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Commercial Sheet

Installation Guidelines

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1. TEST BEFORE STARTING INSTALLATION

CONCRETE SUBSTRATES

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

New and existing concrete subfloors should meet the guidelines of the latest edition of ACI 302 and ASTM F 710, “Standard of 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>.

- a. 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.
- b. Concrete floors shall be flat and smooth within 1/8” in 6 feet or 3/16” in 10 feet.
- c. F-Number System: Overall values of FF 36/FL 20 may be appropriate for resilient floor coverings.
- d. ASTM F 2170 IRH (Internal Relative Humidity) are required for the Shaw warranty. Three tests should be conducted for areas up to 1000 SF. One additional test, for each additional 1000 SF.

Use only Portland based patching and leveling compounds. Do not install Shaw resilient flooring over gypsum based patching and/or leveling compounds.

LIGHTWEIGHT CONCRETE

Internal Relative Humidity – Tests should be performed per the latest edition of ASTM F 2170.

- a. Three internal relative humidity tests should be conducted for areas up to 1000 SF. One additional test, for each additional 1000 SF.
- b. Surface must be dry, clean, smooth, free of all dust and structurally sound.



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WOOD SUBSTRATES:

- a. Wood subfloors must be structurally sound and in compliance with local building codes.
- b. Wood subfloors should be suspended with a minimum of 18" of well ventilated air space below.
- c. Crawl spaces must have a vapor barrier.
- d. Wood subfloors directly fastened to concrete, or sleeper construction, are not recommended.
- e. APA rated Sturd-I-Floor panels are designed as combination subfloor/underlayment, but exposure to construction conditions including weather may necessitate installation of a 1/4" underlayment panel prior to resilient flooring installation.
- f. SHAW resilient flooring is not recommended directly over fire-retardant treated plywood or preservative treated plywood. 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.

TEMPERATURE – AMBIENT

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

- Do not install resilient flooring products until the work area can be temperature controlled.
- Minimum installation temperature is 65°F with a maximum installation temperature of 85°F.

TEMPERATURE – RADIANT HEAT

Radiant heated substrates must not exceed 85°F (29°C) surface temperature.

- Several days prior to installing resilient products over newly constructed radiant heated systems, make sure the radiant system has been on and operating at maximum temperature to reduce residual moisture within the concrete.
- Three days prior to installation lower the temperature to 65°F. 24 hours after installation, gradually increase the temperature in increments of 5°F to avoid overheating.
- After continuous operation of the radiant system, ensure the surface of the floor does not exceed 85°F.
- Use of an in-floor temperature sensor is recommended to avoid overheating.

PH

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

- Surface pH reading must be between 5 and 10.
- Rinsing the surface with clear water is the best way to lower alkalinity. "DAMP MOP"

Note: It may not be the floor covering installer's responsibility to conduct the 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. JOB SITE CONDITIONS

- a. It is recommended that resilient floor covering installation shall not begin until all other trades are completed.
- b. Areas to receive flooring shall be clean, fully enclosed, with the permanent HVAC set at a uniform temperature range of 65°F to 85°F and maintained following the installation.
- c. Areas to receive flooring should be adequately lighted during all phases of the installation process.



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- d. Floors shall be smooth, permanently dry, clean and free of all foreign material such as dust, wax, solvents, paint, grease, oils, old adhesive residue, curing and hardening compounds and sealers.
- e. Working and open times vary based on job conditions, substrate, temperature and humidity.

3. MATERIAL STORAGE AND HANDLING

- a. When more than one roll of a color is being installed, all material should be from the same batch and the rolls must be installed in consecutive order. If material from more than one batch is to be used, the job should be laid out so that different batch numbers are not installed side by side.
- b. Flooring material and adhesive must be acclimated to the installation area for a minimum of 48 hours prior to installation.

4. SUBSTRATES

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, or parting compounds, alkaline salts, excessive carbonation or laitance, mold, mildew and other foreign materials that might prevent adhesive bond.

WOOD SUBSTRATES

- a. Double-layered APA rated plywood subfloors should be a minimum 1" total thickness, with at least 18" well ventilated air space beneath. Insulate and protect crawl spaces with a vapor barrier.
- b. Do not install over sleeper construction subfloors or wood subfloors applied directly over concrete.
- c. Underlayment panels can only correct minor deficiencies in the sub-floor while providing a smooth, sound surface on which to adhere the resilient flooring.
- d. Any failures in the performance of the underlayment panel rests with the panel manufacturer and not with Shaw Industries, Inc.
- e. 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.
- f. Always follow the underlayment manufacturer's installation instructions.

STRIP – PLANK WOOD FLOORING

Due to expansion and 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

- a. 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."
- b. On or below-grade slabs must have an effective vapor retarder directly under the slab.
- c. Wet curing 7 days is the preferred method for curing new concrete.
- d. Remove curing compounds 28 days after placement, so concrete can begin drying.
- e. Concrete floors shall be flat within 3/16" in 10 ft.
- f. F-Number System: Overall values of FF 36/FL 20 may be appropriate for resilient floor coverings.
- g. Internal relative humidity may not exceed 87% RH (Shaw 4100) or 90% (Shaw S150).



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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 accommodate such loads.
- c. Surface must be permanently dry, clean, smooth, and free of all dust and structurally sound.

WARNING! Do not sand, dry sweep, dry scrape, drill, saw beadblast or mechanically chip or pulverize existing resilient flooring, backing, lining felt, asphaltic “cutback” 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

RESILIENT FLOOR COVERING

- a. Must be single layered, non-cushion backed, fully adhered and smooth.
- b. Show no signs of moisture or alkaline.
- c. Waxes, polishes, grease and grime must be removed.
- d. Cuts, cracks, gouges, dents and other irregularities in the existing floor covering must be repaired or replaced.

Note: The responsibility of determining if the existing flooring is suitable to be installed over 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.

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 and grime must be removed.
- d. Cuts, cracks, gouges, dents and other irregularities in the existing floor covering must be repaired or replaced.
- e. Texture must be smooth.
- f. Show no signs of moisture or alkaline.



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OLD ADHESIVE RESIDUE

- a. If the adhesive residue is asphalt-based (cut-back) or any other type of adhesive is present, it must be dealt with in one of two ways:
 - It may be mechanically removed such as bead blasting or scarifying;
 - A self-leveling Portland based underlayment may be applied over it. Check with the underlayment manufacturer for suitability, application instructions and warranties.
- b. Never use solvents or citrus adhesive removers to remove old adhesive residue. Solvent residue left in and on the sub-floor may affect the new adhesive and the new floor covering.

WARNING! Regarding complete adhesive removal: some solvent based 'cut-back' asphalt-based adhesives may contain asbestos fibers that are not readily identifiable. Do not use power devices, which can create asbestos dust in removing these adhesives. The inhalation of asbestos dust may cause asbestosis or other serious bodily harm.

5. SHAW ADHESIVES

Shaw recommends the use of Shaw 4100 Adhesive, S150 Universal Aerosol Adhesive or equivalent

SHAW 4100 – solvent free resilient sheet, plank and tile adhesive

Shaw 4100 solvent free adhesive is an installer friendly, premium high strength (non-staining) acrylic adhesive, designed to permanently install SHAW flooring. SHAW 4100 may be used on all grades of concrete on, above or below grade in the absence of excess moisture, as well as suspended approved wood floors. SHAW 4100 may also be used for installing over existing, non-cushioned resilient flooring that has been prepared according to manufacturer's recommended methods. SHAW 4100 is non-flammable, water (87% RH) and alkali (10 pH) resistant and freeze-thaw stable. SHAW 4100 has excellent resistance to plasticizer migration and sets to a tough permanent bond. Zero (calculated) VOC's. CRI Green Label Plus Approved. SHAW 4100 must be used to receive Shaw's exclusive 5 year under bed warranty.

SHAW S150 – universal aerosol spray adhesive

Shaw S150 aerosol spray adhesive is a water-based aerosol adhesive recommended for installations of vinyl sheet, plank and tiles, vinyl composition tile or cove base over porous and non-porous substrates. It can be used in occupied buildings and greatly reduces the handling and application requirements associated with conventional adhesives. SHAW S150 demonstrates highly aggressive grab and shear strength, and has outstanding water (90% RH) and plasticizer resistance. The spray application eliminates the need for trowels and rollers. Zero (calculated) VOC's. CRI Green Label Plus Approved. SHAW S150 must be used to receive Shaw's exclusive 5 year under bed warranty.

6. INSTALLING RESILIENT SHEET VINYL PRODUCTS

Around Town

General:

- a. Ensure that moisture tests have been conducted and that the results do not exceed 87% In-Situ relative humidity (Shaw 4100 Adhesive) or 90% In-Situ relative humidity (Shaw S150 Spray Adhesive) when tested according to ASTM F 2170.
- b. pH of concrete sub-floor surface is no greater than 10.



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- c. The permanent HVAC system turned on and set to a minimum of 68°F (20°C) for a minimum of 72 hours prior to, during and after installation. After the installation, the temperature should not exceed 100°F.
- d. Flooring material and adhesive need to be acclimated to the installation area for a minimum of 48 hours prior to installation.
- e. Shaw recommends S150 Aerosol Adhesive spray or Shaw 4100 Acrylic adhesive.
- f. Use a 1/32" deep x 1/16" wide x 1/32" apart (U) notch trowel only, unless using S150 Spray Adhesive.
- g. **Material should always be visually inspected prior to installations. Any material installed with visual defects will not be considered a legitimate claim as it pertains to labor cost.**
- h. Shaw's sheet products are dimensionally stable. They will not shrink or compress. If cut too full, it may result in a bubble.
- i. Install all cuts and rolls in consecutive sequence.
- j. **Ensure that all recommendations for sub-floor and job site conditions are met prior to beginning the installation. Once the installation has started, you have accepted these conditions.**

CUTTING AND FITTING SHEETS

In most cases, a qualified installer will be able to freehand knife the material in areas where base or trim moldings will be installed after the installation is completed.

- a. Cut the required length off the roll, including enough to run up the wall 2" at either end.
- b. Push the length of the sheet as close to the starting wall as possible, letting the extra length run up the wall at the far end.
- c. Set the scribes to a minimum of 3/8" more than the greatest distance between the wall and the flooring material.
Freehand knife or scribe the shape of the wall onto the flooring.
- d. Push the fitted sheet lightly against the wall.
- e. Continue freehand knifing around the room.

Flash Cove Installations

- a. Flash coving is an extension of the sheet flooring up the wall to form a wall base.
- b. Seams in the flash coved areas should be treated the same as seams throughout the rest of the installation.
- c. 4"–6" flash coving is common. For all heights in excess of 6" check applicable local building codes.
- d. Use adhesive in flash coved areas. Use a brush or roller to apply adhesive to the wall and cove stick area.
- e. Adhesive must be allowed some open time, usually about 10–15 minutes.
- f. After fitting material into adhesive, use a hand roller to ensure contact with the adhesive.

Non-Pattern Seaming

Seams may be cut by straight edging or edge trimming one side, and recess scribing the second sheet.

- a. Do Not back roll vinyl backed floorings.
- b. Do Not seam factory edges.
- c. Do Not straight edge and seam, or edge trim and seam.
- d. Snap white chalk lines along areas where adhesive will be spread to ensure an even and straight line of adhesive.
- e. Spread adhesive uniformly. Be very careful not to leave any adhesive ridges or puddles.

Note: The sub-floor porosity and room conditions (temperature, humidity, etc.) can affect the working time of the adhesive.



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- f. Push/slide from the fold into adhesive. DO NOT FLOP MATERIAL IN—air will be trapped, causing bubbles.
- g. Roll floor with a 75-100 lb. roller in both directions. Roll across width first, then along length.

Note: To ensure proper bonding of the material, it is recommended to roll in the material next to the walls with a hand seam roller.

- h. After material has been laid into the adhesive, recess scribe the seams using either the scribe blade or scribe pin. Hold the knife blade straight up and down to make final cut. DO NOT UNDERCUT.
- i. Roll the seam with a hand roller.
- j. Repeat the same procedure for additional seams in the room.
- k. Heat welding Shaw sheet flooring is always recommended.

Pattern Seaming

- a. Overlap the salvage edges to align the pattern width and length. Align the edge of the planks.
- b. Place a 4" wide scrap of material under the seam area.
- c. Place a straight edge directly over the edge of the plank.
- d. Using a new razor blade, hold the knife straight up and down and cut through both pieces in one cut.
- e. Mark seam with pencil point.
- f. Measure 24" off the seam line and snap a chalk line. This will be your glue line, allowing a dry zone to work the seam.
- g. Spread adhesive uniformly. Be very careful not to leave any adhesive ridges or puddles.

Note: The sub-floor porosity and room conditions (temperature, humidity, etc.) can affect the working time of the adhesive.

- h. Push/slide from the fold into adhesive. DO NOT FLOP MATERIAL IN—air will be trapped, causing bubbles.
- i. Roll floor with a 75-100 lb. roller in both directions. Roll across width first, then along length.

Note: To ensure proper bonding of the material, it is recommended to roll in the material next to the walls with a hand seam roller.

- j. Fold back seam area. Apply adhesive to dry zone.
- k. After appropriate open time, slide first side carefully into adhesive.
- l. Heat welding Shaw sheet flooring is always recommended.
- m. If seam sealer is chosen:
 - Apply a small bead of Shaw 4062 Seam Sealer.
 - Work the second edge into the bead of sealer.
 - Remove excess sealer with a plastic putty knife and a clean, damp cloth followed immediately with a clean, dry cloth. Repeat the process until all the residue is removed. Roll the seam with a hand roller.
 - Repeat the same procedure for additional seams in the room.

Note: When using S150 Aerosol Adhesive, heat weld can be done one hour after installation.



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HEAT WELDING

- a. Heat welding is the recommended procedure for Around Town seams, coving and corner fill pieces. Professionally heat welded seams provide a strong, watertight, hygienic, monolithic surface.
- b. The welding rod (4 mm) is designed to melt at the same temperature as the sheet flooring, permanently thermally fusing the two together.
- c. Heat welding should be done after the flooring adhesive has set up, usually the following day unless using S150 Spray Adhesive which allows for heat welding after one hour of installation.
- d. Seam edges should be tight, but not compressed, and vertical. Wide gapped or undercut seams will prevent quality welds.
- e. The depth of the groove should be 1/2 to 2/3 the thickness of the material. Be careful not to go too deep. The groove must also be centered along the two edges. This is very important to ensure proper strength and bonding of the welding rod.
- f. Clean grooves thoroughly of all foreign contamination, including dust.
- g. Use only professional quality welding equipment that will maintain sufficient temperatures. Many types, sizes and styles of welding tips are available today. A tip must be chosen to produce a quality weld without damaging the appearance of the sheet vinyl.
- h. Preheat welding gun before beginning. Practice on a scrap piece to fine tune temperature and pace for type of substrate and site conditions. Long extension cords may affect welding temperature settings.
- i. Determine the correct welding speed by ensuring that the welding rod actually fuses into the groove. A small ridge must form on either side of the welding rod, at the vinyl surface. If no ridge forms, you have not heat welded the seam.
- j. While the welding rod is still warm, trim off 1/2–2/3 the excess rod with a spatula knife and trim plate in one continuous movement.
- k. After the rod has cooled to room temperature, make the final trim pass using only a razor sharp spatula knife or skiving tool in one continuous movement.

7. MAINTENANCE

When performing any wet maintenance, always use wet floor signs.

Newly Installed Floor Care

- a. Keep all foot traffic off the new floor for 12 hours. When using S150 Spray Adhesive, material can be walked on immediately.
- b. Keep furniture, fixtures and rolling traffic off the new floor for 36 hours when using Shaw 4100; when using S150 Spray, avoid rolling traffic for 24 hours.
- c. Remove adhesive residue with a clean white cloth dampened with mineral spirits.
- d. Use 1/4" or thicker plywood to protect the surface when moving heavy objects across the new floor.
- e. Lightly damp mop the floor as needed.
- f. Wait 4 days before wet washing and scrubbing the new floor.



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Initial Maintenance

- a. Sweep, vacuum or dust mop to remove dirt and grit.
- b. If needed, add neutral cleaner to cool water following the manufacturer's instructions.
- c. Scrub with a low-rpm machine or auto scrubber. Use a red pad or brush.
- d. Never use brown or black pads (too aggressive and can damage the product)
- e. Remove the cleaning solution with a wet-dry vacuum or auto scrubber until the floor is dry.
- f. Rinse the floor with clean water. Repeat the rinse process if necessary to remove all haze.

Routine Maintenance

- a. Sweep, vacuum or dust mop to remove dirt and grit.
- b. Add neutral pH cleaner to cool water following the manufacturer's instructions.
- c. As needed, scrub with a low-rpm machine or auto scrubber to retain appearance. Use a red (light scrubbing) pad and neutral cleaner following the manufacturer's instructions.

Preventative Floor Care

- a. Use walk-off mats that are as wide as the doorway and long enough for soil load and weather conditions.
- b. Use mats with a non-staining backing.
- c. Floor protectors should be used on all furniture legs.
- d. The surface area of the floor protectors should be no less than 1" in diameter.

For a list of recommended maintenance products contact Shaw Inforum: 1-877-502-7429

8. LIMITED WARRANTY

Shaw warrants its sheet, tile and welding rods to be free from manufacturing defects for ten years from the date of purchase.

Shaw does not warrant installers' workmanship. Workmanship errors should be addressed to the contractor who installed the floor. Your Shaw commercial floor should be professionally installed by contractors who have demonstrated expertise in installing commercial floors

For complete warranty information, limitations and terms and conditions please call Shaw Inforum: 1-877-502-7429.