FLOOR PREPARATION

FOR ALL AMERICAN BILTRITE FLOORING PRODUCTS

SITE CONDITIONS

1. Thorough inspection and preparation of subfloors is mandatory to ensure a satisfactory installation. No resilient flooring installation should be started before the installer is completely familiar and satisfied with the subfloor conditions. Serious defects should always be reported immediately to the responsible authority.
2. Ensure that heating, ventilation and/or air conditioning (HVAC) in the installation area is operative for a minimum of 7 days prior to, during and following the installation.
3. The temperature must be kept between 18°C (65°F) and 29°C (85°F) for 48 hours before, during installation and 72 hours after installation. Ambient relative humidity must be maintained between 40 and 60%.
4. Both flooring and adhesive must be acclimatized 48 hours prior to installation. Flooring should be removed from the pallet at least 24 hours prior to installation and stacked no more than 3 cartons high with at least 10 cm (4 inches) of airflow around the cartons. For rolls, immediately upon reception, store standing up with at least 10 cm (4 in) of airflow around the rolls. Do not leave boxes or rolls close to heating or cooling ducts.
5. Avoid placing flooring in direct sunlight (windows or doors) before installation, as it could create shading.
6. Loose-lay flooring in the room. Identify the different lots and place the flooring to ensure uniform color and overall appearance requirements are met.
7. Flooring products with arrows on the back should be installed with the arrows all pointing in the same direction.
8. American Biltrite warranties the installation of its products as a system with the recommended adhesive (see Adhesive Quick Check Chart).
9. Contact American Biltrite or one of its distributors about any questions regarding preparation of subfloor prior to installation of our products.

A. CONCRETE SUBFLOORS

General Conditions

1. Follow ASTM F710 “Standard practice for preparing concrete floors to receive resilient flooring”.
2. Concrete subfloors should be made of a good standard mix as recommended by the American Concrete Institute, using clean sand and crushed stone. A loose, sandy or scaly surface or evidence of a white, powdery surface is unacceptable.
3. The installation of a permanent, effective moisture vapor retarder with a minimum thickness of 0.25 mm (0.010 in) is required under all on- and below-grade concrete floors as per ASTM E1745.
4. Crawl spaces, with a minimum of 46 cm (18 in) of ventilated space, will require an effective moisture vapor retarder on the ground.
5. Concrete subfloors suitable for the installation of American Biltrite flooring must be dry, clean, smooth, level and structurally sound. They must be free from old adhesive, dust, solvent, paint, wax, oil, grease, asphalt, sealing and curing compounds and other foreign substances.
6. The surface of concrete floor should be flat to within the equivalent of 4.75 mm over 3 m (3/16 in over 10 ft) and within the equivalent of 0.8 mm over 305 mm (1/32 in over 12 in).
7. Do not use dry sweep oil-based material, as the oil in the sweeping compound will interfere with the adhesion of the material to the concrete.
8. Fill or level cracks, grooves and other irregularities. Where filling or leveling is required, the use of a high strength Portland cement-based patching compound is recommended.
9. Saw cuts must be cleaned carefully and flooring must not be installed over expansion joints.

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10. If a gypsum-based self-leveling underlayment, is required, only the one recommended by American Biltrite shall be used (refer to the technical bulletin to this effect).
11. Gypsum-based self-leveling underlayments shall be covered with either Primer L™ or by the primer supported by the gypsum underlayment manufacturer.
12. Concrete curing agents, surface hardeners and similar products should not be used on the subfloor unless the manufacturers of these products guarantee that they will not affect the bonding process. If these products have been used without the manufacturer's guarantee, they must be removed before American Biltrite flooring is installed. In many cases, these agents form a surface film of oil, wax or resin that impairs the bond between the concrete and the adhesive.
13. In the case sealers, curing agents or hardeners were used in/on the concrete; refer to the "Remediation System" documentation for solutions.
14. Excess Moisture: American Biltrite does not guarantee any product performance against excess moisture (including hydrostatic pressure) under any circumstances. The use of underlayment, leveling and patching compounds is no guarantee against excess moisture (including hydrostatic pressure) or concrete deficiencies.
15. In the case moisture levels are higher than the recommended specification for installation; refer to the "Remediation System" documentation for solutions.
16. Chemical abatement: do not use chemical adhesive removal products. Using such products will void the American Biltrite's floor covering warranty.
17. In the case chemical abatement products were used; refer to the "Remediation System" documentation for solutions.
18. It is the responsibility of the flooring contractor to determine whether or not the concrete is suitable for covering.

Surface Porosity

1. Follow ASTM F3191 "Standard practice for Field Determination of Substrate Water Absorption (Porosity) for Substrates to Receive Resilient Flooring"
2. To test for porosity, place a 0.05 ml bead of water on concrete's surface and observe absorption. If water is not absorbed within one minute, the floor is considered non-porous.
3. Depending of surface porosity (porous or non-porous), allow proper open time when applying the adhesive on the substrate. Further than surface porosity, open and working times are dependent on the air movement, ambient temperature, and humidity as well as subfloor humidity and temperature.
4. Follow ASTM F3311 "Standard Practice for Mat Bond Evaluation of Performance and Compatibility for Resilient Flooring System Components Prior to Installation".
5. Perform the mat bond test with the flooring to be installed and specified adhesive as per Adhesive Quick Check Chart. Use flooring pieces that will cover approximatively 0.4 sq. m (4 sq. ft); by example, it represents two tiles of 45 cm x 45 cm (18 in x 18 in). When the flooring pieces are set into the adhesive, use duct tape to seal the edges of the flooring to the subfloor on all sides. The bond strength evaluation must be done after 72 hours in the absence of an adhesive cure time by lifting the sample from the subfloor.
6. If an unsatisfactory bond test is obtained, it can be improved by mechanically abrading the concrete's surface.
7. It is the responsibility of the flooring contractor to adjust installation in accordance to the open and working time of the adhesive to jobsite conditions.

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Conducting Moisture and pH Tests on Concrete Subfloors

1. Testing of existing and new concrete subfloors (on, below and above grades) using the protocols outlined below is required:
   a. ASTM F1869, Anhydrous Calcium Chloride test.
   b. ASTM F2170, Relative Humidity (RH) test using in situ probes.
   c. ASTM F710, pH level.
   d. Refer to the latest ASTM versions for specific testing, guidelines and safety procedures.
2. New concrete slabs must be properly cured before any testing is undertaken. Depending on atmospheric conditions, type of concrete and/or possible excess water content, curing time may vary.
3. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
   a. Purpose: this test is designed to measure the moisture emission at the surface of a concrete slab.
   b. Areas should be tested as follows: conduct 3 tests for the first 1,000 sq. ft. (93 sq. m), then 1 test for every additional 1,000 sq. ft (93 sq. m) as outlined in the most recent edition of ASTM F1869.
   c. Maximum allowable readings vary depending on the adhesive system chosen. Refer to Adhesive Quick Check Chart for the maximum allowable levels for each adhesive.
4. ASTM F2170 – Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
   a. Purpose: this test is designed to measure the percentage of relative humidity in a concrete slab.
   b. Areas should be tested as follows: conduct 3 tests for the first 1,000 sq. ft. (93 sq. m), then 1 test for every additional 1,000 sq. ft (93 sq. m) as outlined in the most recent edition of ASTM F2170.
   c. Maximum allowable readings vary depending on the adhesive system chosen. Refer to Adhesive Quick Check Chart for the maximum allowable levels for each adhesive.
5. ASTM F710, pH level.
   a. Purpose: new concrete floors or where moisture is present may be susceptible to elevated pH levels due to excess alkaline salts. Adhesives are subject to deterioration resulting in bond failure in the presence of strong alkaline conditions.
   b. Conduct one pH test for every 1,000 sq. ft (93 sq. m) throughout the area.
   c. Maximum allowable readings vary depending on the adhesive system chosen. Refer to Adhesive Quick Check Chart for the maximum allowable levels for each adhesive.
6. It is the responsibility of the flooring contractor to determine whether or not the concrete meets specification.
   a. Record all measurements in the project log.
   b. Results of the test must be made available upon request to American Biltrite.

Radiant Heated Concrete Subfloors

1. American Biltrite flooring may be installed over radiant heated subfloors; however, the maximum temperature must never exceed 29°C (85°F).
2. The moisture requirement levels that apply to on, below and above grade concrete floors also apply to floors with radiant heating systems.

3. The radiant heated floor must be operating at a temperature of 18°C (65°F) for 48 hours before, during installation and 72 hours after installation. The temperature thereafter can be incremented by 5ºC (9ºF) per 24 hours until a maximum of 29°C (85°F).
4. If radiant heated floors have been allowed to cool after installation, moisture may have permeated the concrete subfloor. It is therefore recommended that the floor temperature be increased gradually at a rate of 5ºC (9ºF) per 24 hours to ensure that moisture and temperature changes do not adversely affect adhesion.
5. To choose the proper adhesive, consult the Adhesive Quick Check Chart.

B. WOOD SUBFLOORS

1. Installer needs to verify that the wood subfloor meets the requirements of ASTM F1482 “Standard Practice for Installation and Preparation of Panel-Type Underlayment to Receive Resilient Flooring”.
2. American Biltrite does not approve of the use of particle board, luan, flake board, wafer board or chip board underlayments under its flooring, as their quality and performance vary widely.
3. Some particle boards are suitable for use as underlayment, but the particle board manufacturer should provide a guarantee to this effect.
4. American Biltrite only recommends installing their products on wood subfloors if they are made from two layers of staggered construction grade plywood that is at least 2.5 cm (1 in) total thickness for the combined layers. The first layer must be a minimum of 1.6 cm (5/8 in) thick.
5. The wood subfloor must be dry, smooth, and free from vertical movement and any foreign substance, such as, old adhesive, paint, oil, dirt, grease, and wax.
6. The surface of the wood subfloor should be flat to within the equivalent of 4.75 mm over 3 m (3/16 in over 10 ft) and within the equivalent of 0.8 mm over 305 mm (1/32 in over 12 in).
7. Lightly sand any surface roughness, particularly at joints and around nails.
8. Use a Portland cement-based compound to level or patch wood subfloors.
9. Wood subfloors over crawl spaces require a minimum of 46 cm (18 in) of ventilated space, with an effective moisture vapor retarder on the ground.

C. TERRAZZO, CERAMIC, NATURAL / AGGLOMERATED MARBLE OR GRANITE

1. Caution: terrazzo, ceramic, natural/agglomerated marble, or granite are non-porous floors that require special attention to secure proper adhesion to the flooring.
2. The glazed and polished surface finish causes the problem. Often the floor is treated with sealers and wax as well, which can build up. Remove glaze, polished finish, sealers and wax by sanding or bead blasting.
3. Ensure that the surface is free of dirt, dust, debris, or any other substances that will prevent bonding.
4. Use a Portland cement-based underlayment and follow the manufacturer’s recommendations for subfloor preparation and priming.

D. METAL SUBFLOORS

1. Metal surfaces could be covered with rust, dirt, or contaminants.
2. Sand the metal (aluminum, steel, brass, copper, and bronze) to create a surface finish that will ensure a good adhesive bond; install the flooring right away after metal surface sanding and cleaning.
3. To choose the proper adhesive, consult the Adhesive Quick Check Chart.

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E. PREPARATION OF FLOORS WITH EXISTING RESILIENT FLOORING AND/OR OLD ADHESIVE

1. American Biltrite will not accept any responsibility for installation over existing resilient floor coverings. We recommend that all existing resilient material be thoroughly removed prior to installing American Biltrite flooring.
2. Consult the Resilient Floor Covering Institute's (RFCI's) recommendations for removal of existing resilient floor coverings and/or old adhesives.
3. Caution: do not sand, dry sweep, dry scrape, drill, saw, bead blast or mechanically chip or pulverize existing resilient flooring, backing, felt lining, paint, asphalt cutback adhesives or other existing flooring. These products may contain asbestos fibers or crystalline silica. Avoid creating dust as inhalation increases the risk of cancer and respiratory disease. Smokers exposed to asbestos fibers are at greater risk of serious bodily harm. Unless certain that the product and adhesive are asbestos-free, presume that it contains asbestos. Regulations may require that material be tested to determine asbestos content.
4. The preferred and recommended method for the removal of old adhesive is by a mechanical means
5. Disposal guidelines for materials containing asbestos: Before removing and disposing of a resilient floor covering that contains asbestos, obtain a special permit. Check with local authorities to see what regulations apply. Various environmental agencies have regulations concerning the removal and disposal of materials containing asbestos that could override local regulations.
6. In the case where removal of the existing flooring is not possible, consult American Biltrite technical services.

Please note that technical web site documents prevail.

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