

**SECTION 07 21 00
THERMAL INSULATION**

PART 1 GENERAL

1.1 STIPULATIONS

- A. The specifications sections "General Conditions to the Construction Contract", "Special Conditions" and "Division 01 - General Requirements" form a part of this Section by this reference thereto, and shall have the same force and effect as if printed herewith in full.

1.2 SECTION INCLUDES

- A. Batt insulation in interior wall construction.
- B. Acoustic batt insulation in interior wall construction.
- C. Board insulation within Attic.

1.3 RELATED REQUIREMENTS

- A. Section 07 21 26 - Blown Insulation: Blown-in, gravity-held fibrous insulation.
- B. Section 09 21 16 - Gypsum Board Assemblies: Acoustic insulation inside walls and partitions.

1.4 REFERENCE STANDARDS

- A. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing 2017.
- B. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board 2022.
- C. ASTM E136 - Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750°C 2019a.

1.5 SUBMITTALS

- A. Product Data: Provide data on product characteristics, performance criteria, and product limitations.
- B. Manufacturer's Installation Instructions: Include information on special environmental conditions required for installation and installation techniques.

1.6 FIELD CONDITIONS

- A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

1.7 PRE-INSTALLATION MEETING

- A. Contractor shall utilize the Pre-Installation Meeting Agenda and Pre-Installation Meeting Checklist documents located in e-Builder, Z - Standard Documentation & Training project: Documents \ 03 - Construction - Training and Guidance Documents \ 03 - Role Based Training and Guidance Documents \ Contractors.

PART 2 PRODUCTS

2.1 APPLICATIONS

- A. Insulation in Metal Framed Walls: Batt insulation with no vapor retarder.
- B. Insulation in Wood Framed Walls: Batt insulation with no vapor retarder.
- C. Insulation in Attic: Board insulation, foil faced.

2.2 FOAM BOARD INSULATION MATERIALS

- A. Polyisocyanurate (ISO) Board Insulation: Rigid cellular foam, complying with ASTM C1289.

- 1. Classifications:

- a. Type I: Faced with aluminum foil on both major surfaces of the core foam.

- 1) Class 2 - Glass fiber reinforced or non-reinforced core foam.

- 2) Compressive Strength: 16 psi, minimum.

- 3) Thermal Resistance, R-value: At 1-1/2 inch thick; 9.0 at 75 degrees F.

- 2. Board Size: 48 inch by 96 inch.

- 3. Board Thickness: As needed to achieve R-Values indicated on the Drawings.

- 4. Board Edges: Square.

- 5. Manufacturers:

- a. DuPont de Nemours, Inc; THERMAX Sheathing: www.building.dupont.com/#sle.

- b. Substitutions: Or equal as approved by the Professional.

2.3 BATT INSULATION MATERIALS

- A. Glass Fiber Batt Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit.

- 1. Combustibility: Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.

- 2. Manufacturers:

- a. CertainTeed Corporation: www.certainteed.com/#sle.

- b. Johns Manville: www.jm.com/#sle.

- c. Owens Corning Corporation; EcoTouch PINK FIBERGLAS Insulation: www.ocbuildingspec.com/#sle.

- d. Substitutions: Or equal as approved by the Professional.

- 3. Fiberglas Batt Insulation - General Locations

- a. Interior walls: (Delete if using sound attenuation fiberglass batt insulation.)
 - 1) Where indicated on the Drawings, insulate 3 1/2" (OR: 3 5/8") interior stud walls with 3 1/2", R-11 minimum unfaced, friction-fit, fiberglass batt insulation. (Owens Corning 3 1/2" thick insulation comes in R-11, R-13 & R-15.)
 - 2) Where indicated on the Drawings, insulate 5 1/2" (OR: 6") interior stud walls with 5 1/2", R-21 unfaced, friction-fit, fiberglass batt insulation.

4. Sound Attenuation Fiberglass Batt Insulation

- a. Interior walls: Sound Attenuation Fiberglass batts, with an STC of 50.

2.4 ACCESSORIES

- A. Tape joints of rigid insulation in accordance with roofing and insulation manufacturers' instructions.
- B. Nails or Staples: Steel wire; electroplated or galvanized; type and size to suit application.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.
- B. Verify substrate surfaces are flat, free of honeycomb, fins, or irregularities.

3.2 BATT INSTALLATION

- A. Except otherwise specifically directed by the Architect, install all fiberglass building insulation in accordance with the current edition of "Fiberglass Building Insulation Application Instructions", publication 3-BL-4992 of the Owens/Corning Fiberglas Corporation.
- B. Install insulation in accordance with manufacturer's instructions.
- C. Install in interior wall spaces without gaps or voids. Do not compress insulation.
- D. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- E. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.
- F. Install glass-fiber, loose-fill insulation into miscellaneous voids and cavity spaces. Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5-lb/cu. ft. (40 kg/cu. m).
- G. Wall Installation Guidelines:
 1. Must be contiguous and continuous across the building envelope with all holes and cracks fully sealed.
 2. No gaps.

3. No Compression.
4. Insulation cut around obstructions.
5. Carefully fit between piping and electrical wiring and boxes.
6. If approved for use, Kraft paper stapled to face of studs.
7. Small spaces filled including behind intersecting stud walls.
8. Fully aligned with both sides of the studs.
9. Insulation must fill the entire depth of the wall cavity.

H. Installation of Insulation Baffles

1. Insulation baffles shall be installed at all roof eaves and dormers, to provide a minimum of 1" air space between roof deck and insulation system. Baffles shall be secured in place with staples or other fasteners and shall be installed to fill the entry width of cavity between roof framing members. Back baffles with blocking where needed to keep insulation from rolling into soffit.

3.3 PROTECTION

- A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION