Firm-Fill®
Sound Control

GUIDELINES FOR INSTALLING
FINISHED FLOOR COVERINGS

Hacker
Industries, Inc.

GUIDELINES FOR INSTALLING
FINISHED FLOOR PRODUCTS

The guidelines below apply to FIRM-FILL® Gypsum Concrete, FIRM-FILL® 2010+, FIRM-FILL® 3310 Classic, FIRM-FILL® 3310+, FIRM-FILL® High Strength, FIRM-FILL® 4010+, GYP-SPAN® Radiant and FIRM-FILL® CMD. These guidelines are not a warranty and should not be construed as such. The following procedures are critical to a successful finished floor installation. In all cases, the floor covering manufacturer recommendations supersede these guidelines.

GENERAL RECOMMENDATIONS

After installation of a Hacker Gypsum Floor Underlayment (GFU), the building interior shall be enclosed and maintained at a temperature above 50°F (10°C). Under the above conditions, a ¾-inch (19 mm) thick underlayment is usually dry in 5-8 days. Low temperatures, certain sands and high humidity will lengthen the drying time.

Before applying a finished floor covering, ensure that all surfaces are clean and free of dust, oil, dirt, paint, paraffin, laitance, etc. The use of sweeping compounds on GFU is not recommended, as these products tend to contain oil and/or paraffin which can interfere with the bond of the GFU and the adhesive and/or mortar that is used to attach the finished floor covering.

RECOMMENDED GUIDELINES

I.   **CHECK FOR DRYNESS**
        The recommended procedure to test for dryness is to use a moisture meter with a gypsum scale.
        HACKER recommends three moisture meters:

- Delmhorst BD-2100
- Delmhorst G-79
- Tramex CRH

The moisture test should be done by the General Contractor or the flooring installer.

The floor goods manufacturer and/or the adhesive manufacturer will determine acceptable levels of dryness. (See ASTM F2419; Standard Practice for Installation of Thick Poured Gypsum Concrete Underlayments and Preparation of the Surface to Receive Resilient Flooring.)

Caution: **Calcium chloride/moisture dome testing is not reliable. HACKER will not recognize the results that are obtained from its use.**

II.   INSTALLING HACKER TOPCOAT® SP (SURFACE PREP)

Make certain that the surface to receive the Hacker TopCoat® SP is free of mud, oil, grease, and other contaminants. Dilute the sealant/primer according to the manufacturer's instructions. Make sure the surface is completely dry so the latex adhesives can achieve a maximum bond. Perform a sample installation to test the bond capability. The finished floor goods manufacturer's may require a special adhesive or installation system; their requirements supercede these guidelines.
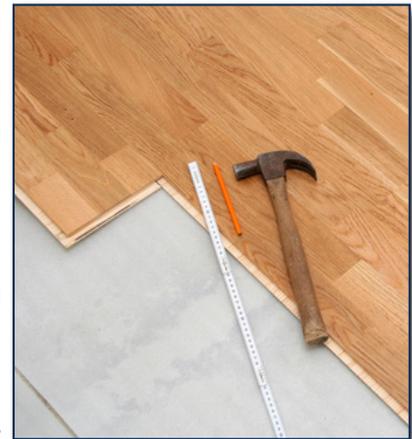
Porosity of the floor is a prime factor in the drying rate of adhesives. This porosity factor may reduce the effective open time of the adhesive. An application of Hacker TopCoat® SP prior to the installation of glue-down floor material will minimize the porosity of the underlayment. Before applying the Hacker TopCoat® SP, the flooring installer shall test the underlayment for dryness; it must be fully dry. When preparing the gypsum floor underlayment to receive resilient floor coverings, install Hacker TopCoat® SP per ASTM F2419: Standard Practice for the Installation of Thick Poured Gypsum Concrete Underlayments and the Preparation of the Surface to Receive Resilient Floor Coverings.

One gallon of concentrated Hacker TopCoat® SP will cover approximately 300-400ft^2 (when diluted with 8-parts water to 1-part Hacker TopCoat® SP Concentrate).

III.   FLOOR COVERINGS

1.   Follow the Recommended Guidelines that are listed above to prepare the underlayment. If required by a specific flooring manufacturer of resilient floor covering, install Hacker TopCoat®SP prior to installation. (Also see ASTM F2419 for recommended guidelines.)

Prior to installation of the sheet vinyl or vinyl composition tiles, conduct a sample test to confirm the bond capability.

Note: Pay particular attention to seaming when installing over underlayments, as you do not want water and dirt to accumulate in the seam areas.

2.   **Ceramic, Quarry and Marble Tile**
Follow the Recommended Guidelines on page 1 to prepare the underlayment.

HACKER strongly suggests having an anti-fracture membrane that is installed between the underlayment and tile as recommended by the membrane and setting material manufacturer. The anti-fracture membrane helps contain tile cracking that is caused by structural movement and may act as a waterproofing membrane. Install the membrane according to the membrane manufacturers' recommendations. Reference the Tile Council of America (TCA) Handbook for Ceramic Tile Installation over gypsum concrete. Crack isolation and/or waterproof membrane as recommended by membrane and setting material manufacturer.

Movement Joints: Follow and adhere to expansion joint requirements found in the Handbook for Ceramic Tile Installation under EJ171 specification. Contact the Tile Council of America (TCA) at (864) 646-8453 or www.tileusa.com for a copy of the handbook.

The Hacker Floor Underlayment must be dry before the installation of these membranes, unless otherwise stated by the membrane manufacturer. Follow the respective membrane manufacturer's recommendations for installation of the membrane and of the latex modified thin set (if required).

Note: See TCA Methods: F180 Wood Subfloor; F200 Concrete Subfloor; RH111 Radiant Heat on Concrete; RH122 Radiant Heat on Wood Subfloor

3. **Laminated Hardwood and Parquet Wood Flooring**
   Follow the Recommended Guidelines on page 12 to prepare the underlayment. Ensure Laminated Hardwood or Parquet Wood Flooring are acclimated to the environment, as per manufacturer's recommendations prior to installation.

   Glue Down Installations: The following adhesives from Bostik Findley, Inc. should be compatible.   Consult manufacturer of adhesive.
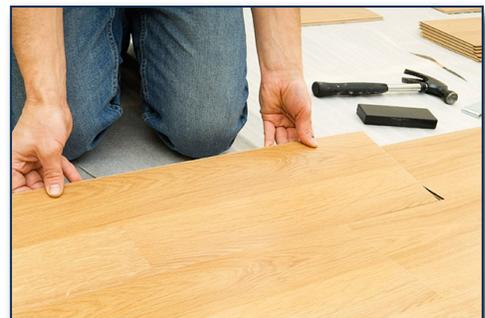
   - Ultra-Set TM Hardwood Premium Wood Flooring Urethane Adhesive
   - Best Adhesive Wood Flooring Urethane Adhesive
   - Fast-Tack Wood Flooring Urethane Adhesive

   Before applying any adhesive, make sure the underlayment is clean and has passed a dryness test (detailed on page 9). Apply primers and adhesives according to the flooring manufacturer's instructions. Prior to installation, the flooring installer should conduct a sample test to confirm the bond compatibility. Allow the test area to set for 72 hours before installing the flooring.

Mechanical Attachment: Follow and adhere to the floor goods manufacturer's general and installation recommendations.

4. **Floating Floors**
   Follow the Recommended Guidelines on page 12 to prepare the underlayment and adhere to the floor goods manufacturer's general and installation recommendations. Ensure floating floor goods are acclimated to the environment, as per manufacturer's recommendations prior to installation.

5. **Solid Wood Flooring**
   Follow the Recommended Guidelines above to prepare the underlayment. Keep in mind that wood is hygroscopic and the flooring installer must provide ¾-inch perimeter gaps to allow for expansion. Ensure solid wood floor goods are acclimated to the environment, as per manufacturer's recommendations prior to the installation.

Mechanical Attachment: The flooring installer should attach the solid wood flooring according to instructions published by the National Oak Flooring Manufacturers Association, Inc. (NOFMA).

Call NOFMA at (800) 422-4556, or view their website at www.nofma.org. Refer to National Wood Flooring Association recommendations, www.nwfa.org.

6. **Carpet and Pad**
Hacker Floor Underlayment can be used with many different carpets, carpet pads, and adhesives.

Mechanical Attachment of Tackless Strips over Wood Subfloors: Nails must penetrate ¼-inch into the substrate through the underlayment. If the underlayment is ¾-inch (19 mm) thick, use "Acoustical Concrete" tackless strips, such as #20-451 manufactured by Roberts Consolidated Industries. For thicker underlayment, use filler nails every 12-18-inches (305 mm to 457 mm) O.C. The filler nail should be long enough to penetrate at least ¼-inch into the subfloor.

Use an air compressor-driven automatic nailer to install diamond point nails through to the tackless strip and underlayment. One type of nailer is the Duo-Fast Coil Gun, (Model #1N-123; #1n-124; #1n-125) and the 1-¼-inch (32 mm) Duo-Fast #054 nails.

Note: When GFU are poured over expanded or extruded polystyrene or over an acoustical matting product, the mechanical attachment of tackless strips is not recommended. It is recommended that an adhesive system shall be used in these cases.

Glue-Down Attachment of Tackless Strips: Follow the Recommended Guidelines on page 12 to prepare the underlayment. Follow the and adhere to the floor goods manufacturer's adhesive recommendations. Prior to the installation, the flooring installer should conduct a sample test to confirm the bond capability.

The following adhesives have been compatible with GFU:

- Roberts 0167 Carpet Gripper Cement
- Hydroment 900, manufactured by Bostik Polyseamseal®
- All-Purpose Adhesive Caulk, manufactured by Darworth Co.

Glue-Down Attachment of Carpet and Pad: Follow the Recommended Guidelines on page 12 to prepare the underlayment. Follow the manufacturer's recommendations for adhesives. Prior to the installation, the flooring installer should conduct a sample test to confirm the bond compatibility.

Double Glue-Down of Carpet and Pad: Follow the Recommended Guidelines on page 12 to prepare the underlayment. Follow the manufacturer's recommendations for adhesives.

Free-Lying Carpet Modules: Follow the Recommended Guidelines on page 12 to prepare the underlayment. HACKER strongly recommends that all GFU shall be sealed prior to the installation. Install the carpet modules with 100% adhesive coverage. Follow the recommendations of the carpet modules' manufacturer.

7. **Wood or Metal Base Plates**
Mechanical Attachment: Follow the Recommended Guidelines on page 12 to prepare the underlayment. The Flooring installer should shoot power actuated nails through the base plate and into the wood or concrete subfloor. The nail should be long enough to penetrate at least ½-inch (13 mm) into the subfloor. If the underlayment is too thick for the nails to penetrate the subfloor, use one of the following adhesives in addition to the nailing:

- Hydroment 900, manufactured by Bostik.
- Polyseamseal® All-Purpose Adhesive Caulk, manufactured by Darworth CO.
- PL 400, manufactured by Contech.
- Any construction grade adhesive suitable for use with a cementitious underlayment.

Note: Base plates should not be mechanically fastened over a subfloor with a sound control mat radiant heating system.

8. **Radiant Heat Systems**
The temperature of the radiant heat system must be lowered before applying any floor covering, adhesive and/or floor coverings. Allow thin set mortar to cure at least seven days before turning on any hydronic or electric cable heat systems to allow material to hydrate adequately. (Consult the Radiant Panel Association Guidelines.)

Carpet and Pad: Follow the Recommended Guidelines on page 12 to prepare the underlayment. Select a tackless installation, and the install system. Achieve appropriate heat transfer by using a low R-Value carpet cushion. (Consult the Radiant Panel Association Guidelines.)

Laminated Hardwood and Parquet Wood Flooring: These flooring systems are ideal for radiant systems. The systems are very stable and resist expansion and contraction, while improving the overall performance of radiant systems. (Follow the surface requirement steps above to prepare the underlayment. Follow and adhere to floor goods manufacturer's adhesive recommendations. Consult the Radiant Panel Association Guidelines.)

Floating Floors: Follow the Recommended Guidelines above to prepare the underlayment. The flooring installer should install boards glued edge to edge and float on a ⅛-inch (3 mm) foam pad. (Consult the Radiant Panel Association Guidelines.)

Solid Wood Flooring: Nail-down sleeper system. Install tubing between 2 x 4-inch sleepers, which are attached to the subfloor. Pour Hacker's GYP-SPAN Radiant between the spaces around the tubes to provide a thermal mass. GYP-SPAN Radiant must be ¾-inch minimum above the outside diameter of the tubes (follow the surface requirement steps above to prepare the underlayment). When dry, install a vapor barrier and nail boards to the sleepers. Be careful not to puncture the radiant heating tubes when nailing down a solid wood floor. This system offers limited insulation above the radiant system. For best results, refer to the radiant heat system manufacturer's recommendations. (Consult the Radiant Panel Association Guidelines.)

Note: The floor surface temperature should never exceed 85° F (29°C) when laminated, parquet or when solid wood floors are installed over radiant heat systems.

Sheet Vinyl and Sheet Vinyl Composition Tiles: According to resilient industry recommendations, the floor surface temperature should never exceed 85°F (29°C). During adhesive and tile installation, lower the floor temperature. (Consult Radiant Panel Association Guidelines and/or manufacturer of flooring material to be used prior to installation for specific requirements.)

Warning: When working with GFU, be sure to wear personal protective equipment. When user operations generate dust, take the proper precautions to avoid dust inhalation. Many GFU contain crystalline silica, a known occupational carcinogen. (See product Safety Data Sheets (SDS) for more information.)

Product Update

See HackerIndustries.com for the most up to date product information.

WARRANTY

HACKER INDUSTRIES WARRANTS TO ITS LICENSED APPLICATORS WHO EXCLUSIVELY INSTALL ONLY FIRM-FILL® BRAND PRODUCTS AND TO THE OWNER(S) OF THE WORK OF IMPROVEMENT AT THE TIME THE SOUND CONTROL MAT IS INSTALLED THAT THE SOUND CONTROL MATS COVERED BY THIS WARRANTY WILL BE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP. IF COVERED SOUND CONTROL MATS FAIL TO PERFORM WITHIN THIS WARRANTY DURING THE TWO-YEAR WARRANTY PERIOD, AND IF THAT FAILURE IS REPORTED PROMPTLY, (BUT IN NO EVENT MORE THAN THIRTY (30) DAYS AFTER DISCOVERY), HACKER INDUSTRIES, INC. WILL, AT ITS SOLE OPTION, REPLACE OR REFUND THE PURCHASE PRICE OF THE DEFECTIVE MATS. HACKER INDUSTRIES, INC. WILL NOT, HOWEVER, PAY COSTS OF LABOR, FREIGHT, FLOOR COVERING MATERIALS, CONSEQUENTIAL OR INCIDENTAL DAMAGES, OR ANY OTHER COSTS OR DAMAGES ASSOCIATED WITH THE REPAIR OR REPLACEMENT.

The preceding paragraph limits the scope of the warranty provided hereunder and the remedies for its breach. This limited warranty replaces and supersedes any and all other express or implied warranties. Except as expressly warranted herein, these FIRM-FILL® SCM Underlayments are sold "as is," without warranty.

FIRM-FILL® SCM Underlayments are one component in an overall floor/ceiling assembly designed to achieve certain sound results. The sound control mat itself has no acoustical value. Its performance is affected by every other component and the likelihood of achieving code compliance is contingent upon many other trades including framers, plumbers, drywall contractors to name a few. Accordingly, Hacker Industries, Inc. makes no warranty or representation concerning IIC or STC ratings or the overall effectiveness of the finished floor/ceiling assembly.

Developers and general contractors are responsible for building properly and testing field performance immediately in order to assure the reliability of the project.

Laboratory tests are not a guarantee of field performance because of the issues noted above and many other design errors that may occur. Please consult a professional acoustical consultant to assure plans are proper and that the floor/ceiling assembly can perform to expectations.

SAFETY FIRST

Follow good safety/industrial practices during installation. Wear appropriate personal protective equipment. Read SDS and literature prior to specification and/or installation.

TRADEMARKS

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