

## SECTION 07210

# FIBERGLASS BUILDING INSULATION

### PART 1: GENERAL

#### 1.1 SECTION INCLUDES:

- A. Batt and Roll Insulation.
- B. Blowing Insulation.
- C. Board Insulation.
- D. Blanket Insulation.
- E. Vapor Retarder,
- F. Open and Closed Cell Spray Insulation

#### 1.2 RELATED SECTIONS:

- A. **Section 07260 - Vapor Retarders:** Vapor retarder materials to adjacent insulation.
- B. **Section 07270 - Air Barriers:** Air seal materials to adjacent insulation.
- C. **Section 07480 - Exterior Wall Assemblies:** Exterior Insulated Finish Systems EIFS.
- D. **Section 07500 - Membrane Roofing:** Insulation in low-slope roofing applications.

#### 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) obsolete replaced with ASTM C-665
- N. **National Fire Protection Association (NFPA) Life Safety Code**
- O. **Underwriters Laboratories (UL)** – BZJZ, BKNV
- P. **GreenGuard Indoor air certified.**

#### 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 Architect

- approves workmanship.
3. Re-finish mock-up area as required to produce acceptable work.

## 1.6 DELIVERY, STORAGE, AND HANDLING:

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

## 1.7 SEQUENCING:

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

## 1.8 PROJECT CONDITIONS:

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- 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:

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- Acceptable Manufacturer: Guardian Building Products Inc. (Guardian Fiberglass)**  
Guardian Building Products Inc.  
979 Batesville Rd. Greer, SC 29651  
1-800-569-4262  
Plants in Albion, MI, Mineral Wells, MS, Inwood, WV, Kingman, AZ, Winnsboro, SC, Moses Lake, WA.
- \*\* NOTE TO SPECIFIER \*\*** Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.
- Substitutions:** Not permitted.
- Requests for substitutions will be considered in accordance with provisions of Section 01600.

## 2.2 APPLICATIONS:

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- Exterior Stud Walls:** Batt type.
  1. Thickness: As indicated on the Drawings.
  2. Thickness: \_\_\_\_\_.
  3. R-Value: \_\_\_\_\_.
  4. Vapor Retarder: Foil facing.

5. Vapor Retarder: Kraft facing.
6. Vapor Retarder: Separate.

### B. Exterior Concrete and Masonry Walls:

- Rigid board type applied to interior face.
1. Thickness: As indicated on the Drawings.
  2. Thickness: \_\_\_\_\_.
  3. R-Value: \_\_\_\_\_.
  4. Vapor Retarder: Foil facing.
  5. Vapor Retarder: Kraft facing.
  6. Vapor Retarder: Separate.

### C. Basement Walls:

1. Thickness: As indicated on the Drawings.
2. Thickness: \_\_\_\_\_.
3. R-Value: \_\_\_\_\_.
4. Type: Extra wide batt type applied to interior face.
5. Type: Batt type applied between furring strips.
6. Vapor Retarder: Separate.

### D. Attic/Ceiling Rafters: Blown type.

1. Thickness: As indicated on the Drawings.
2. Thickness: \_\_\_\_\_.
3. R-Value: \_\_\_\_\_.
4. Vapor Retarder: Separate.

### E. Roof Rafters, With No Covering: Batt type.

1. Thickness: As indicated on the Drawings.
2. Thickness: \_\_\_\_\_.
3. R-Value: \_\_\_\_\_.
4. Vapor Retarder: Foil facing.
5. Vapor Retarder: Separate.

### F. Floor Joists Over Crawl Space: Batt type.

1. Thickness: As indicated on the Drawings.
2. Thickness: \_\_\_\_\_.
3. R-Value: \_\_\_\_\_.
4. Vapor Retarder: Foil facing, with facing up (on warm side).
5. Vapor Retarder: Kraft facing, with facing up (on warm side).
6. Vapor Retarder: Separate.

### G. Cathedral Ceilings (Gypsum Board Covering):

- High-density batt type.
1. Thickness: As indicated on the Drawings.
  2. Thickness: \_\_\_\_\_.
  3. R-Value: \_\_\_\_\_.
  4. Vapor Retarder: Kraft facing.
  5. Vapor Retarder: None.
  6. Vapor Retarder: Separate.

### H. Above Soffits: Batt type.

1. Thickness: As indicated on the Drawings.
2. Thickness: \_\_\_\_\_.
3. R-Value: \_\_\_\_\_.

### I. Interior Partitions Indicated with STC Rating: Batt type.

1. Thickness: As indicated on the Drawings.
2. Thickness: \_\_\_\_\_.

- J. **Above Interior Ceilings:** Batt type.
1. Thickness: As indicated on the Drawings.
  2. Thickness: \_\_\_\_\_.

## 2.3 BATT AND ROLL INSULATION:

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A. **Thermal Batt Insulation:** Guardian Fiberglass Building Insulation. Fiberglass building insulation for walls, ceilings, attics and floors. Complies with ASTM C 665; pre-formed 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 8 (RSI 1.4).

- 1) Thickness: 2-1/2 inches (64 mm).
- 2) Width: 16 inches (406 mm).
- 3) Width: 24 inches (610 mm).

d. **Thermal Resistance:** R of 11 (RSI 1.9).

- 1) Thickness: 3-1/2 inches (89 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).

e. **Thermal Resistance:** R of 13 (RSI 2.3).

- 1) Thickness: 3-5/8 inches (89 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).

f. **Thermal Resistance:** R of 15 (RSI 2.6).

- 1) Thickness: 3-5/8 inches (89 mm).
- 2) Width: 15 inches (381 mm).

g. **Thermal Resistance:** R of 19 (RSI 3.3).

- 1) Thickness: 6-1/4 inches (159 mm).
- 2) Width: 12 inches (286 mm).
- 3) Width: 15 inches (381 mm).
- 4) Width: 16 inches (406 mm).
- 5) Width: 19 inches (483 mm).
- 6) Width: 23 inches (584 mm).
- 7) Width: 24 inches (610 mm).

h. **Thermal Resistance:** R of 21 (RSI 3.7).

- 8) Thickness: 5-1/2 inches (140 mm).
- 9) Width: 15 inches (381 mm).
- 10) Width: 23 inches (584 mm).

**Thermal Resistance:** R of 22 (RSI 3.7).

- 11) Thickness: 7-1/2 inches (190 mm).
- 12) Width: 15 inches (381 mm).
- 13) Width: 23 inches (584 mm).

**Thermal Resistance:** R of 25 (RSI 4.4).

- 14) Thickness: 8-1/2 inches (215 mm).
- 15) Width: 24 inches (609 mm).

**Thermal Resistance:** R of 30 (RSI 5.3).

16) Thickness: 10 inches (254 mm).

17) Width: 16 inches (406 mm).

18) Width: 24 inches (609 mm).

**Thermal Resistance:** R of 30C (RSI 5.3).

Cathedral Ceiling Batt.

19) Thickness: 8-1/2 inches (210 mm).

20) Width: 15 inches (381mm).

21) Width: 23 inches (584mm)

**Thermal Resistance:** R of 38 (RSI 6.7).

22) Thickness: 12 inches (305 mm).

23) Width: 16 inches (406 mm).

24) Width: 23 inches (584 mm).

**Thermal Resistance:** R of 38C (RSI 6.7).

Cathedral Ceiling Batt.

25) Thickness: 10-1/2 inches (260 mm).

26) Width: 23 inches (584 mm).

**Thermal Resistance:** R of 49 (RSI 8.6)

27) Thickness: 15 inches (381mm).

28) Width: 16 inches (406 mm).

29) Width: 24 inches (609 mm).

2. **Facing:** ASTM C 665 Type II, Class C, Category 1, faced on one side with Kraft paper providing a vapor barrier of 1.0 or less.

a. **Thermal Resistance:** R of 11 (RSI 1.9).

- 1) Thickness: 3-1/2 inches (89 mm).
- 2) Width: 15-1/4 inches (387 mm).
- 3) Width: 16 inches (406 mm).
- 4) Width: 23-1/4 inches (590 mm).
- 5) Width: 24 inches (609 mm).

b. **Thermal Resistance:** R of 13 (RSI 2.3).

- 1) Thickness: 3-5/8 inches (89 mm).
- 2) Width: 15-1/4 inches (387 mm).
- 3) Width: 16 inches (406 mm).
- 4) Width: 23 inches (584 mm).
- 5) Width: 24 inches (609 mm).

c. **Thermal Resistance:** R of 15 (RSI 2.6).

- 1) Thickness: 3-5/8 inches (89 mm).
- 2) Width: 15-1/4 inches (387 mm).

d. **Thermal Resistance:** R of 19 (RSI 3.3).

- 1) Thickness: 6-1/2 inches (159 mm).
- 2) Width: 12 inches (304 mm).
- 3) Width: 15-1/4 inches (387 mm).
- 4) Width: 16 inches (406 mm).
- 5) Width: 19 inches (483 mm).
- 6) Width: 23 inches (584 mm).
- 7) Width: 24 inches (609 mm).

e. **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: 23 inches (584 mm).

- f. **Thermal Resistance:** R of 30 (RSI 5.3).
- 1) Thickness: 10 inches (254 mm).
  - 2) Width: 12 inches (304 mm).
  - 3) Width: 16 inches (406 mm).
  - 4) Width: 19 inches (483 mm).
  - 5) Width: 24 inches (610 mm).
- g. **Thermal Resistance:** R of 30C (RSI 5.3).  
Cathedral Ceiling Batt.
- 1) Thickness: 8-1/2 inches (210 mm).
  - 2) Width: 15-1/4 inches (387 mm).
  - 3) Width: 23 inches (584 mm).
- h. **Thermal Resistance:** R of 38 (RSI 6.7).
- 1) Thickness: 12 inches (305 mm).
  - 2) Width: 16 inches (406 mm).
  - 3) Width: 24 inches (610 mm).
- i. **Thermal Resistance:** R of 38C (RSI 6.7).  
Cathedral Ceiling Batt.
- 1) Thickness: 10-1/2 inches (260 mm).
  - 2) Width: 15-1/4 inches (387 mm).
  - 3) Width: 23 inches (584 mm).
- B. **Thermal Insulation, Friction Fit:** Guardian Building Products Inc. Fiberglass building insulation for friction fit in walls. Complies with ASTM C 665; pre-formed glass fiber batt insulation:
1. **Facing:** ASTM C 665 Type II, Class C, Category 1, faced on one side with Kraft paper providing a vapor barrier of 1.0 or less.
    - a. **Thermal Resistance:** R of 13 (RSI 2.3).
      - 1) Thickness: 3-5/8 inches (92 mm).
      - 2) Width: 15-1/4 inches by 93 inches (387.35 mm by 2362.20 mm).
    - b. **Thermal Resistance:** R of 13 (RSI 2.3).
      - 1) Thickness: 3-5/8 inches (92mm).
      - 2) Width: 15-1/4 inches by 105 inches (387.35 mm by 2667 mm).
    - c. **Thermal Resistance:** R of 19 (RSI 3.3).
      - 1) Thickness: 6-1/2 inches (159 mm).
      - 2) Width: 15-1/4 inches by 94 inches (387.35 mm by 2387 mm).
    - d. **Thermal Resistance:** R of 19 (RSI 3.3).
      - 1) Thickness: 6-1/2 inches (159 mm).
      - 2) Width: 15-1/4 inches by 105 inches (387.35 mm by 2667 mm).
    - e. **Thermal Resistance:** R of 21 (RSI 3.7).
      - 1) kness: 5-1/2 inches (140 mm).
      - 2) h: 15-1/4 inches by 48 inches (387.35 mm).
    - f. **Thermal Resistance:** R of 21 (RSI 3.7).
      - 1) Thickness: 5-1/2 inches (140 mm).
      - 2) Width: 15-1/4 inches by 93 inches (387.35 mm).
  - g. **Thermal Resistance:** R of 22 (RSI 3.9)
    - 1) Thickness: 7-1/2 inches (190 mm)
    - 2) Width: 15-1/4 inches by 48 inches
- C. **High-Density Thermal Insulation:** Guardian high-performance fiberglass building insulation. Fiberglass building insulation for walls, ceilings, attics and floors. Complies with ASTM C 665; pre-formed glass fiber batt insulation:
1. **Facing:** ASTM C 665 Type I Unfaced. Type II Class C, Category 1, faced on one side Kraft paper.
    - a. **Thermal Resistance:** R of 15 (RSI 2.6).
      - 1) Thickness: 3-5/8 inches (89 mm).
      - 2) Width: 15-1/4 inches (387 mm).
    - b. **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: 23 inches (584 mm).
    - c. **Thermal Resistance:** R of 30C (RSI 5.3). Cathedral Ceiling Batt.
      - 1) Thickness: 8-1/2 inches (210 mm).
      - 2) Width: 15-1/4 inches (387 mm).
      - 3) Width: 23 inches (584 mm).
    - d. **Thermal Resistance:** R of 38C (RSI 6.7). Cathedral Ceiling Batt.
      - 1) Thickness: 10-1/2 inches (260 mm).
      - 2) Width: 15-1/4 inches (387 mm).
      - 3) Width: 23 inches (584 mm).
- D. **Basement Wall/Masonry Wall Thermal Insulation:** Guardian Fiberglass basement and masonry wall insulation. Fiberglass building insulation for semi-finished or unfinished basement areas and masonry walls. Complies with ASTM C 665; pre-formed glass fiber batt insulation:
1. **Basement Wall Thermal Insulation:**
    - a. **Facing:** ASTM C 665 Type II (White) Type III (Silver), Class A, Category 1, faced on one side with perforated white and silver reinforced polypropylene or perforated reinforced foil.
      - 1) **Thermal Resistance:** R of 11 (RSI 1.9).
        - a) Thickness: 3-1/8 inches (79 mm).
        - b) Width: 48 inch by 70 feet 6 inch roll
        - c) Width: 88 inches by 50 feet
    - b. **Facing:** ASTM C 665 Type II, Class A, Category 2, faced on one side with non-perforated white reinforced polypropylene or non-perforated reinforced foil.
      - 1) **Thermal Resistance:** R of 11 (RSI 1.9).
        - a) Thickness: 3-1/8 inches (79 mm).
        - b) Width: 48 inch by 70 feet 6 inch roll
        - c) Width: 88 inches by 50 feet
- E. **Acoustical/Thermal Insulation, Unfaced:** Guardian sound-attenuation noise-reduction batts. Fiberglass building insulation for friction fit between steel studs. Complies with ASTM C 665; pre-formed glass fiber batt insulation. Fire Hazard Classification ASTM E84, Maximum Flame Spread

Index of 25, Maximum Smoke Developed Index of 50, Noncombustible ASTM E 136, passes:

1. **Facing:** ASTM C 665, Type 1, Unfaced.
  - a. **Thermal Resistance:** R of 11 (RSI 1.9).
    - 1) Thickness: 3-1/2 inches (89 mm).
    - 2) Width: 16 inches (406 mm).
  - b. **Thermal Resistance:** R of 11 (RSI 1.9).
    - 1) Thickness: 3-1/2 inches (89 mm).
    - 2) Width: 24 inches (610 mm).
- F. **Acoustical/Thermal Insulation:** Guardian Fiberglass acoustical ceiling noise-reduction batts. Fiberglass acoustical insulation for ceilings. Complies with ASTM C 665; pre-formed 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: 3-1/2 inches (89 mm).
      - 2) Width: 24 inches (610 mm).
    - d. **Thermal Resistance:** R of 19 (RSI 3.3).
      - 1) Thickness: 6-1/2 inches (159 mm).
      - 2) Width: 24 inches (610 mm).
  2. **Facing:** ASTM C 665, Type II, Class C, Category 1, kraft faced, no tabs.
    - a. **Thermal Resistance:** R of 11 (RSI 1.9).
      - 1) Thickness: 3-1/2 inches (89 mm).
      - 2) Width: 24 inches (610 mm).
    - b. **Thermal Resistance:** R of 19 (RSI 3.3).
      - 1) Thickness: 6-1/2 inches (159 mm).
      - 2) Width: 24 inches (610 mm).
      - 3) Thickness: 6-1/2 inches (159 mm).
      - 4) Width: 24 inches (610 mm).
- G. **Acoustical/Thermal Kraft Faced Batt Insulation, Guardian fiberglass Thermal Kraft Faced Batt.** Complies with ASTM C 665; pre-formed fiberglass batt insulation.
  1. **Facing:** ASTM C 665, Type II, Class C, Category 1, kraft faced.
    - a. **Thermal Resistance:** R of 11 (RSI 1.9).
      - 1) Thickness: 3-1/2 inches (89 mm).
      - 2) Width: 16 inches (406 mm).
      - 3) Width: 24 inches (610 mm).
    - b. **Thermal Resistance:** R of 19 (RSI 3.3).
      - 1) Thickness: 6-1/2 inches (159 mm).
      - 2) Width: 16 inches (406 mm).
- H. **Thermal Extended Flange Faced Batt Insulation, Guardian Fiberglass Staple optional Thermal Extended Flange Batt.** Complies with ASTM C 665; pre-formed glass fiber batt insulation.

1. **Facing:** ASTM C 665, Type II, Class A, Category 1, foil-scrim-kraft faced.
  - 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. **Size:**
    - 1) **Thermal Resistance:** R of 19 (RSI 3.3).
      - a) Thickness: 6-1/2 inches (159 mm).
      - b) Width: 23 inches (584 mm).
    - 2) **Thermal Resistance:** R of 30 (RSI 5.3).
      - a) Thickness: 9-1/2 inches (254 mm).
      - b) Width: 24 inches (610 mm).
2. **Facing:** ASTM C 665, Type II, Class A, Category 1, polypropylene-scrim-kraft faced.
  - 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. **Size:**
    - 1) Thermal Resistance: R of 19 (RSI 3.3).
      - a) Thickness: 6-1/2 inches (159 mm).
      - b) Width: 23 inches (584 mm).
- I. **Thermal Foil Faced Exposed Batt Insulation, Guardian Fiberglass Thermal FS-25 Faced Batt.** Complies with ASTM C 665; pre-formed glass fiber batt insulation.
  1. **Facing:** ASTM C 665, Type III, Class A, Category 1, foil-scrim-kraft faced.
    - 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. **Steel Stud Size:**
      - 1) **Thermal Resistance:** R of 11 (RSI 1.94).
        - a) Thickness: 3-1/2 inches (89 mm).
        - b) Width: 16 inches (406 mm).
        - c) Width: 24 inches (610 mm).
      - 2) **Thermal Resistance:** R of 13 (RSI 2.29).
        - a) Thickness: 3-5/8 inches (89 mm).
        - b) Width: 16 inches (406 mm).
      - 3) **Thermal Resistance:** R of 19 (RSI 3.35).
        - a) Thickness: 6-1/2 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: 9-1/2 inches (254 mm).
        - b) Width: 16 inches (406 mm).
        - c) Width: 24 inches (610 mm).
      - 5) **Thermal Resistance:** R of 38 (RSI 6.69).
        - a) Thickness: 12 inches (305 mm).
        - b) Width: 24 inches (610 mm).

**J. Foil Faced Non-Exposed Batt Insulation, Guardian Fiberglass Foil Faced Batts.**

Complies with ASTM C 665; pre-formed glass fiber batt insulation.

1. **Facing:** ASTM C 665, Type III, Class B, Category 1, foil faced.
  - a. **Fire Hazard Classification:** ASTM E 84:
    - 1) Maximum Flame Spread Index; 75.
    - 2) Maximum Smoke Developed Index; 150.
  - b. **Steel Stud Size:**
    - 1) **Thermal Resistance:** R of 11 (RSI 1.94).
      - a) Thickness: 3-1/2 inches (89 mm).
      - b) Width: 16 inches (406 mm).
      - c) Width: 24 inches (610 mm).
    - 2) **Thermal Resistance:** R of 13 (RSI 2.29).
      - a) Thickness: 3-5/8 inches (89 mm).
      - b) Width: 16 inches (406 mm).
    - 3) **Thermal Resistance:** R of 19 (RSI 3.35).
      - a) Thickness: 6-1/2 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: 16 inches (406 mm).
      - c) Width: 24 inches (610 mm).
    - 5) **Thermal Resistance:** R of 38 (RSI 6.69).
      - a) Thickness: 12 inches (305 mm).
      - b) Width: 24 inches (610 mm).

**K. Thermal Blowing Insulation:** Guardian Fiberglass AtticGuard Plus blowing insulation. Fiberglass blowing insulation for open attics, enclosed walls, and floor/ceilings assemblies. Complies with ASTM C 764; mineral fiber loose-fill insulation Type 1, Pneumatic application:

1. **Fire Hazard Classification:** ASTM E 84:
  - a. Maximum Flame Spread Index; 5.
  - b. Maximum Smoke Developed Index; 5.
2. **Noncombustibility:** ASTM E 136, passes.
3. **Open Attic Application:**
  - a. Thermal Resistance: R of 60. Minimum Installed Thickness: 20.75 inches.
  - b. Thermal Resistance: R of 49. Minimum Installed Thickness: 17.25 inches.
  - c. Thermal Resistance: R of 44. Minimum Installed Thickness: 15.50 inches.
  - d. Thermal Resistance: R of 38. Minimum Installed Thickness: 13.50 inches.
  - e. Thermal Resistance: R of 30. Minimum Installed Thickness: 10.875 inches.
  - f. Thermal Resistance: R of 26. Minimum Installed Thickness: 9.625 inches.
  - g. Thermal Resistance: R of 22. Minimum Installed Thickness: 8.375 inches.

- h. Thermal Resistance: R of 19. Minimum Installed Thickness: 7.375 inches.
- i. Thermal Resistance: R of 13. Minimum Installed Thickness: 5.00 inches.
- j. Thermal Resistance: R of 11. Minimum Installed Thickness: 4.25 inches.

**L. Guardian Perfect Fill Loose Fiberglass Insulation for Closed Cavity Applications.** Fiberglass blowing insulation for use behind non-woven fabric in sidewalls, cathedral Ceilings, floored attics and other closed cavity applications. Complies with ASTM C 764; mineral fiber loose-fill insulation Type 1:

1. **Fire Hazard Classification:** ASTM E 84:
  - a. Maximum Flame Spread Index; 5.
  - b. Maximum Smoke Developed Index; 5.
2. **Noncombustibility:** ASTM E 136, passes.
3. **Compression Filled Application:** Sidewalls, Cathedral Ceilings and other closed cavities:
  - a. **Thermal Resistance:** R of 15.
    - 1) Density 2.2
    - 2) Thickness: 3-1/2 inches (2 by 4).
  - b. **Thermal Resistance:** R of 23.
    - 1) Density 2.2
    - 2) Thickness: 5-1/2 inches (2 by 6).
  - c. **Thermal Resistance:** R of 31.
    - 1) Density 2.2.
    - 2) Thickness: 7-1/4 inches (2 by 8).
  - d. **Thermal Resistance:** R of 39.
    - 1) Density 2.2.
    - 2) Thickness: 9-1/4 inches (2 by 10).
  - e. **Thermal Resistance:** R of 50.
    - 1) Density 2.2
    - 2) Thickness: 11-7/8 inches (2 by 12).
  - f. **Thermal Resistance:** R of 60.
    - 1) Density 2.2
    - 2) Thickness: 14 inches (2 by 14).

**M. Thermal Blowing Insulation:** Guardian Fiberglass Stabilized Attic Fiberglass insulation open attics, complies with ASTM C 764; mineral fiber loose-fill insulation Type 1, Pneumatic application:

1. **Fire Hazard Classification:** ASTM E 84:
  - a. Maximum Flame Spread Index; 5.
  - b. Maximum Smoke Developed Index; 5.
2. **Noncombustibility:** ASTM E 136, passes.
3. **Open Attic Application:**
  - a. Thermal Resistance: R of 39. Minimum Installed Thickness: 9.25 Inches.
  - b. Thermal Resistance: R of 31 Minimum Installed Thickness: 7.25 Inches.
  - c. Thermal Resistance: R of 23 Minimum Installed Thickness: 5.5 Inches.

- d. Thermal Resistance: R of 15 Minimum Installed  
Thickness: 3.5 inches

N. **Thermal Blowing Insulation:** Guardian Fiberglass SuperCube II Fiberglass insulation open attics, Complies with ASTM C 764; mineral fiber loose fill insulation Type 1, Pneumatic application, ASTM E-136, Flame spread <5, Smoked Developed <5:

1. **Open Attic Application:**

- a. Thermal Resistance: R of 60. Minimum Installed  
Thickness: 21.75 inches.
- b. Thermal Resistance: R of 49. Minimum Installed  
Thickness: 18.25 inches.
- c. Thermal Resistance: R of 44. Minimum Installed  
Thickness: 16.75 inches.
- d. Thermal Resistance: R of 38. Minimum Installed  
Thickness: 14.75 inches.
- e. Thermal Resistance: R of 30. Minimum Installed  
Thickness: 12.00 inches.
- f. Thermal Resistance: R of 26. Minimum Installed  
Thickness: 10.75 inches.
- g. Thermal Resistance: R of 22. Minimum Installed  
Thickness: 9.25 inches.
- h. Thermal Resistance: R of 19. Minimum Installed  
Thickness: 8.25 inches.
- i. Thermal Resistance: R of 13. Minimum Installed  
Thickness: 6.00 inches.  
Thermal Resistance: R of 11. Minimum Installed  
Thickness: 5.25

## 2.4 BOARD INSULATION:

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## 2.5 BLANKET INSULATION:

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A. Blanket Insulation, Guardian Silvercote 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. **Noncombustibility:** ASTM E 136, meets requirements.
- 3. **Size:**
  - a. Thickness: 3 inches (76 mm).  
Thermal Resistance: R of 10 (RSI 1.76).
  - b. Thickness: 3-1/2 inches (89 mm).  
Thermal Resistance: R of 11 (RSI 1.9).
  - c. Thickness: 4 inches (101 mm).  
Thermal Resistance: R of 13 (RSI 2.2).
  - d. Thickness: 6 inches (152 mm).  
Thermal Resistance: R of 19 (RSI 3.3).
  - e. Thickness: 8 inches (203 mm).  
Thermal Resistance: R of 25 (RSI 4.4).
  - f. Thickness: 9-1/2 inches (241 mm).

Thermal Resistance: R of 30 (RSI 5.3).

Width:

- 1) 36 inches (914 mm)
- 2) 48 inches (1219 mm).
- 3) 60 inches (1524 mm.).
- 4) 72 inches (1829 mm.).

B. **Metal Building Insulation,** Guardian Silvercote 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 1.9).
  - b. Thickness: 3-3/4 inches (94 mm).
    - 1) Thermal Resistance: R of 11 (RSI 3.3).
  - c. Thickness: 4-3/8 inches (109 mm).
    - 1) Thermal Resistance: R of 13 (RSI 4.4).
  - d. Thickness: 5-1/2 inches (135 mm).
    - 1) Thermal Resistance: R of 16 (RSI 5.3).
  - e. Thickness: 6 inches (152 mm).
    - 1) Thermal Resistance: R of 19 (RSI 4.4).
  - f. Thickness: 8 inches (203 mm).
    - 1) Thermal Resistance: R of 25 (RSI 5.3).
  - g. Width:
    - 1) 36 inches (914 mm).
    - 2) 48 inches (1219 mm).
    - 3) 60 inches (1524 mm.).
    - 4) 72 inches (1829 mm.).

## 2.6

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- A. Open Cell Spray Insulation, GuardFoam 55 Is an open-cell spray applied foam, which when installed provides superior energy economy and durability while significantly reducing unmanaged moisture and air infiltration. Complies with ASTM C 518, Class I, per ASTM E84,
  - 1. ASTM C 518, 3.9 per inch, ASTM D 1622 .4-.6 lbs./ft<sup>3</sup>, Open cell content ASTM D 2856 >94%, Tensile Strength ASTM D 1623 3 PSI,
- B. Closed Cell Spray Insulation, Guardfoam 55 Is a closed-cell spray applied foam,
  - 1. ASTM C 518, 6.3 per inch, ASTM D 1621 25-30 psi, ASTM D 1622, 2.0-2.3lbs./ft<sup>3</sup>, Air Leakage ASTM E 283-04 <0.02L/s/M<sup>2</sup> at 2.00 inches, ASTM E 96 1.98 perms @ 1" max 2.5, ICC ESR-2629, CAN/ULC S705.1, CCMC 13414-4, Class I formulation as tested per ASTM E 84, Flame Spread <25, Smoke Development <450

## PART 3: EXECUTION

### 3.1 EXAMINATION:

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- 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:

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- 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:

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- 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:

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



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