.
    - 3) Owens Corning; Sonobatts.
    - 4) USG Acoustical Products Company.
      - a. Type: Unfaced mineral wool or fiberglass batt blankets; ASTM C665-86, Type I.
      - b. Size: 2'-0" by 3½".
- D. Accessories.
  - 1. Nails and Staples: Steel wire, galvanized, type and size to suit application.
  - 2. Tape : Polyethylene or Polyester, self-adhering type, 2 inches wide.
  - 3. Insulation Fasteners: Steel impale spindle and clip on flat metal base, self adhering backing, length to suit insulation thickness, capable of securely and rigidly fastening insulation in place.

**PART 3 – INSTALLATION**

- A. General:
  - 1. Comply with manufacturer's product data for each type installation.
  - 2. Cut insulation around obstructions and protrusions.
  - 3. Remove projections interfering with installation.
- B. Thermal insulation installation:
  - 1. General: Comply with manufacturer's installation instructions for conditions encountered.
  - 2. Batt insulation:
    - a. Install in indicated exterior walls and ceiling areas with vapor barrier or facing to building interior. Attach flanges to wood framing with staples.
    - b. Install in horizontal, sloped, and vertical surfaces between studs, joists, or trusses where indicated; secure in place with bowed wire in truss pattern or use fiberglass, polypropylene, or metal netting fastened to stud, joist, or truss member where no surfacing material is indicated.
    - c. Miscellaneous voids and cavity spaces:
      - 1) Stuff loose batt insulation, unfaced, into miscellaneous voids and cavity spaces not requiring other special insulation types specified in Firestopping Section.
      - 2) Compact to approximately 40% of normal maximum volume, approximately 2.5 PCF density.
      - 3) Filling spaces affecting performances of other materials is prohibited.
  - 3. Loose fill insulation; voluntary alternate:
    - a. Secure 6 mil polyethylene vapor barrier to framing over entire area requiring blown-in insulation if ceiling finish is installed subsequent to insulation installation.
    - b. Pneumatically place in indicated areas to depth and density required by manufacturer's reviewed product data to achieve R-value indicated.
    - c. Maintain consistent depth and density over entire area.
  - 4. Perimeter slab insulation (XEPS):
    - a. Install over vapor retarder; extend 2'-0" minimum inside building; butt adjacent boards.
    - b. Vertical surfaces:
      - 1) Set units in adhesive recommended and installed in accord with insulation manufacturer's installation instructions
      - 2) Protect top horizontal insulation board surface from damage during subsequent construction activities.
      - c. Install in locations and configurations indicated or required by local energy code; follow code requirements if more stringent than indicated.

- C. Sound insulation:
  - 1. In-wall SAB [sound attenuation blanket] insulation: Install in indicated sound isolating partitions filling cavities, full partition height and single length in accord with manufacturer's installation instructions.
  - 2. Lay-in ceiling SABs:
    - a. Lay SABs over designated ceiling areas, insulation supported by furring channels, grid support not to exceed 24". Laying blankets directly on, and supported totally by, ceiling panels is prohibited.
- D. Seal all penetrations in the walls. Seal between framing and window/door frames, etc. Seal all penetrations in wall i.e. electrical boxes and wiring. Use Owens Corning PinkSeal foam sealant or fire sealant. Seal all penetrations in guestroom separation partitions.

**END OF SECTION**