

# FIRM-FILL® Gypsum Concrete Specifications

## 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. The articles contained in this section may modify, delete or add to the conditions of the Contract.

### 1.2 Qualifications

- A. Supplier: Hacker Industries, Inc., Newport Beach, California.
- B. Installer: Installation of FIRM-FILL® Gypsum Concrete shall be by a Licensed Applicator of Hacker Industries, Inc., using mixing and pumping equipment approved by Hacker Industries, Inc.
- C. All materials specified herein shall be approved by Hacker Industries, Inc., Newport Beach, CA. All others must receive prior approval.
- D. Compressive strength should be specified from 1200 to 2000 psi (approx. 8.3 to 13.8 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.
- F. Certification: Upon completion of this portion of the work, and as a condition of its acceptance, deliver to the architect a certificate from Hacker Industries, Inc., and signed by the Licensed Applicator, stating that the material used in this work complies with the specified requirements.

## PART II. PRODUCTS

### 2.1 Materials

- A. Gypsum Concrete: FIRM-FILL® Gypsum Concrete, as supplied by Hacker Industries, Inc.
- B. Subfloor Primer: Hacker Floor Primer or approved equal
- C. Sand: 1/8" (3mm) or less washed plaster or masonry sand
- D. Water: Potable and free from impurities
- E. Underlayment Sealer: Hacker Floor Sealer or approved equal (if required)
- F. Hacker TopCoat™ SP

### 2.2 Mix Designs: *see section 3.3*

## **PART III. PREPARATION**

### **3.1 Condition of Subfloor**

- A. Subfloor must be structurally sound (L/360), broom clean, dry and free from oil, grease, or other contaminants before the arrival of the Hacker Licensed Applicator.
- B. Leak Prevention: All cracks and voids should be filled with a quick-setting patching or taping compound where leakage could occur.
- C. Before installation, the General Contractor shall inspect and approve the condition of the subfloor and any required elevations.

### **3.2 Priming**

- A. Prime wood subfloors with one coat of Hacker Floor Primer (diluted 1:4 with water) using one gallon (approx. 3.8L) per 500 sq. ft. (approx. 47m<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 and/or porous concrete, consult a Licensed Applicator or Hacker Industries, Inc., for recommended floor preparation.)

### **3.3 Mixing Instructions**

- A. 6 to 7 gallons (approx. 22.7 to 26.5L) of water and sand as specified per 80 pound (approx. 36.3 kg) of FIRM-FILL® Gypsum Concrete. Do not over water. Water amount will change with wetness of sand.
- B. FIRM-FILL® Gypsum Concrete mix proportions and methods shall be in strict accordance with Hacker recommendations.

### **3.4 Underlayment Application**

- A. Scheduling:
  - 1. Installation of FIRM-FILL® Gypsum Concrete shall not begin until the building is enclosed, including roof, windows, doors and other openings.
  - 2. FIRM-FILL® Gypsum Concrete shall be installed after the installation of drywall.
- B. Application:
  - 1. The minimum thickness of FIRM-FILL® Gypsum Concrete varies with the type of subfloor. Over wood subfloors, a minimum of 3/4" (approx. 19mm) is required. Over precast or poured in place concrete, a minimum of 1/2" (approx. 13mm) is required.
  - 2. Install FIRM-FILL® Gypsum Concrete at specified thickness by placing

contents of bags, sand and water into the approved high-speed mixing device and blend for a minimum of one minute. FIRM-FILL® Gypsum Concrete should 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® Gypsum Concrete slurry is placed against FIRM-FILL® Gypsum Concrete that has obtained its initial set, except at authorized joints.

3. FIRM-FILL® Gypsum Concrete is suitable for interior applications only and must be covered by a finished floor material.
- C. Protection: After installation, temporary wood planking shall be placed by General Contractor wherever the floor underlayment will be subject to wheeled or concentrated loads.
  - D. Drying: Before, during and after installation of FIRM-FILL® Gypsum Concrete, building interior must be ventilated and heated to a minimum of 50°F (10°C) to assure completion of the drying process. The General Contractor shall provide continuous ventilation and adequate heat to rapidly remove moisture from the area until the FIRM-FILL® Gypsum Concrete is dry. Prior to the installation of finished floor goods, the FIRM-FILL® Gypsum Concrete must be free from any moisture. Consult flooring contractor for recommended procedures to test for dryness.
  - E. Sealing: Hacker Floor Sealer can be specified when extra protection is required. Any floor underlayment areas where the surface has been damaged shall be cleaned and sealed prior to application of finished floor goods. FIRM-FILL® Gypsum Concrete must be dry prior to application of sealer.

### **3.5 Preparation For Installation of Floor Coverings**

- A. Sealing: Any areas where the underlayment surface has been damaged should be cleaned and sealed regardless of floor covering specified. Floor covering manufacturers' specifications and requirements supersede these recommendations.
- B. Floor Covering Procedures: Please see the Hacker Industries, Inc.'s "Guidelines for Installing Finished Floor Coverings". The guideline is not a warranty and should be used as a guideline only. Also see ASTM F2419 for recommended procedures.

### **3.6 Field Quality Control**

- A. Slump Test: FIRM-FILL® Gypsum Concrete 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" by 4" (approx. 51mm by 102mm) cylinder. The acceptable patty size should be 8" (approx. 203mm) plus or minus 1/2" (approx. 13mm) in diameter.
- B. Field Samples: Testing shall be done in accordance with ASTM C472 testing procedures, using 2" (approx. 51mm) split brass molds. Prior to independent

sampling, contact Hacker Industries, Inc., to ensure that proper ASTM procedures are followed. If requested prior to application, test results shall be available to the architect and/or contractor from the Licensed Applicator.