INSTALLATION GUIDELINES FOR FIBERGLASS PLANK

1. TEST BEFORE STARTING INSTALLATION

Note: All substrates to receive moisture sensitive floor covering must be tested for moisture.

CONCRETE SUBSTRATES

All concrete substrates should be tested for IRH (Internal Relative Humidity) according to ASTM F 2170.

Calcium Chloride tests may be conducted in addition to IRH and must be performed per the latest edition of ASTM F 1869.

NEW AND EXISTING CONCRETE SUBFLOORS SHOULD MEET THE GUIDELINES OF THE LATEST EDITION OF ACI 302 AND ASTM F 710, "STANDARD PRACTICE FOR PREPARING CONCRETE FLOORS TO RECEIVE RESILIENT FLOORING" AVAILABLE FROM THE AMERICAN SOCIETY FOR TESTING AND MATERIALS, 100 BARR HARBOR DRIVE, WEST CONSHOHOCKEN, PA 19428; 610-832-9585; HTTP://WWW.ASTM.ORG.

- Substrates shall be smooth, structurally sound, permanently dry, clean and free of all foreign material such as dust, wax, solvents, paint, grease, oils, old adhesive residue, curing and hardening/ curing compounds, sealers and other foreign material that might prevent adhesive bond.
- If the adhesive residue is asphalt-based (cut-back), or any other type of adhesive is present, it must be removed by industry accepted methods such as mechanical removal or wet scraping.
- If a chemical abatement has been performed, use Shaw Surface Prep EXT to remove any residual chemicals present. Once Shaw Surface Prep EXT has been properly cleaned and removed, apply one coat of Shaw MRP for additional protection.
- Adhesive removal through the use of solvents or citrus adhesive removers is not recommended. Solvent residue left in or on the subfloor may affect the new adhesive and floor covering.

WARNING! DO NOT SAND, DRY SWEEP, DRY SCRAPE, DRILL, SAW, BEAD BLAST ORMECHANICALLY CHIP OR PULVERISE EXISTING RESILIENT FLOORING, BACKING, LINING FELT , ASPHALTIC " CUT BACK" ADHESIVES OR OTHER ADHESIVES.

These products may contain either asbestos fibers and/or crystalline silica. Avoid creating dust. Inhalation of such dust is a cancer and respiratory tract hazard. Smoking by individuals exposed to asbestos fibers greatly increases the risk of serious bodily harm. Unless positively certain that the product is a non-asbestos-containing material, you must presume it contains asbestos. Regulations may require that the material be tested to determine asbestos content and may govern the removal and disposal of material. See current edition of the Resilient Floor Covering Institute (RFCI) publication Recommended Work Practices for Removal of Resilient Floor Coverings for detailed information and instructions on removing all resilient covering structures. For current information go to www.rfci.com.

- Concrete floors shall be flat and smooth within 1/8" in 6 feet or 3/16" in 10 feet.
- F-Number System: Overall values of FF 36/ FL 20 may be appropriate for resilient floor coverings.
- Moisture Vapor Emission Rate (MVER) – Conduct either in-situ RH test (ASTM F-2170) or CaCl MVER test method (ASTM F1869) Refer to the adhesive information for the acceptable moisture limits.
- Use cementitious patching and leveling compounds that meet or exceed Shaw's maximum moisture level and pH requirements. Use of gypsum-based patching and/or leveling compounds which contain Portland or high alumina cement and meet or exceed the compressive strength of 3,000 psi are acceptable.
- Perform Bond testing to determine compatibility of adhesive to the substrate. Shaw 9050 primer can be utilized to promote adhesion.
- Porosity – water drop test will help determine porosity – if drop remains on the surface after 1-2 mins concrete should be considered non-porous.
- Working and open times of adhesives may vary based on job conditions, substrate, temperature, and humidity.
- Areas to receive flooring should be adequately lighted during all phases of the installation process.
- It is recommended that resilient floor covering installation shall not begin until all other trades have completed.

TEMPERATURE - AMBIENT

Controlled environments are critical. Fully functional HVAC systems are the best way to ensure temperature and humidity control.

- Flooring material and adhesive must be acclimated to the installation area for a minimum of 48 hours prior to installation between 65°F-85°F degrees.
- DO NOT install resilient flooring products until the work area can be temperature controlled.
- The permanent HVAC system turned on and set to a minimum of 65°F (18.3°C) or a maximum of 85°F, for a minimum of 7 days prior to, during, and after installation. Once the installation is complete the temperature should not exceed 85°F (29.4°C).
- A Shaw approved adhesive must be used and usage instructions followed.
- All other installation instructions must be followed.

PH

Concrete floors must be tested per the latest edition of ASTM F 710.

- PH reading must not exceed 10.0.
- Readings below 7.0 and in excess of 10.0 affect resilient flooring and adhesives negatively.
- Rinsing the surface with clear water may lower alkalinity. "DAMP MOP"

- Shaw 9050 an acrylic solution can be utilized to correct high PH readings.

NOTE: IT MAY NOT BE THE FLOOR COVERING INSTALLER'S RESPONSIBILITY TO CONDUCT THESE TESTS. IT IS, HOWEVER, THE FLOOR COVERING INSTALLER'S RESPONSIBILITY TO MAKE SURE THESE TESTS HAVE BEEN CONDUCTED, AND THAT THE RESULTS ARE ACCEPTABLE PRIOR TO INSTALLING THE FLOOR COVERING. WHEN MOISTURE TESTS ARE CONDUCTED, IT INDICATES THE CONDITIONS ONLY AT THE TIME OF THE TEST.

2. MATERIAL STORAGE AND HANDLING

a. Store cartons of tile or plank products flat and squarely on top of one another. Tile or plank products should be stacked no more than 6 high and allow for air flow around stacks when un-palletized. Preferably, locate material in the "center" of the installation area (i.e. away from vents, direct sunlight, etc.) Storing cartons in direct sunlight may affect proper acclimation by inducing thermal expansion/contraction.

b. When palletizing on a jobsite vinyl plank or tiles need to be stacked 2 rows high side by side with no airspace between. Then quarter turned for 2 rows side by side, not to exceed 12 boxes high. A 5/8" or thicker plywood must also be placed on the pallet first.

c. Do not stack pallet's 2 high unless utilizing a 1" thick plywood in between pallets.

3. SUBSTRATES

Note: All substrates to receive resilient flooring shall be dry, clean, smooth and structurally sound. They shall be free of dust, solvent, paint, wax, oil, grease, residual adhesive, adhesive removers, curing, sealing, hardening/parting compounds, alkaline salts, excessive carbonation/laitance, mold, mildew, and other foreign materials that might prevent the adhesive from bonding.
Crumb rubber underlayments are not an acceptable option for use with resilient floor coverings due to performance issues resulting from chemical incompatibilities.

WOOD SUBSTRATES

Wood subfloors must be structurally sound and in compliance with local building codes.

a. Double-Layered APA rated plywood subfloors should be a minimum 1" total thickness, with at least 18" well ventilated air space beneath.
b. Chip board, OSB, particleboard, construction grade plywood are generally not acceptable substrates – add a layer of APA underlayment grade ply wood that is dimensionally stable, non-staining, with a smooth fully sanded face.
c. Underlayment panels can onlycorrect minor deficiencies in the sub-floor while providing a smooth,sound surface on which to adhere the resilient flooring. Wood subfloors should be flat – 3/16" in 10' or 1/8" in 6'.
d. Insulate and protect crawl spaces with a vapor barrier covering the ground.
e. **DO NOT** install over sleeper construction subfloors or wood subfloors applied directly over concrete.
f. Underlayment panels can only correct minor deficiencies in the sub-floor while providing a smooth, sound surface on which to adhere the resilient flooring.
g. Any failures in the performance of the underlayment panel rest with the panel manufacturer and not with Shaw Industries, Inc.
h. It is recommended that your chosen APA underlayment grade panels be designed for installation under resilient flooring, and carry a written warranty covering replacement of the entire flooring system.
i. SHAW resilient flooring is not recommended directly over fire-retardant treated plywood or preservative treated plywood.
j. The materials used to treat the plywood may cause problems with adhesive bonding. An additional layer of APA rated 1/4" thick underlayment should be installed.
k. Always follow the underlayment manufacturer's installation instructions.

STRIP – PLANK WOOD FLOORING

Due to expansion/contraction of individual boards during seasonal changes, SHAW recommends 1/4" or thicker APA rated underlayment panels be installed over these types of subfloors.

CONCRETE

New or existing concrete subfloors must meet the guidelines of the latest edition of ACI 302 and ASTM F 710, "Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring".

1. On or below-grade slabs must have an effective vapor retarder directly under the slab.
2. Wet curing 7 days is the preferred method for curing new concrete.
3. Curing compounds **(DO NOT USE)**. If present they can interfere with the bond of the adhesive to the concrete. Seek assistance from a substrate manufacturer if curing agents are detected.
4. Remove curing compounds 28 days after placement, so concrete can begin drying.
5. Concrete floors shall be flat and smooth within 1/8" in 6 feet or 3/16" in 10 feet.
6. F-Number System: Overall values of FF 36/ FL 20 may be appropriate for resilient floor coverings.

Note: Perform Bond testing to determine compatibility of adhesive to the substrate. Shaw 9050 primer can be utilized to promote adhesion. Expansion joints in concrete are designed to allow for the expansion and contraction of the concrete. Resilient flooring products should never be installed over expansion joints. Expansion joint covers designed for use with resilient floorings should be used. Control joints (saw cuts) may be patched and covered with resilient once the concrete

is thoroughly cured, dry and acclimated.

LIGHTWEIGHT CONCRETE

All recommendations and guarantees as to the suitability and performance of lightweight concrete under resilient flooring are the responsibility of the lightweight concrete manufacturer. The installer of the lightweight product may be required to be authorized or certified by the manufacturer. Correct on-site mixing ratios and properly functioning pumping equipment are critical. To ensure proper mixture, slump testing is recommended.

a. Lightweight aggregate concretes having densities greater than 90 lbs. per cubic foot may be acceptable under resilient flooring.
b. Concrete slabs with heavy static and/or dynamic loads should be designed with higher strengths and densities to support such loads.
c. Surface must be permanently dry, clean, and smooth, free of all dust, and structurally sound.
d. Perform Bond testing to determine compatibility of adhesive to the substrate. Shaw 9050 primer can be utilized to promote adhesion.

Radiant Heating: Radiant-heated subfloor systems can be concrete, wood or a combination of both.

The heating systems components must have a minimum of 1/2" separation from the flooring product. The system must be on and operational for at least 2 weeks prior to installation to reduce residual moisture. Three days prior to installation lower the temperature to 65 degrees, after installation gradually increase the temperature in increments of 5° F to avoid overheating. Maximum operating temperature should never exceed 85°F. Use of an in-floor temperature sensor is recommended to avoid overheating. Contact the manufacturer of your radiant heating system for further recommendations.

- *Electric Radiant Floors*: consist of electric cables (or) mats of electrically conductive materials mounted on the subfloor below the floor covering. Mesh systems are typically embedded in thin-set. When embedding the system components, use cementitious patching and leveling compounds that meet or exceed Shaw's maximum moisture level and pH requirements. Use of gypsum-based patching and/or leveling compounds which contain Portland or high alumina cement and meet or exceed the compressive strength of 3,000 psi are acceptable.
- *Hydronic Radiant Floors*: pump heated water from a boiler through tubing laid in a pattern under the flooring. Typically installed in channels under a wooden subfloor (or) imbedded in concrete slabs. Requires the installer follow a specific nailing pattern to avoid penetration of the heat system.

Resilient Floor Covering

1. Must be single layered, non-cushion backed, fully adhered, and smooth.
2. Show no signs of moisture or alkalinity.
3. Waxes, polishes, grease, grime, and oil must be removed.
4. Cuts, cracks, gouges, dents and other irregularities in the existing floor covering must be repaired or replaced.
5. Embossing leveler recommended to aid in proper bonding and to prevent telegraphing.
6. Do not install over rubber based substrates.

NOTE: THE RESPONSIBILITY OF DETERMINING IF THE EXISTING FLOORING IS SUITABLE TO BE INSTALLED OVER TOP OF WITH RESILIENT, RESTS SOLELY WITH INSTALLER/FLOORING CONTRACTOR ON SITE. IF THERE IS ANY DOUBT AS TO SUITABILITY, THE EXISTING FLOORING SHOULD BE REMOVED, OR AN ACCEPTABLE UNDERLAYMENT INSTALLED OVER IT. INSTALLATIONS OVER EXISTING RESILIENT FLOORING MAY BE MORE SUSCEPTIBLE TO INDENTATION.

Quarry Tile, Terrazzo, Ceramic Tile, Poured Floors (Epoxy, Polymeric, Seamless)

a. Must be totally cured and well bonded to the concrete.
b. Must be free of any residual solvents and petroleum derivatives.
c. Waxes, polishes, grease, grime, and oil must be removed.
d. Show no signs of moisture or alkalinity.
e. Cuts, cracks, gouges, dents, and other irregularities in the existing floor covering must be repaired or replaced.
f. Fill any low spots, holes, chips and seams that may telegraph through the new flooring.
g. Grind any highly polished or irregular/smooth surfaces. Quarry tile or Ceramic tile grout joints and textured surfaces must be filled with an embossing leveler or substrate manufacturer approved material.

4. SHAW ADHESIVES & PRIMER

NOTE: DO NOT use adhesive as a pressure sensitive adhesive. Installation of planks requires a semi-wet installation. This will require determining the amount of adhesive spread and product installed to achieve adequate transfer and bond of adhesive to product and substrate. Refer to adhesive guidelines for additional information.

Open Time/Flash Time: Open time begins at the time of adhesive application to the period the adhesive is ready to accept flooring.

Working Time: Working time begins at the start of installation of flooring until the adhesive is inactive, too dry, or past working time stated by the adhesive guidelines.

Recommended Adhesives: Shaw 200 (or comparable adhesive)

Trowel Size: 1/16"x1/32"x1/32" U-Notch

Prior to application of adhesive determine if the substrate is a porous or non-porous substrate. Follow instructions on the adhesive label for porous or non-porous subfloor.

IMPORTANT: Recommended to perform a bond test in order to determine adhesive working time per job site conditions. The strength of the bond test will indicate whether Shaw 9050 floor primer is necessary.

5. INSTALLATION

General

a. Ensure that moisture tests have been conducted and that the results do not exceed the acceptable moisture limit for the adhesive used.
b. PH of concrete sub-floor needs to be between 5&10.
c. Do not stack more than 5 cartons high.
d. Use appropriate trowel size regarding substrate porosity
e. Material should always be visually inspected prior to installation. Any material installed with visual defects will not be considered a legitimate claim as it pertains to labor cost.
f. Install tiles running in same direction.
g. Ensure that all recommendations for sub-floor and jobsite conditions are met prior to beginning the installation. Directional designs are optional, however, once the installation is started, you have accepted those conditions.

LAYOUT AND INSTALLATION GENERAL RULES

a. Shaw tile and plank - Install using conventional tile and plank installation techniques. Plank products should have a minimum of 6 – 8" seam stagger.
b. Carefully determine where to begin tile or plank installation.
c. It is customary to center rooms and hallways so borders are not less than half a tile or plank.
d. Working out of multiple boxes at a time is recommended.
e. In hallways and small spaces, it may be simpler to work lengthwise from one end using a center reference line as a guide.
f. Make sure cut edges are always against the wall.
g. To properly cut LVP products score the top side of the material with a utility knife. Bend the product and finish the cut through the backside. This will ensure the cleanest cut. It may be necessary to use a heat gun to cut around vertical obstructions. Allow the heated LVP to return to room temperature before installation.
h. Cutting the product into a fine point may lead to delamination. Use an ethyl cyanoacrylate based super glue to help fuse the LVP point together. Be sure to clean all glue from the top surface immediately. Alcohol based super glues may cause vinyl to swell.
i. For random width plank begin installation with the widest plank first.

NOTE: Recommended to use floor protection after installation. **DO NOT** use a plastic adhesive based protection system.

CLEANUP

Clean tools and hands with cold water before material dries.

CARE & MAINTENANCE

Mold and Mildew can grow on dirt, food, and soap scum that can accumulate on the grout surface. Routine cleaning will limit mold and mildew growth.

SAFETY

Avoid eye contact or prolonged contact with skin. Wash thoroughly after handling. If eye contact occurs, flush with water for 15 minutes and consult a physician.

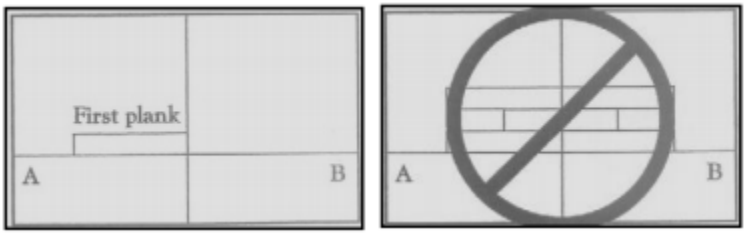
INSTALLATION FOR VINYL PLANKS

Layout of the Room

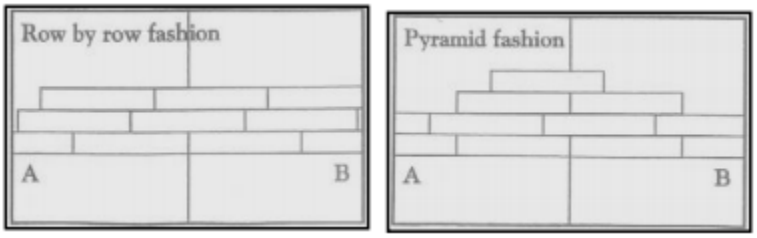
1. Find the center point of the room. Strike a line.
2. Obtain a true 90’ angle by using a carpenter’s square.

3. Strike a second line which will divide the room in to four equal parts.
4. Measure the distance from the center to the wall, parallel to the direction of the plank.
5. Divide the measurement by the width of the plank. If less than half remains as the border plank, adjust the point to compensate. This will give a larger border along the wall and reduce the chance of having to cut a small sliver of flooring to place along the wall.

Layout of the Plank



a. Carefully place the first piece of plank at the junction of the chalk lines.
b. Continue to lay the plank, making sure each plank flush against the chalk line and tight against the adjoining plank.
c. Make sure the plank is well seated into the adhesive paying special attention, to the edges. Lay row by row, or in a pyramid fashion as shown below.



Fitting the Border

a. Measure the distance from the last plank in the row to the wall.
b. Mark the plank and cut it against the mark.
c. Lay the plank in place, making sure that the cut edge is against the wall.

Fitting Around Irregular Objects

a. Make a pattern out of heavy paper to fit around pipes and other irregularities.
b. Place the pattern on the plank, trace cutting along the trace lines.

IMPORTANT: All flooring must by rolled with a minimum 100-lb roller after installation. Use a hand roller in areas not reached with a 100-lb. roller.

Note: Do not use tape to secure floor protection during construction or renovation. Use ram board or similar to protect the floor.