

BioFelt® Installation - Tile/Plank

Flooring Products

This product will deliver years of satisfactory service when installed and maintained properly. The following guidelines will assure a secure and proper installation.

1. GENERAL INSTALLATION PREPARATION INSTRUCTIONS

- 1.1 Product must be allowed to acclimate for a period of 48 hours at 68-75 degrees Fahrenheit (20°-24° C) prior to installation.
- 1.2 Prior to installation, BioFelt Tile/Plank must be inspected by installer and General Contractor. Any defects must be reported to Chilewich Sultan LLC immediately at 212-679-9204. **DO NOT INSTALL DEFECTIVE MATERIAL.** Installation of material implies acceptance. If the material is deemed defective, Chilewich Sultan will replace it. Chilewich Sultan's liability is limited to the replacement of defective material only. Chilewich Sultan is not responsible for the cost of removal or reinstallation.

2. SUBSTRATE PREPARATION

2.1 GENERAL

- 2.1.1 The installation of BioFelt Tile/Plank begins with proper floor and substrate preparation.
- 2.1.2 Floors and substrates must be clean and dry, free of dirt, oil, grease, wax, old paints, cut back adhesives, powdery surface conditions or any other substance which will compromise the adhesion or ability of the product to stick to the substrate onto which it is being installed. Any contaminant on the subfloor must be cleaned or neutralized before applying adhesive to bond the flooring material to it. Failure to clean contaminants from the subfloor can cause adhesive failure and allow the flooring material to come loose. Do not use sweeping agents. Subfloors should be swept, vacuumed and damp-mopped to remove soils that may contaminate or compromise the installation.
- 2.1.3 Floor Flatness and Levelness. Surface flatness or levelness may affect the finished aesthetic appearance of BioFelt Tile/Plank. Though the product will conform to undulations and irregularities in the substrate, it is best to level and finish the substrate to minimize or eliminate severe conditions that may compromise the final appearance of the finished work product.
- 2.1.4 Residual Adhesives. All existing residual adhesive which would interfere with the adhesion of BioFelt Tile/Plank and the new adhesive must be removed or covered up.
- 2.1.5 Any subfloor conditions which compromise the secure installation of BioFelt Tile/Plank will be the responsibility of the general contractor or flooring contractor.
- 2.1.6 Use a primer over gypsum or Portland Cement-based floor leveling compounds as recommended by the manufacturer. Installation of floor leveling compounds will be installed as recommended by their manufacturers. Allow floor leveling compounds to dry or cure properly as recommended by their manufacturers.
- 2.1.7 Proper transition accessories must be installed to cover and protect BioFelt Tile/Plank edges when they abut another material or when the BioFelt Tile/Plank is the finished edge product.

2.2 CONCRETE

- 2.2.1 Concrete must be fully cured for 90 to 120 days or longer, depending on the type of concrete. Concrete must be structurally sound and free of curing or parting agents. Concrete should also be tested for porosity and alkalinity. A porosity test can be taken with droplets of water placed on the concrete. If the concrete absorbs the water immediately or within a short period of time, for example 60 seconds, a sealer should be applied to the concrete. Ph tests should be taken using

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industry acceptable testing criteria. If pH exceeds 9, notify the owner, as the floor should be treated for elevated pH condition before installation.

2.2.2 Any cracks 1/8" (0.30 cm) wide or greater, construction joints, control joints, depressions, grooves, or other irregularities should be filled and leveled with a high quality, non-shrinking, latex fortified, hydraulic cement patching compound.

2.2.3 Moisture vapor emission in concrete is very common. High moisture levels must be remediated before installation. This can be accomplished with numerous moisture barrier products commonly used and available commercially. Even floors which seem dry may have moisture passing through them, therefore, all concrete subfloors, on or above grade, must be tested. This includes subfloors that have had flooring products installed previously. Moisture vapor emission should be tested according to ASTM F 1869-98 Anhydrous Calcium Chloride Moisture Test using the Quantitative Method. This test should be conducted using the standard calcium chloride test kit. Moisture vapor emission rates shall not exceed 5 pounds/1,000 square feet within 24 hours using the anhydrous calcium chloride test. Remember that this test only indicates the conditions of the concrete slab in the area tested and at the time of the test. A minimum of 3 areas will be tested for every 1000 square feet to be installed. The areas to be tested should be strategically chosen to ensure that a proper analysis of the subfloor is represented. These areas should be suspected to have the highest risk of moisture. DO NOT AVERAGE THE RESULTS OF THE TEST AREAS. The highest test sample should represent the action required to resolve moisture vapor. Moisture vapor conditions can change over time for numerous reasons. Insitu Relative Humidity of the concrete slab should not exceed 85%. Some adhesive and primer/sealer manufacturers require lower moisture for their products. Their guidelines should be followed to ensure a secure bond over time. MOISTURE TESTING MUST BE PERFORMED BEFORE THE APPLICATION OF FLOOR LEVELING COMPOUNDS AND FILLERS.

2.2.4 Curing and Parting agents used on concrete subfloors may not be compatible with the adhesive and may interfere with bonding. These products are not recommended.

2.3 Wood Subfloors

2.3.1 Wood floors should be level to prevent imperfections or irregularities from telegraphing through to flooring materials. Nails or other fastenings devices in wood should be secure so as not to protrude above the floor surface. Fill any joints, seams, or holes with filler. It may be necessary to sand the floor until a smooth surface is secured.

2.3.2 Plywood underlayment, if used, must be APA rated Underlayment Exposure I with a sanded face. Follow all APA recommendations for preparation of underlayment where resilient floorings are specified. The use of any other type of plywood will void the warranty and is not recommended as it may have adverse effects on the adhesive and the installation. All edges, splits and gaps in the plywood must be filled with a hard, quick-setting filler. Allow the filler to cure completely and then sand smooth to eliminate any ridges. Ridges or gaps left in the plywood underlayment may telegraph through the flooring.

2.3.3 Follow the APA recommendations for fastening underlayment to the subfloor. Do not use construction adhesives to glue underlayment to subfloor as these may cause installation or staining problems with BioFelt Tile/Plank.

2.3.4 Never install BioFelt Tile/Plank over pressure treated wood products.

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2.4 Other Types of Subfloors

- 2.4.1 Terrazzo, ceramic or other hard surface floors should be treated in the same manner as a concrete subfloor, with additional precautions. Surface coatings or sealers must be completely removed by light sanding or other suitably effective methods and should be filled and leveled to obtain a smooth surface with a suitable leveling compound. Grout joints in ceramic tile installations must be leveled. The porosity of the substrates may require the application rate of the adhesive to change and require extended periods of time for the adhesive to be ready for application of the flooring.
Follow adhesive recommendations and instructions.
- 2.4.2 Metal Floors. BioFelt Tile/Plank may be installed over metal or raised access flooring. To ensure proper installation, the metal flooring may need to be abraded to provide a surface where a maximum bond to the metal can be achieved. New metal floors are often coated with oils during manufacture, and these oils must be removed to ensure effective adhesion.
- 2.4.3 Fiberglass and Laminated Floors. BioFelt Tile/Plank may be installed over fiberglass subfloors and laminated floors. The fiberglass subfloor and laminated floors may need to be abraded to create a mechanical grip between the adhesive and the applied surface. Laminated floors must be securely adhered to the subfloor with a proper adhesive or mechanically fastened to ensure proper installation of BioFelt Tile/Plank.
- 2.4.4 If BioFelt Tile/Plank is to be installed over resilient tile, then all tile must be tightly fitted and securely attached to the subfloor and any loose or broken tile replaced. If the resilient tile has a wax or protective layer applied, then the tile will need to be stripped or abraded to ensure a proper bond.

2.5 UNDERLAYMENT

If an underlayment for BioFelt Tile/Plank is specified, Chilewich Sultan LLC, recommends the underlayment meet certain product specifications to ensure a proper installation. Chilewich Sultan LLC is confident that its product will perform if its and the underlayment manufacturer's guidelines are followed. Chilewich Sultan LLC cannot guarantee products supplied by other companies or their installation instruction, but will warranty its own product if the following conditions are met:

- 2.5.1 The underlayment is installed as per the manufacturer's installation instructions. The installation must provide a smooth and level surface.
- 2.5.2 If the underlayment is a porous product, then the product must be sealed per the manufacturer's guidelines.
- 2.5.3 The underlayment must be dimensionally stable because if the product moves underneath the BioFelt Tile/Plank, an installation failure could occur.
- 2.5.4 The underlayment must be adhered or properly attached to the subfloor per manufacturer's recommendations.
- 2.5.5 The underlayment must be installed with no gaps or voids in joints to prevent telegraphing of the joints through the BioFelt Tile/Plank.
- 2.5.6 The maximum thickness of the underlayment must not exceed 0.20" (5 mm).
- 2.5.7 A minimum density of 45 lbs/ft³ (0.72 g/cm³) is required of the underlayment product.
- 2.5.8 AAT 725 Adhesive must be used for application between the underlayment and the BioFelt Tile/Plank.

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2.5.9 Final installation must be allowed to cure 24 hours before traffic is allowed onsite.

2.6 RADIANT HEATED

2.6.1 BioFelt Tile/Plank may be installed over radiant heated floors provided the temperature does not exceed 85° F (30° C).

2.6.2 Make sure the heating system is off during installation, since a heated floor will dry out the adhesive prematurely.

3. JOB SITE CONDITIONS

- 3.1 Installation of BioFelt Tile/Plank should begin only after all other trades have completed their work. Realizing that this is often not the case, the flooring material should be protected using Masonite covering or other covering materials which will not trap moisture or vapor from curing adhesive. Plastic covering should not be used. The use of surface protection or protective films with self-adhering adhesive is prohibited. Any topical use of floor guards with adhesive or sticky plastic may cause rapid soiling or staining. The use of these materials with BioFelt Tile/Plank products will void the warranty. Kraft paper or builder's felt may be used as a means of protecting the flooring is necessary.
- 3.2 WARRANTY WILL BE VOID IF PROPER PROTECTION IS NOT USED DURING CONSTRUCTION OPERATIONS.
- 3.3 WARRANTY WILL BE VOID IF PAINT, OR GYPSUM DUST AND DEBRIS, IS FOUND ON THE BIOFELT TILE/PLANK.
- 3.4 Dragging heavy or sharp objects across BioFelt Tile/Plank will damage it. Rips and tears in BioFelt Tile/Plank cannot be repaired and must be replaced.
- 3.5 For installations in gyms, the additional placement of a floor mat under any cardiovascular training equipment (treadmill, elliptical, stair climber, etc.) is recommended. A Chilewich custom mat may be used, or a mat of the client's own choosing, providing the backing does not contain rubber. The function of the mat is to disperse the weight and force from the front wheel mounts. A non-rubber mat of the customer's choosing can be used.

4. INSTALLATION PROCEDURES

4.1 General

- 4.1.1 Installation of BioFelt Tile/Plank flooring materials should be undertaken the same way one would install commercial carpet relative to layout and starting points. See CRI 104 for standard industry specifications.
- 4.1.2 Installation of BioFelt Tile/Plank must be a direct glue down installation.
- 4.1.3 BioFelt Tile/Plank has arrows and a logo on the back so the installer can keep the material aligned properly.
- 4.1.4 Maintain normal temperatures for 48-72 hours after installation to allow time for adhesive to cure.
- 4.1.5 Wait 24 hours prior to unlimited traffic to allow adhesive to cure.

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4.2 BioFelt Tile/Plank Installation

- 4.2.1 A full spread of adhesive must be used to insure a trouble-free installation. Chilewich is not responsible for tiles that are not installed correctly with a full spread of adhesive. Free-lay or grid-glue installations will result in tiles that kick up and do not lay flat when subjected to foot or rolled traffic movement.
- 4.2.2 BioFelt modular tiles (18" x 18") come packed 20 tiles to a box and BioFelt planks come packed 30 tiles to a box.
- 4.2.3 BioFelt Tile/Plank can be laid in any pattern desired: Ashlar, Monolithic, Herringbone, Multi-Directional, or even in a mix of planks and squares. Tiles may be turned for installation. However, turning will alter the appearance and color reflection of the tiles. Be sure of the direction of the tiles and the desired appearance before proceeding with installation, as different directions will result in a different appearance. The desired layout should be approved by the owner or architect/designer before installation is initiated..
- 4.2.4 The weave of Chilewich modular tiles is not parallel to the cut edge of the tile but is at an angle. This is an inherent characteristic of the product, not a defect. The weaves in each tile will not run perfectly square and perpendicular to one another, which is their intended appearance. Some patterns will also exhibit a light and dark shading in the material, which is also normal. This variation is evident at the seams where tiles of the same style may have different shades.
- 4.2.5 It is recommended to mix the tiles from different boxes to achieve a random pattern.
- 4.2.6 The installer should mark two straight lines, at right angles to each other, on the floor, to establish where the field of tile is to be installed. Installation of the tiles should start in the middle of the space and work toward the sides in quadrants.
- 4.2.7 Spread adhesive up to the lines with the appropriate trowel. Allow the adhesive time to tack up. Length of time depends on temperature, humidity, and air flow, but is generally between 30-45 minutes. The adhesive should be tacky to the touch but not transfer to the finger.
- 4.2.8 Lay the tile into the adhesive, making sure that the edge aligns with the drawn lines. Fit tiles together to eliminate gaps between tiles but not with too much pressure, which may cause tiles to buckle.
- 4.2.9 Roll the material after installation with a 35-pound (20 kg) roller to ensure full adhesion of the BioFelt Tile/Plank with the adhesive and to eliminate air pockets.
- 4.2.10 Trim white strands at tile edges with scissors. These strands are exposed during the tile manufacturing process, they are normal to every installation. Once trimmed they will not reappear. A beater-bar vacuum or counter rotating brush cleaning equipment can also be used to remove the white strands.

5. ADHESIVE RECOMMENDATIONS

- 5.1 Chilewich Sultan LLC recommends the following adhesives for all BioFelt Tile/Plank installations. Installations using products other than the approved ones will not be covered by the warranty.
- 5.2 For permanent direct glue down installations choose from full spread, aerosol, and spray adhesives. Full spread adhesives with AAT 675 and Mapei Ultrabond ECO 811 should be applied with a 1/16" x 1/16" x 1/16" U-notch trowel (0.16 cm). This should result in a spread rate of 150 ft²/gallon. UZIN KE 2000 S AND UZIN UZ 57 are approved to be used for flooring installation with a B1 notch trowel. The spread rate of these adhesives is approximately 320 g/m².

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Aerosol adhesive manufacturer's instructions should be followed for XL Brands Stix Essential RES and Spray-Lock 6200 Aerosol adhesive and achieve near full coverage of the subfloor. With application dependent on the subfloor and flooring backing, XL Brands suggest coverage rates between 140 and 185 ft²/gallon per 22 oz. container and Spray-Lock suggest coverage rates between 150 and 185 ft²/gallon per 22 oz. container.

5.3 EXTERIOR/OUTDOOR APPLICATIONS

- 5.3.1 AAT 390 Marine and Exterior Adhesive is recommended for installation and applied with an 1/16" x 1/16" x 1/16" U-notch trowel with a spread rate of approximately 150 ft²/gallon.
- 5.3.2 AAT 725 Sports Floor and Resilient Adhesive is recommended for installation and applied with an 1/16" x 1/16" x 1/16" U-Notch trowel with a spread rate of approximately 150 ft²/gallon. This is a two-part adhesive that requires a 2-gallon part A component and a 1.5-quart part B component. The use of this adhesive promotes a permanent installation of the flooring product.
- 5.3.3 Installation of the BioFelt Tile/Plank for exterior applications is the same as for interior applications, except it does not require moisture testing as outlined in Section 2.2.3 of this installation document.
- 5.3.4 THE SUBFLOOR OR SUBSTRATE MUST BE DRY DURING INSTALLATION OF THE BIOFELT TILE/ PLANK AND APPLICATION OF THE ADHESIVE. NO STANDING WATER.

Contact Information for Adhesive suppliers:

Advanced Adhesive Technologies (AAT):	www.aatglue.com , (800) 228-4583
Mapei	www.mapei.com , (800) 992-6273
XL Brands	www.xlbrands.com , (800) 307-4583
Spray-Lock	www.spraylock.com , (423) 305-6151

6. TILE INSTALLATION WITH FULL SPREAD OF RELEASABLE ADHESIVE

- 6.1 Installation of Chilewich flooring materials should be undertaken the same way one would install carpet tile relative to layout and starting points. See CRI 104 for standard industry specifications.
- 6.2 A full spread of adhesive must be used to insure a trouble-free installation. The manufacturer will not be held responsible for problem tiles that are not properly installed with a full spread. Experience has shown that free-lay or grid-glue installations will have tiles kick up and not lay flat when subjected to foot or rolled traffic movement.
- 6.3 Tiles come packed 20 tiles to a box. All tiles will have arrows on the back so the installer can determine the direction of each tile required to satisfy the design.
- 6.4 Tiles may be turned alternately for installation. However, turning the tiles 90 degrees will alter the appearance and color reflection of the tiles. Be sure of the direction of the tiles and the appearance desired before proceeding, as different directions will give a different appearance. Tiles are 18" square and can be laid in any pattern desired, all in one direction, in a "basket weave", quarter-turned or even in an ashlar pattern.
- 6.5 The weave of Chilewich flooring tiles is not parallel to the cut edge of the tile, but is at an angle. This is an inherent characteristic of the product, not a defect. The weaves in each tile will not run perfectly square and perpendicular to one another, which is how they are supposed to appear. Some patterns will also exhibit a light and dark shading in the material that is also normal. This is also evident at the seams where tiles of the same style may have different shades. It is recommended to mix the tile so that a random pattern of tile is achieved.

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- 6.6 Mix the tile from different boxes so that a random pattern of tile is achieved. In addition, each tile will have a number on the back with the arrow note above. The installer should randomly mix the 1-4 numbers within areas, and throughout the entire installation.
- 6.7 The installer should mark two straight lines at right angles to each other on the floor, to establish where the field of tile is to be installed. Installation of the tiles should start in the middle of the space and work toward the sides in quadrants.
- 6.8 Spread adhesive up to the lines with the appropriate trowel. Allow the adhesive time to tack up. Length of time depends on temperature and humidity, but generally will be 10-20 minutes. The adhesive should be sticky to the touch but not transfer to the finger.
- 6.9 Lay the tile into the adhesive, making sure that the edge aligns with the drawn lines. Fit tiles together to eliminate gaps between tiles but not with too much pressure, which may cause tiles to buckle.
- 6.10 Tile should not generally be rolled. However, installer should check installation 24 hours after completion for any tiles that may be lifting. Then, to correct, the installer may use a 75-pound (or less) roller to re-adhere tiles to the floor. Additional adhesive on these particular tiles may also be required.
- 6.11 Trim white strands at tile edges with scissors. These strands are exposed during the tile manufacturing process. They are normal to every Chilewich vinyl-backed flooring tile installation. Once trimmed, they will not return.
- 6.12 Maintain normal temperatures for 48 - 72 hours after installation to allow time for adhesive to cure.
- 6.13 Wait 24 hours prior to a full move-in to allow for adhesives to cure.

7. PURETHANE APPLICATION INSTRUCTIONS (OPTIONAL)

- 7.1 Instructions for application of Purethane coating onto BioFelt Tile/Plank. The application of the coating will allow for extended clean up times for staining. The application of the coating is topical and will wear with time and traffic. This coating may need to be reapplied after usage period depending on the traffic use of material.
- 7.2 Surface Preparation. BioFelt Tile/Plank must be thoroughly cleaned to remove all dust, dirt and debris from the surface. The surface must be dry.
- 7.3 Prepare the 2-part Purethane system as per manufacturer's recommendations.
- 7.4 Apply with a short nap paint roller. Allow to dry 2-3 hours before applying second coat. Dries to the touch in 30-45 minutes. Allow final coat to dry at least 48 hours before use.
- 7.5 A gallon should cover between 250-350 ft².
- 7.6 Do not apply on damp days or when surface temperature is below 40° F (5° C).

NOTE: All urethanes react with snow-melting salts. Clean flooring promptly after salt exposure.