



Insulation

SECTIONS 07 21 00 and 07 26 00

FIBER GLASS BUILDING INSULATION and VAPOR RETARDERS

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PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Batt and Roll Insulation.
- B. Blanket Insulation.
- C. Vapor Retarder.

1.2 RELATED SECTIONS

- A. Section 07100 - Dampproofing and Waterproofing: Insulation installed with waterproofing systems.
- B. Section 07260 - Vapor Retarders: Vapor retarder materials to adjacent insulation.
- C. Section 07270 - Air Barriers: Air seal materials to adjacent insulation.
- D. Section 07480 - Exterior Wall Assemblies: Exterior Insulated Finish Systems EIFS.
- E. Section 07810 - Fire and Smoke Protection: Insulation installed in conjunction with firestopping or smoke containment systems.
- F. Section 09200 - Plaster and Gypsum Board: Insulation installed in conjunction with interior wall and ceiling finish systems.
- G. Section 15810 - Ducts: Insulation to surround HVAC ductwork.

1.3 REFERENCES

- A. ASTM C 423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
- B. ASTM C 518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
- C. ASTM C 553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications.
- D. ASTM C 612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation.

- E. ASTM C 665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
- F. ASTM C 764 - Standard. Specification for Mineral Fiber. Loose-Fill Thermal Insulation.
- G. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- H. ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials.
- I. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
- J. ASTM E 136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C.
- K. ASTM E 814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops.
- L. Federal Specification HH-I-521F: Insulation Blankets, Thermal (Mineral Fiber, For Ambient Temperatures).
- M. Federal Specification HH-I-558B: Insulation, Blocks, Blankets, Felts, Sleeving (Pipe and Tube Covering), and Pipe fitting Covering, Thermal (Mineral Fiber, Industrial Type)
- N. National Fire Protection Association (NFPA) Life Safety Code
- O. Underwriters Laboratories (UL) - UL 2079 Standard test method for fire resistance of Building Joint Systems.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer with a minimum of ten years experience manufacturing products in this section shall provide all products listed.
- B. Installer Qualifications: Products listed in this section shall be installed by a single organization with at least five years' experience successfully installing insulation on projects of similar type and scope as specified in this section.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship is approved by Architect.
 - 3. Refinish mock-up area as required to produce acceptable work.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.
- B. Storage: Store materials in dry locations with adequate ventilation, free from water, and in such a manner to permit easy access for inspection and handling.
- C. Handling: Handle materials to avoid damage.

1.7 SEQUENCING

- A. Coordinate with the installation of vapor retarders and air seal materials specified in Section 07260 and Section 07270.
- B. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: CertainTeed Corp., Insulation Group, which is located at: 20 Moores Road, Malvern, PA 19355; Toll Free Tel: 800-233-8990; Email: request info; Web: certainteed.com/CertainTeed/Pro/Design+Professional/Insulation
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 APPLICATIONS

- A. Exterior Stud Walls: Batt type.
 - 1. Thickness: As indicated on the Drawings.
 - 2. Thickness: _____.
 - 3. R-Value: _____.
 - 4. Vapor Retarder: Separate.
- B. Above Soffits: Batt type.
 - 1. Thickness: As indicated on the Drawings.
 - 2. Thickness: _____.
 - 3. R-Value: _____.
- C. Interior Partitions Indicated with STC Rating: Batt type.
 - 1. Thickness: As indicated on the Drawings.
 - 2. Thickness: _____.
- D. Above Interior Ceilings: Batt type.
 - 1. Thickness: As indicated on the Drawings.
 - 2. Thickness: _____.

2.3 BATT AND ROLL INSULATION (SECTION 07 21 00)

**** NOTE TO SPECIFIER ** CertainTeed High-Density Fiber Glass Building Insulation is intended for use in walls, ceilings, floors and attics where maximum thermal performance is desired and limited space is available.**

A. Thermal Batt Insulation: CertainTeed Fiber Glass Building Insulation and High Density Fiber Glass Building Insulation. Fiber glass building insulation for walls, ceilings, attics and floors. Complies with ASTM C 665; preformed glass fiber batt insulation:

1. Facing: ASTM C 665 Type I Unfaced.
 - a. Fire Hazard Classification: ASTM E 84:
 - 1) Maximum Flame Spread Index; 25.
 - 2) Maximum Smoke Developed Index; 50.
 - b. Noncombustibility: ASTM E 136, passes.
 - c. Thermal Resistance: R of 5.8 (RSI 1.0).
 - 1) Thickness: 1-1/2 inches (38 mm).
 - 2) Width: 24 inches (610 mm).
 - d. Thermal Resistance: R of 11 (RSI 1.9).
 - 1) Thickness: 3-1/2 inches (89 mm).
 - 2) Width: 11-1/4 inches (286 mm).
 - 3) Width: 15 inches (381 mm).
 - 4) Width: 15-1/4 inches (387 mm).
 - 5) Width: 19-1/4 inches (489 mm).
 - 6) Width: 23 inches (584 mm).
 - 7) Width: 23-1/4 inches (591 mm).
 - 8) Width: 48 inches (1219 mm).
 - 9) Width: 84 inches (2134 mm).
 - e. Thermal Resistance: R of 13 (RSI 2.3).
 - 1) Thickness: 3-1/2 inches (89 mm).
 - 2) Width: 15-1/4 inches (387 mm).
 - 3) Width: 16 inches (406 mm).
 - 4) Width: 19-1/4 inches (489 mm).
 - 5) Width: 23-1/4 inches (591 mm).
 - 6) Width: 24 inches (610 mm).
 - f. Thermal Resistance: R of 15 (RSI 2.6).
 - 1) Thickness: 3-1/2 inches (89 mm).
 - 2) Width: 11-1/4 inches (286 mm).
 - 3) Width: 15-1/4 inches (387 mm).
 - 4) Width: 16 inches (406 mm).
 - 5) Width: 23-1/4 inches (591 mm).
 - 6) Width: 24 inches (610 mm).
 - g. Thermal Resistance: R of 19 (RSI 3.3).
 - 1) Thickness: 6-1/4 inches (159 mm).
 - 2) Width: 11-1/4 inches (286 mm).
 - 3) Width: 15 inches (381 mm).
 - 4) Width: 15-1/4 inches (387 mm).
 - 5) Width: 16 inches (406 mm).
 - 6) Width: 19-1/4 inches (489 mm).
 - 7) Width: 23 inches (584 mm).
 - 8) Width: 23-1/4 inches (591 mm).
 - 9) Width: 24 inches (610 mm).
 - 10) Width: 30 inches (762 mm).
 - 11) Width: 48 inches (1219 mm).
 - 12) Width: 60 inches (555 mm).
 - 13) Width: 72 inches (1829 mm).

- h. Thermal Resistance: R of 20 (RSI 3.5)
 - 1) Thickness: 5-1/2 inches (140 mm) & 6 inches (152 mm).
 - 2) Width: 15 inches (381 mm).
 - 3) Width: 15-1/4 inches (387 mm).
 - 4) Width: 24 inches (610 mm).
- i. Thermal Resistance: R of 21 (RSI 3.7).
 - 1) Thickness: 5-1/2 inches (140 mm).
 - 2) Width: 15-1/4 inches (387 mm).
 - 3) Width: 16 inches (406 mm).
 - 4) Width: 23-1/4 inches (591 mm).
 - 5) Width: 24 inches (610 mm).
- j. Thermal Resistance: R of 22 (RSI 3.8)
 - 1) Thickness: 6-1/4 inches (159 mm).
 - 2) Width: 15 inches (381 mm).
 - 3) Width: 16 inches (406 mm).
 - 4) Width: 19-1/4 inches (489 mm).
 - 5) Width: 23 inches (584 mm).
- k. Thermal Resistance: R of 25 (RSI 4.4).
 - 1) Thickness: 8 inches (203 mm).
 - 2) Width: 15 inches (381 mm).
 - 3) Width: 16 inches (406 mm).
 - 4) Width: 23 inches (584 mm).
 - 5) Width: 24 inches (610 mm).
- l. Thermal Resistance: R of 30 (RSI 5.3).
 - 1) Thickness: 10 inches (254 mm) and 9-1/2 inches (241 mm).
 - 2) Width: 12 inches (305 mm).
 - 3) Width: 15 inches (381 mm).
 - 4) Width: 16 inches (406 mm).
 - 5) Width: 19-1/4 inches (489 mm).
 - 6) Width: 24 inches (610 mm).
- m. Thermal Resistance: R of 30C (RSI 5.3). Cathedral Ceiling Batt.
 - 1) Thickness: 8-1/4 inches (210 mm).
 - 2) Width: 15-1/4 inches (387 mm).
 - 3) Width: 16 inches (406 mm).
 - 4) Width: 23-1/4 inches (591 mm).
- n. Thermal Resistance: R of 38 (RSI 6.7).
 - 1) Thickness: 12 inches (305 mm).
 - 2) Width: 16 inches (406 mm).
 - 3) Width: 19-1/4 inches (489 mm).
 - 4) Width: 24 inches (610 mm).
- o. Thermal Resistance: R of 38C (RSI 6.7). Cathedral Ceiling Batt.
 - 1) Thickness: 10-1/4 inches (260 mm).
 - 2) Width: 15-1/4 inches (387 mm).
 - 3) Width: 16 inches (406 mm)
 - 4) Width: 19-1/4 inches (489 mm).
 - 5) Width: 23-1/4 inches (591 mm).

B. Acoustical/Thermal Insulation, Unfaced: Certaineed Sound Attenuation NoiseReducer Batts. Fiber glass building insulation for friction fit between steel studs. Complies with ASTM C 665; preformed glass fiber batt insulation. Fire Hazard Classification ASTM E84, Maximum Flame Spread Index of 25, Maximum Smoke Developed Index of 50, Noncombustable ASTM E 136, passes:

- 1. Facing: ASTM C 665, Type 1, Unfaced.
 - a. Thermal Resistance: R of 8 (RSI 1.4).
 - 1) Thickness: 2-12 inches (64 mm).

- 2) Width: 16 inches (406 mm).
 - b. Thermal Resistance: R of 8 (RSI 1.4).
 - 1) Thickness: 2-12 inches (64 mm).
 - 2) Width: 24 inches (610 mm).
 - c. Thermal Resistance: R of 11 (RSI 1.9).
 - 1) Thickness: 3-12 inches (89 mm).
 - 2) Width: 16 inches (406 mm).
 - d. Thermal Resistance: R of 11 (RSI 1.9).
 - 1) Thickness: 3-12 inches (89 mm).
 - 2) Width: 24 inches (610 mm).
- C. Acoustical/Thermal Insulation: Certaineed Acoustical Ceiling NoiseReducer Batts. Fiber glass acoustical insulation for ceilings. Complies with ASTM C 665; preformed glass fiber batt insulation:
- 1. Facing: ASTM C 665, Type 1, Unfaced.
 - a. Fire Hazard Classification: ASTM E 84:
 - 1) Maximum Flame Spread Index; 25.
 - 2) Maximum Smoke Developed Index; 50.
 - b. Noncombustibility: ASTM E 136, passes.
 - c. Thermal Resistance: R of 11 (RSI 1.9).
 - 1) Thickness: 3-12 inches (89 mm).
 - 2) Width: 24 inches (610 mm).
 - d. Thermal Resistance: R of 19 (RSI 3.3).
 - 1) Thickness: 6-14 inches (159 mm).
 - 2) Width: 24 inches (610 mm).
- D. Acoustical/Thermal Batt Insulation, Certaineed CertaPro Batts. Complies with ASTM C 665; preformed glass fiber batt insulation.
- 1. Unfaced: ASTM C 665, Type 1,.
 - a. Fire Hazard Classification: ASTM E 84:
 - 1) Maximum Flame Spread Index; 5.
 - 2) Maximum Smoke Developed Index; 5.
 - b. Noncombustibility: ASTM E 136, passes.
 - c. Sizes:
 - 1) Thermal Resistance: R of 8 (RSI 1.41).
 - a) Thickness: 2-12 inches (64 mm).
 - b) Width: 16 inches (406 mm).
 - c) Width: 24 inches (610 mm).
 - 2) Thermal Resistance: R of 11 (RSI 1.94).
 - a) Thickness: 3-12 inches (89 mm).
 - b) Width: 16 inches (406 mm).
 - c) Width: 24 inches (610 mm).
 - 3) Thermal Resistance: R of 19 (RSI 3.35).
 - a) Thickness: 6-1/4 inches (159 mm).
 - b) Width: 16 inches (406 mm).
 - c) Width: 24 inches (610 mm).
 - 4) Thermal Resistance: R of 30 (RSI 5.28).
 - a) Thickness: 10 inches (254 mm).
 - b) Width: 24 inches (610 mm).
- E. Acoustical/Thermal Unfaced Batt Insulation, Certaineed CertaPro Partition Batts. Complies with ASTM C 665; preformed glass fiber batt insulation.
- 1. Unfaced: ASTM C 665, Type 1,.
 - a. Fire Hazard Classification: ASTM E 84:
 - 1) Maximum Flame Spread Index; 5.
 - 2) Maximum Smoke Developed Index; 5.

- b. Noncombustibility: ASTM E 136, passes.
- c. Size:
 - 1) Thermal Resistance: R of 5.8 (RSI 1.02).
 - a) Thickness: 1-1/2 inches (38 mm).
 - b) Width: 24 inches (610 mm).

2.4 BLANKET INSULATION

- A. Metal Building Insulation, Certainteed Metal Building Insulation. Complies with ASTM C 553, Type I and ASTM 665, Type I Plain. Composed of inorganic glass fibers bonded with a thermoset resin.
 - 1. Fire Hazard Classification: ASTM E 84:
 - a. Maximum Flame Spread Index; 25.
 - b. Maximum Smoke Developed Index; 50.
 - 2. Size:
 - a. Thickness: 3-3/8 inches (86 mm).
 - 1) Thermal Resistance: R of 10 (RSI 1.8).
 - b. Thickness: 3-3/4 inches (94 mm).
 - 1) Thermal Resistance: R of 11 (RSI 1.9).
 - c. Thickness: 4-3/8 inches (109 mm).
 - 1) Thermal Resistance: R of 13 (RSI 2.3).
 - d. Thickness: 5-1/4 inches (133.35 mm).
 - 1) Thermal Resistance: R of 16 (RSI 2.8).
 - e. Thickness: 6-3/8 inches (160 mm).
 - 1) Thermal Resistance: R of 19 (RSI 3.3).
 - f. Thickness: 6-3/4 inches (152.4 mm).
 - 1) Thermal Resistance: R of 21 (RSI 3.7).
 - g. Thickness: 8 inches (203 mm).
 - 1) Thermal Resistance: R of 25 (RSI 4.4).
 - h. Thickness: 9-1/4 inches (235 mm).
 - 1) Thermal Resistance: R of 30 (RSI 5.3).
 - i. Width:
 - 1) 36 inches (914 mm).
 - 2) 48 inches (1219 mm).
 - 3) 60 inches (1524 mm.).
 - 4) 72 inches (1829 mm.).

2.5 VAPOR RETARDER; SECTION 07 26 00

- A. Sheet Retarder: Certainteed MemBrain, The SMART Vapor Retarder. Polyimide film vapor retarder for use with unfaced, vapor permeable glass fiber and mineral wool insulation in wall and ceiling cavities. Material has a permeance of 1 perm or less when tested to ASTM E 86, dry cup method and increases to greater than 10 perms using the wet cup method.
 - 1. Water Vapor Permeance:
 - a. ASTM E 86, dry cup method: 1.0 perms (57ng/Pa*s*m2).
 - b. ASTM E 86, wet cup method: 10.0 perms (1144ng/Pa*s*m2).
 - 2. Fire Hazard Classification: ASTM E 84:
 - a. Maximum Flame Spread Index; 20.
 - b. Maximum Smoke Developed Index; 55.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Verify that all exterior and interior wall, partition, and floor/ceiling assembly construction has been completed to the point where the insulation may correctly be installed.
- C. Verify that mechanical and electrical services in ceilings, walls and floors have been installed and tested and, if appropriate, verify that adjacent materials are dry and ready to receive insulation.
- D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install in exterior spaces without gaps or voids. Do not compress insulation.
- C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- D. Fit insulation tight in spaces and tight to exterior side of mechanical and electrical services within plane of insulation.
- E. Install insulation with vapor barrier installed facing the warm side. Seal or tape joints as required.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION