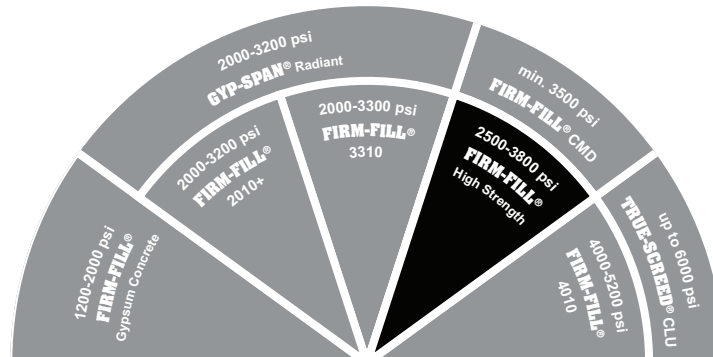


# FIRM-FILL® High Strength Recommended Product Specifications

**Firm-Fill®**  
GYPSUM CONCRETE HIGH STRENGTH  
GYPSE DE BÉTON



## PART I. GENERAL

### 1.1 Scope

Specify to meet project requirements. The conditions of the Contract (General, Supplementary, and other conditions) and the General Requirements (sections of Division 1) govern the provisions of this section.

### 1.2 Qualifications

- A. Supplier: HACKER, Newport Beach, California.
- B. Installer: Installation of FIRM-FILL® High Strength shall be by a Licensed Applicator of HACKER, using mixing and pumping equipment with a water meter approved by HACKER.
- C. All materials specified herein shall be approved by HACKER, Newport Beach, CA. All others must receive prior approval.
- D. Compressive strength can be specified from 2,500 - 3,800 psi (17.2 - 26.2 MPa).
- E. Materials shall be delivered in their original, unopened packages, and protected from exposure to the elements after delivery. Do not allow bags to get wet. Product shall not be used beyond shelf life.

## PART II. PRODUCTS

### 2.1 Materials

- A. Gypsum Concrete: FIRM-FILL® High Strength, as supplied by HACKER.
- B. Subfloor Primer: Hacker Floor Primer or approval equal.
- C. Sand: Well graded (ASTM C33) washed plaster, masonry sand, or concrete sand, meeting the requirements of Hacker Industries, Inc. Sand Guidelines.
- D. Water: Potable and free from impurities.
- E. Hacker TopCoat® SP, if specified.

### 2.2 Mix Design: See Section 1.2

## FIRM-FILL® High Strength Recommended Specifications (Continued)

### PART III. PREPARATION

#### 3.1 Condition of Subfloor

- A. Subfloor should be structurally sound (L/360), broom clean, dry and free from oil, grease, paraffin, laitance, wax or other contaminants before the arrive of Hacker Licensed Applicator. Concrete subfloors must be 28 days or older.
- B. Leak Prevention: All cracks and voids should be filled with a quick-setting patching, taping compound, or equal where leakage could occur.
- C. Before installation, the General Contractor (GC) shall inspect and approve the condition of the subfloor, and test the existing subfloor for moisture.

#### 3.2 Priming

- A. Prime wood subfloors with one coat of Hacker Floor Primer (diluted 1:4 with water) using one-gallon Hacker Floor Primer (3.8L) per 300 - 400ft.<sup>2</sup> (27.9 - 37.2m<sup>2</sup>).
- B. Hacker Floor Primer is not always required over concrete substrates. Multiple coats may be required over porous concrete or plank. The Hacker Licensed Applicator can give specific recommendations. (Note: For rehabilitation work or pours over old concrete, consult a Licensed Applicator or HACKER, for recommended preparation).

#### 3.3 Mixing Instructions

- A. 4 - 6 gallons (22.7 - 26.L) of water and sand as specified per 80 pound (36.3 kg) of FIRM-FILL® High Strength. Do not over water. Water amount will change with wetness of sand.
- B. FIRM-FILL® High Strength mix proportions and methods shall be in strict accordance with Hacker recommendations.

#### 3.4 Underlayment Application

- A. Scheduling:
  - 1. Installation of FIRM-FILL® High Strength shall not begin until the building is enclosed, including roof, windows, doors and other openings.
  - 2. FIRM-FILL® High Strength can be installed before or after the installation of drywall, as specified.

### B. Application:

1. The minimum thickness of FIRM-FILL® High Strength varies with the type of subfloor. Over wood subfloors, a minimum  $\frac{3}{4}$ -inch (19 mm) is required. Over precast or poured-in-place concrete, a minimum of  $\frac{1}{2}$ -inch (13 mm) is required. Over precast or poured in place concrete, a minimum thickness of FIRM-FILL® High Strength varies with the type of concrete subfloor. FIRM-FILL® High Strength can be feather-edges over all concrete subfloors.
2. Install FIRM-FILL® High Strength at specified thickness by placing bags, sand and water into a approved high-speed mixing device, and blend for a minimum of one minute. FIRM-FILL® High Strength shall be pumped onto floor areas, spreading and screeding to a smooth surface. Place as continuously as possible until installation is complete, so that no FIRM-FILL® High Strength slurry is placed against FIRM-FILL® High Strength that has obtained its initial set, except at authorized joints.
3. FIRM-FILL® High Strength is suitable for interior applications only, and must be covered by a finished floor covering.

C. Protection: After installation, temporary wood planking shall be placed by GC wherever the floor underlayment will be subject to wheeled or concentrated loads. The GC shall not place concentrated loads such as pallets of material, drywall, taping compounds or any heavy items, which could cause deflection in the middle of the floor.

D. Drying: The GC shall provide continuous ventilation and adequate heat to rapidly remove moisture from the area until the underlayment is dry. If necessary, the GC shall provide mechanical ventilation and heat. Do not install finished floor coverings until the FIRM-FILL® High Strength has been tested for dryness. Consult flooring contractor for recommended procedures to test for dryness and acceptable moisture levels. To avoid potential problems during the drying process, the GC shall consult HACKER's website for additional information concerning drying of this product.

### 3.5 Preparation for Installation of Floor Coverings

A. Floor Covering Procedures: Please see HACKER's "Guidelines for Installing Finished Floor Coverings." The guideline is not a warranty, and shall be used as a guideline only. Also see ASTM F2419 for recommended procedures.

### 3.6 Field Quality Control

A. Slump Test: FIRM-FILL® High Strength shall be tested for slump at the beginning of each installation in order to establish the required slump. Slump tests shall then be taken periodically during installation to verify that the required slump is maintained. Slump tests shall be conducted using a 2-inch by 4-inch (51 mm by 102 mm) cylinder. The acceptable patty size should be 7  $\frac{1}{2}$ -inch (191 mm) plus or minus 1.2-inch (13 mm) in diameter.

## **FIRM-FILL® High Strength Recommended Specifications (Continued)**

- B. Field Samples: Testing shall be done in accordance with ASTM C472 modified testing procedures using split brass molds. Prior to independent testing, consult HACKER for proper ASTM procedures.

**Warranty:** Hacker Industries, Inc. warrants Hacker Gypsum Floor Underlayments (GFU) to be free from manufacturing defects, and when properly prepared and installed according to approved specified methods, GFU 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.