

QUICK REFERENCE | GYPSUM CEMENT UNDERLAYMENT 03 54 13

1. Product Name

Hacker Floor Underlayments
FIRM-FILL® Gypsum Concrete
FIRM-FILL® 2010+
FIRM-FILL® 3310+
FIRM-FILL® High Strength
FIRM-FILL® 4010+
FIRM-FILL® CMD
GYP-SPAN® Radiant
Hacker Sound Mat II
FIRM-FILL® SCM
Hacker Floor Primer
Hacker Floor Sealer
Hacker TopCoat™ SP

**Note: For cementitious applications, consult TRUE-SCREED® CLU Spec Data Sheet.*

2. Supplier

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3. Product Description

BASIC USE

Hacker Floor Underlayments (HFU) are lightweight, high-strength, durable, nonstructural cementitious underlayments for use in multi-family, residential, commercial and radiant heating projects for both new construction and renovation. Trained Licensed Applicators can install up to 40,000 ft² (3716 m²) per day. The finished products provide a superior crack-resistant surface that is integral to a fire and sound rated system.

Since 1983, Hacker Industries, Inc. has provided the most cost-effective and high strength underlayments in the industry. With the proven performance

of over two billion square feet installed nationwide, HFU are appropriate for use over concrete, wood, steel deck or radiant substrates. With proper preparation, virtually any type of finished floor covering can be installed over HFU. All HFU meet ASTM F2419. (See Technical Data).

COMPOSITION & MATERIALS

FIRM-FILL® Gypsum Concretes and GYP-SPAN® Radiant are mixed with washed plaster or masonry sand, per ASTM C33, and potable water to form HFU.

TYPES

● FIRM-FILL® Gypsum Concrete

Designed for use in multi-family housing to attain sound and fire ratings. 1200 2000 psi (8.3-13.8 MPa).

● FIRM-FILL® 2010+

Additional surface hardness and higher compressive strength. 2000-3200 psi (13.8-22.0 MPa).

● FIRM-FILL® 3310+

An exceptionally smooth, rock-solid, surface over wood subfloors. 3000- 3900 psi (20.6-26.8 MPa).

● FIRM-FILL® High Strength

For resurfacing damaged, uneven or cracked concrete floors and planks. 2500-3800 psi (17.2-26.2 MPa).

● FIRM-FILL® 4010+

Offers superior bonding capabilities for thin capping of concrete floors. 4000-5200 psi (27.5- 34.4 MPa).

● FIRM-FILL® CMD

For cold-formed steel frame construction with a corrugated steel deck. Min. 3500 psi (24.1 MPa).

● GYP-SPAN® Radiant

Designed for use with radiant heat systems, enhanced thermal mass and heat transfer. 2000-3200 psi (13.8-22.1 MPa).

● Hacker Sound Mat II

Sound control mat; composed of recycled rubber; increases STC and IIC ratings.

● FIRM-FILL® SCM

A range of dimensional acoustical control mats.

APPLICATION THICKNESS

Minimum application thickness of HFU is:

- Over wood: 3/4" (19 mm) of HFU
- Over concrete slabs: HFU may be featheredged in transition areas
- Over radiant heat tubes: Minimum 3/4" (19 mm) on top of radiant tubes
- Over Sound Control Mats: See supplier recommendations for thickness
- Maximum thickness: 3-1/2" (89 mm)
- Over corrugated steel deck: 1" (25 mm) over top of flutes

LIMITATIONS

- Do not use HFU in exterior locations.
- HFU require a finished floor covering.
- Gypsum based systems shall not be used below grade or where prolonged exposure to moisture is likely.
- Subfloor must support design loads with maximum L/360 deflection.
- HFU above crawl spaces must be protected by a vapor barrier.
- Do not apply less than 1-1/2" (38 mm) of HFU on plastic vapor barrier.

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● Product Contributes towards LEED® credits.

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- HFU are one component of an effective sound and fire control system.

Care must be taken in the installation of all components to ensure the ultimate design performance. Published acoustical and fire system tests were conducted under controlled laboratory or field conditions and reflect results applicable only to those specific assemblies.

4. Technical Data

APPLICABLE STANDARDS

- ASTM F2419 Standard Practice for Installation of Thick Poured Gypsum Concrete Underlayments and the Preparation of the Surface to Receive Resilient Flooring
- ASTM C472 Modified Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete
- ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
- 2012 Tile Council of North America Handbook - Installation Methods F180, F200, RH111, and RH122.

WEIGHT

- FIRM-FILL® Gypsum Concrete – 3/4" (19 mm) thickness weighs 7 psf (34.2 kg/m²)
- FIRM-FILL® 2010+ – 3/4" (19 mm) thickness weighs 7.2 psf (35.2 kg/m²)
- FIRM-FILL® 3310+ – 3/4" (19 mm) thickness weighs 7.6 psf (37.1 kg/m²)
- FIRM-FILL® High Strength – 3/4" (19 mm) thickness weighs 7.7 psf (37.6 kg/m²)
- FIRM-FILL® 4010+ – 1/2" (12 mm) thickness weighs 5.3 psf (25.8 kg/m²)
- GYP-SPAN® Radiant – 1-1/2"

(38 mm) thickness weighs 14.6 psf (71.3 kg/m²)

DENSITY

107-130 pcf (1682-2082 kg/m³)
minimum dry density

FIRE PERFORMANCE

HFU are included in over 100 UL listings:

G561, G565, G568, J917, J919, J920, J924, J927, J931, J957, J966, J991, J994, K906, L001, L004, L005, L006, L201, L202, L206, L208, L209, L210, L211, L212, L501, L502, L503, L504, L505, L506, L507, L508, L509, L510, L511, L512, L513, L514, L515, L516, L517, L518, L519, L520, L521, L522, L523, L524, L525, L526, L527, L528, L529, L530, L531, L532, L533, L534, L535, L536, L537, L538, L539, L540, L541, L542, L543, L544, L545, L546, L547, L548, L549, L550, L551, L552, L553, L555, L556, L557, L558, L559, L570, L574, L560, L562, L563, L571, L585, L590, L592, L593, L598, M502, M506, M508, M512, M513.

Canada: L003, L201, L511, L512, M500, M501, M503, M505, M506, M507, M508, M509, M514, M518, M520.

APPROVALS

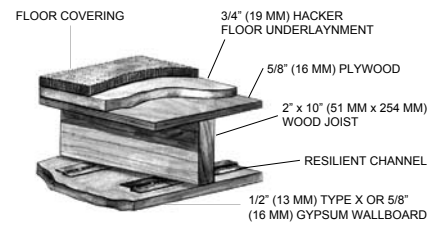
- ICC-ES Legacy Report ER-4147
- City of Los Angeles RR No. 24540
- U.S. Department of Housing and Urban Development FHA-HUD-1255

FIRE HAZARD CLASSIFICATION

ASTM E84: Flamespread Index, 0; Fuel Contribution, 0; Smoke Density, 0.

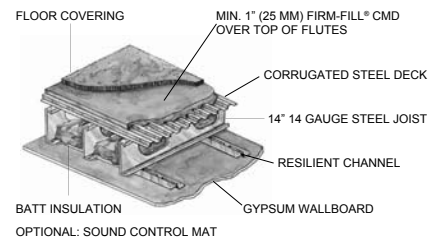
ACOUSTICAL PERFORMANCE

HFU contribute to superior STC (Sound Transmission Class) and IIC (Impact Insulation Class) ratings. Additional sound reduction is achieved using a sound control mat with HFU.



OPTIONAL: SOUND CONTROL MAT

Figure 1: Wood System



OPTIONAL: SOUND CONTROL MAT

Figure 2: Corrugated Steel Deck

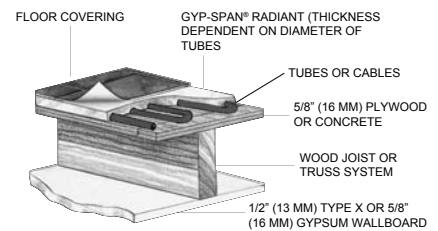
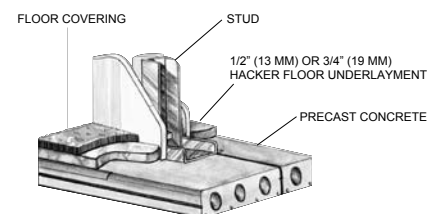
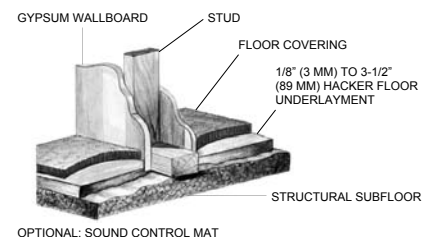


Figure 3: Radiant Heat System



OPTIONAL: SOUND CONTROL MAT

Figure 4: Concrete System



OPTIONAL: SOUND CONTROL MAT

Figure 5: Renovation

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5. Installation

SITE CONDITIONS

HFU shall be delivered in original, unopened bags, stored away from exposure to elements and above 50°F (10°C). Do not allow bags to get wet. Do not use beyond shelf life.

Building temperature shall be maintained above 50°F (10°C) before, during and after installation until the subfloor, ambient temperature and humidity have stabilized and material has completely dried.

PREPARATION

General Contractor shall confirm the subfloor is structurally sound and conditions are suitable for installation of floor underlayment. Subfloor must be dry, broom cleaned, and completely free of oil, grease, paraffin, wax, laitance and other contaminants. Subfloor shall be tested for moisture before the installation of HFU.

APPLICATION

Prior to installation of HFU, the building must be enclosed, including roof, windows and doors. Install HFU after radiant heat tubing has been put in place. Provide constant ventilation to remove moisture from the area until the underlayment is completely dry. If necessary, the General Contractor shall provide mechanical heat.

The following tests shall be performed in conjunction with the installation of HFU:

Field Samples:

Perform psi tests in strict accordance with ASTM C472 modified using 2" (51 mm) split brass molds.

Slump Test:

Test for slump as HFU are being installed using a 2" by 4" cylinder and plexiglass. The patty size shall be as stated by Hacker Industries, Inc.'s current literature.

Dryness Test:

Prior to the installation of finished floor goods, Hacker Industries, Inc. recommends that a moisture test be done. Consult floor covering manufacturer for recommended procedures to test for dryness and acceptable moisture levels. Calcium chloride is not an approved method. To avoid potential problems during the drying process, the General Contractor shall consult Hacker Industries, Inc.'s Drying Conditions Flyer and information contained on Hacker Industries, Inc.'s website for additional information concerning drying of this product.

PROTECTION

During construction, General Contractor shall place temporary wood planking in areas subject to wheeled or concentrated loads.

BUILDING CODES

Installation of HFU must comply with applicable local, state and national code requirements.

6. Availability & Cost

HFU are only installed by trained Licensed Applicators. Contact Hacker Industries, Inc. for the applicator(s) in your area.

7. Warranty

HACKER INDUSTRIES, INC. WARRANTS HFU TO BE FREE FROM MANUFACTURING DEFECTS, AND WHEN PROPERLY PREPARED AND INSTALLED ACCORDING TO APPROVED SPECIFIED METHODS, HFU WILL ATTAIN MINIMUM PHYSICAL SPECIFICATIONS AS STATED BY HACKER INDUSTRIES, INC.'S MOST RECENT LITERATURE. HACKER INDUSTRIES, INC.'S OBLIGATION SHALL BE LIMITED TO THE REPLACEMENT OF THE BAGGED PRODUCT ONLY AND IS SUBJECT TO NOTICE AND INSPECTION REQUIREMENTS.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ALL OTHER OBLIGATIONS OR LIABILITIES.

For Hacker Industries, Inc.'s BIM models and details, visit www.HackerIndustries.com or www.CADdetails.com.