

FIRM-FILL HIGH STRENGTH 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. Manufacturer: Hacker Industries, Inc., Newport Beach, California.
- B. Installer: Installation of FIRM-FILL[®] High Strength 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 2500 to 3800 psi (approx. 17.2 to 26.2 MPa).
- E. Materials shall be delivered in their original, unopened packages, and protected from exposure to the elements after delivery.
- 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[®] High Strength, as manufactured by Hacker Industries, Inc.
- B. Subfloor Primer: Hacker Floor Primer or approved equal
- C. Sand: 1/8" (3mm) or less washed plaster, masonry sand or silica sand
- D. Water: Potable and free from impurities
- E. Underlayment Sealer: Hacker Floor Sealer or approved equal (if required)

2.2 Mix Design: *see section 3.3*

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PART III. PREPARATION

3.1 Condition of Subfloor

- A. Subfloor should be structurally sound, broom clean and free from oil, grease, or other contaminants before the arrival 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 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 Hacker Floor Primer (approx. 3.78L) per 500 sq. ft. (approx. 47m²).
- 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 Industries, Inc., for recommended floor preparation.)

3.3 Mix Design

- A. FIRM-FILL[®] High Strength mix proportions and methods shall be in strict accordance with Hacker Industries, Inc., recommendations. FIRM-FILL[®] High Strength is available in two mix designs:
 - 1. 2500-3000 psi (approx. 17.2 to 20.7 MPa) - 1.9 cubic feet (approx. 0.054m³) of sand per 80 lb. (approx. 36.3kg) bag of FIRM-FILL[®] High Strength.
 - 2. 3000-3800 psi (approx. 20.7 to 26.2 MPa) - 1.4 cubic feet (approx. 0.040m³) of sand per 80 lb. (approx. 36.3kg) bag of FIRM-FILL[®] High Strength.
- B. The mix design for this project will be _____.

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.

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2. FIRM-FILL[®] High Strength shall be installed before or after the installation of drywall.
- B. Application:
1. The minimum thickness of FIRM-FILL[®] High Strength 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. The minimum thickness of FIRM-FILL[®] High Strength varies with the type of concrete subfloor. FIRM-FILL[®] High Strength can be feather edged over all concrete subfloors.
 2. Install FIRM-FILL[®] High Strength at specified thickness by placing bags, sand and water into the approved high-speed mixing device and blend for a minimum of one minute. FIRM-FILL[®] High Strength 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[®] 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 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[®] High Strength, 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 must supply adequate ventilation and heat, if necessary, until the FIRM-FILL[®] High Strength is dry. Prior to the installation of finished floor goods, the FIRM-FILL[®] High Strength 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 should be cleaned and sealed prior to application of finished floor goods. FIRM-FILL[®] High Strength 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.

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- 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[®] 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" by 4" (approx. 51mm by 102mm) cylinder. The acceptable patty size should be 7-1/2" (approx. 191mm) plus or minus 1/2" (approx. 13mm) in diameter.
- B. Field Samples: Testing shall be done in accordance with ASTM C472 modified 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 installation, test results shall be available to the architect and/or contractor from the Licensed Applicator.