

Greenfiber® FIRE RATED MATERIAL (FRM100)
For SANCTUARY Two-Hour Firewall,
U370 Assembly



C.S.I 3-Part Specification

07 20 00 Thermal Protection

Section 07 21 00 Thermal Insulation

Sub-Section 07 21 29 Sprayed Insulation

Part 1 - General

1.01 Summary:

A: GREENFIBER® FIRE RATED MATERIAL (FRM100) by Greenfiber® cellulose insulation is formulated to be used as either Spray-Applied used as nonstructural thermal insulating fire resistance materials in buildings of all types of construction. The insulation is for use on or within UL U-370 and UL U-377 Fire Resistance Rated Wall Systems. The insulation is recognized for use in sound transmission reduction, fire blocking and in both non-fire-resistance rated and fire-resistance rated construction applications in accordance with IBC Section 703. Greenfiber Fire Rated Material (FRM100) is for use in specific fire-resistance rated construction in accordance with IBC Section 703 and applicable Underwriters Laboratories and/or other fire rating testing organizations' assembly listings.

1.02 Reference:

A: American Society for Testing and Materials (ASTM).

1. E 84-20 Standard Test Method for Surface Burning Characteristics of Building Materials.
2. C 518-21 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
3. C 739-21 Standard Specification for Cellulosic Fiber Loose-Fill Thermal Insulation.
4. E 970-17 Standard Test Method for Critical Radiant Flux of Exposed Attic Floor Insulation Using a Radiant Heat Energy Source.
5. C 1149-17 Standard Specification for Self-Supported Spray Applied Cellulosic Thermal Insulation.
6. E 136-19 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C.
7. C 1015-17 Standard Practice for Installation of Cellulosic and Mineral Fiber Loose-Fill Thermal Insulation.
8. E 119-20 Standard Test Methods for Fire Tests of Building Construction and Materials.

B: Consumer Products Safety Commission (CPSC) 16 CFR Part 1209, Interim Safety Standard for Cellulose Insulation, and 16 CFR Parts 500 and 1404 where applicable.

C: Federal Trade Commission (FTC) 16 CFR Part 460, Labeling and Advertising of Home Insulation.

D: Environmental Protection Agency (EPA) 40 CFR Part 247.12 Comprehensive Procurement Guideline For Products Containing Recovered Materials.

E: CAN / ULC S-703-09 Standard for Cellulose Fiber Insulation for Buildings.

F: CAN / ULC S-102.2-10 Standard Method Test for Surface Burning Characteristics of Flooring, Floor Covering, and Miscellaneous materials and assemblies.

G: Underwriters Laboratories (UL) Product Classification Marks are found on all bags. State of California Section 1350 California Department of Public Health Standard Practice for VOC Testing

1.03 Work Included: The work performed under this section shall include all materials, equipment, labor and services required to install Greenfiber Fire Rated Material (FRM100) in accordance with these specifications and the manufacturer's installation instructions, and as indicated on the drawings if applicable.

1.04 Related Work: All electrical, plumbing, and mechanical penetrations must be completed prior to application. Air sealing, either fire-resistance rated, or non-fire-resistance rated, must be completed where required as well. Certain exceptions may apply, for example, when using Greenfiber Fire Rated Material (FRM100) Insulation as a fire block in interstitial spaces between floors. Follow all Code and local jurisdiction requirements in the application of these products.

1.05 Submittals: Submit Greenfiber Fire Rated Material (FRM100) Insulation product literature, current Evaluation Report, and installation instructions for specified products and their application. A Submittal Form that may be applicable in many applications and may be found at greenfiber.com/support.

1.06 Delivery:

- A: Protect insulation from physical damage to the bag or the product itself, and from becoming wet, soiled, or covered with ice or snow. Comply with manufacturer's recommendations for handling, storage, and protection during installation.
- B: Insulation package labels include a production code that indicates date and place of manufacture, and all required current statutory and classification marks.

1.07 Limitations:

- A: Avoid heating the work area with propane or kerosene space heaters. Use electric heaters and ventilation to avoid adding excessive moisture vapor to the building envelope.
- B: Do not install Greenfiber Fire Rated Material (FRM100) Insulation where it may be exposed to rain or ground water. Do not install Greenfiber Fire Rated Material (FRM100) in contact with masonry walls below grade. In any application where Greenfiber Fire Rated Material (FRM100) may be exposed to high humidity, a detailed moisture control design must be used.
- C: Do not allow Greenfiber Fire Rated Material (FRM100) to contact any surface above 194°F (90°C).
- D: Keep insulation away from exhaust flues of furnaces, water heaters, space heaters, chimney flues or other heat or combustion producing devices. ASTM C 1015-17 recommends that a minimum of three inches of air space should be maintained between the insulation and heat source. Do not install Greenfiber around heat or ignition sources or operations such as welding, metal cutting, grinding or other potentially flammable situations.
- E: Greenfiber Fire Rated Material (FRM100) Insulation is not classified as noncombustible according to ASTM E 136-09b.
- F: Greenfiber Fire Rated Material (FRM100) may not be used in thermal insulation applications where there is not an approved coverage chart on the bag. Some applications do not require the use of a thermal insulation coverage chart. Greenfiber Fire Rated Material (FRM100) can be used in these applications provided manufacturer's installation instructions and all other applicable Code, fire safety and other requirements are met.

Part 2 - Products

2.01 Manufacturer: Greenfiber

2.02 Materials: Greenfiber Fire Rated Material (FRM100) Cellulose Insulation

- A: Complies with 16 CFR Parts 460, 500, 1209 and 1404, ASTM C 1149-17, ASTM C 739-21, ASTM C 518-21, ASTM E 970-17, ASTM E 84-20, CAN / ULC S-102.2-10, CAN / ULC S-703-09 Type 1 and Type 2.
- B: Surface Burning Characteristics:
 - 1. ASTM E 84-20: Flame spread <25, Smoke Developed Index <50
 - 2. CAN / ULC S 102.2: Maximum Flame Spread 90.
- C: Greenfiber Fire Rated Material (FRM100), when used in fire-resistance rated wall assemblies, are allowed to increase the fire- resistance rating by fifteen (15) minutes per IBC 2021 Table 722.6.2(5) provided the cavity is completely filled with a minimum density of:
 - 1. 3.35 pounds per cubic foot for U370 2 Hour fire resistance rated wall
 - 2. 3.89 pounds per cubic foot for U370 3 Hour fire resistance rated wall
- D: Complies with all building code requirements for cellulose fiber thermal insulation. Provide active UL ER or CCMC Listings 12911-L and 13162-L as required.
- E: Complies with EPA 40 CFR Part 247.12.
- F: No asbestos, mineral fibers, or formaldehyde are used in the manufacturing process.
- H: Thermal Performance:
 - 1. ASTM C 518-21, thermal performance varies with density and thickness. See the appropriate product coverage chart to calculate the R-value per inch if needed. All C 518-21 testing is done at a representative thickness of 4".
 - 2. CAN / ULC S-703-09, varies depending on whether the product is Type 1 open or closed, or Type 2 open or closed.

Part 3 - Execution

3.01 Inspection:

- A: Examine the areas and conditions under which work will be installed.
- B: Verify adjacent materials are dry and ready to receive insulation.
- C: Verify mechanical, plumbing, and electrical services within walls have been inspected.
- D: Provide a written report to the architect, builder or general contractor listing conditions that require correction prior to installation.
- E: Do not proceed with installation until conditions as identified in 3.01-D have been corrected.

3.02 Preparation:

- A: Remove any loose dust, dirt, foreign material, or films that may impair adhesion to application surfaces.
- B: Verify adhesion requirements and compatibility of all surfaces to receive thermal insulation materials.
- C: Protect all nearby surfaces that are not intended to receive thermal insulation, e.g., outlets, windows, and doors.
- D: Make sure there are no assembly details that appear to be preventing the application of the product per the manufacturer's instructions.

3.03 Installation:

- A: Read, understand and comply with manufacturer's instructions for particular conditions of installation.
- B: Wear proper clothing and eye protection.
- C: For breathing protection, use a NIOSH approved N95 or higher disposable or reusable particulate respirator per 29 CFR 1910.134.
- D: The work shall be coordinated with other trades whose work may be affected by, or have an effect on, the installation.
- E: Greenfiber Fire Rated Material (FRM100) Spray-applied and Stabilized Insulation shall be installed with equipment specifically designed for its application.
- F: Drying time varies due to local climate conditions including temperature, humidity, and the installed moisture. Do not cover the insulation until the insulation moisture levels, measured, and documented after a minimum period of 24 hours from the time of installation, reach a moisture reading of 25% or less in accordance with Greenfiber Fire Rated Material (FRM100)'s Spray-Applied Installation Manual.

3.04 Clean-up:

- A: Remove sprayed material from surfaces not specifically required to be insulated.
- B: Broom-clean work areas affected by the work of this section.

3.05 Documentation:

- A: The installer must provide a completed Greenfiber Fire Rated Material (FRM100) Attic Card with the installed thickness and R- value claims or other documentation of the installation quality and performance, per 16 CFR Part 460. The installer must also apply attic rulers where appropriate per Code and FTC requirements.
- B: When installing Greenfiber Fire Rated Material (FRM100) as spray-applied, record the data on a quality control moisture measurement control log, as included in the Greenfiber Fire Rated Material (FRM100) Wall Spray Manual.
- C: When installing Greenfiber Fire Rated Material (FRM100) as stabilized insulation for attics, record the data on a quality control moisture measurement control log.

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