Mats Inc. Installation Instructions for Floorworks® Planks and Tiles

These instructions supersede any verbal or written instructions from Mats Inc. representatives,

1. INTRODUCTION

1.1 Floorworks® planks and tiles meet the requirements of ASTM F 1700, *Standard Specification for Solid Vinyl Floor Tile.* These products are recommended for indoor use only.
1.2 Floorworks® products shall be installed by experienced professional installers with a minimum of five years experience installing commercial resilient floor covering products. Training programs such as those offered by International Standards & Training Alliance (INSTALL) are recommended.
1.3 Substrate testing and preparation shall follow industry standards (quoted herein in italics) and the following installation guidelines. For situations that are not covered in this document, contact Mats Inc. directly.

2. MATERIAL HANDLING AND STORAGE

2.1 Upon receipt of floor covering, immediately remove from pallet. If cartons are damaged, mark shipping documents as such before signing for the shipment. Contact shipper and/or Mats Inc to report damage.
2.2 Floorworks® products shall be stored flat and parallel. Do not store on edge.
2.3 If material is distorted or otherwise damaged during storage or transportation, do not install.
2.4 Protect all materials, including but not limited to, underlayment panels, patching/leveling compounds, floor covering, welding rods, chemical welding liquid, adhesive, and maintenance products from extremes of temperature during shipping.
2.5 Open ends of product cases and store in original packaging on the job site where they are to be installed. Areas shall be enclosed and weather tight, at 65°F - 80°F for a minimum of 48 hours prior to commencement of installation.
2.6 Inspection of materials: Great care is taken to properly label and inspect materials for defects at all phases of manufacturing and handling by Mats Inc. However, in the rare case where the wrong product or material with visible defects is shipped, these products shall not be installed. Careful inspection of the product before installing is the responsibility of the installer. Installation of the product denotes acceptance of the product. Mats Inc. will not honor any warranty complaints for materials installed in the wrong color, with visible defects or other damage.

3. SUBSTRATE PREPARATION AND TESTING

3.1 All substrates must be sound, clean, permanently dry, smooth, and free of cracks and contaminants including paint, old adhesive, curing compounds, oil, grease, wax, asphalt, or other contaminants that could affect the adhesive bond. Any irregularities in the substrate will telegraph (show through) to the finished floor.
3.2 Concrete Substrates:

3.2.1 Follow guidelines of ASTM F710 *Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring*.* ASTM F710 includes requirements for moisture testing, smoothness, flatness, concrete strength, and the presence of a vapor retarder beneath the slab.
3.2.2 *The installation of a permanent, effective moisture vapor retarder with a minimum thickness of 0.010 in. and a permeance of 0.1 y, as described in Specification ASTM E1745 is required under all on- or below-grade concrete floors. The use of such a moisture vapor retarder, provided its integrity has not been compromised, reduces potential severity of water vapor penetration. Every concrete floor slab on or below grade to receive resilient flooring shall have a water vapor retarder (often improperly called a vapor barrier) installed directly below the slab.**
3.2.3 *Joints such as expansion joints, isolation joints, or other moving joints in concrete slabs shall not be filled with patching compound or covered with resilient flooring.**
3.2.4 *All concrete slabs shall be tested for moisture, regardless of age or grade level.** The only acceptable test methods are the Calcium Chloride test (ASTM F1869) and Relative Humidity test (ASTM F2170). Moisture meters, plastic sheet test or other methods are not acceptable for determining the suitability of concrete slabs to receive resilient floor coverings. It is recommended testing be conducted by a qualified independent testing agency with experience conducting ASTM F1869 and ASTM F2170 testing. Test procedures shall be followed exactly in order for test results to be valid. Building shall be at in-service temperature and humidity, concrete shall be properly cleaned, and recommended number of tests shall be conducted. See ASTM standards for details.
3.2.5 Test methodology and test results shall be documented and provided to the flooring contractor, general contractor, owner and/or architect.

3.2.6 If concrete moisture conditions are outside the adhesive manufacturer's limits per section 5, do not commence installation. Allow the concrete to fully dry or apply a 100% solids epoxy Moisture Mitigation System. Although Mats Inc. does not endorse or prefer any manufacturer in particular, we provide the following list of leading Moisture Mitigation System manufacturers for information purposes.

Ardex: 724.203.5000 (www.ardex.com)
Bostik: 978.777.0100 (www.bostik-us.com)
Koester: 757.425.1206 (www.koesterusa.com)
Mapei: 800.426.2734 (www.mapei.us)

3.3 Wood Substrates:

3.3.1 For wood subfloor systems, ensure the subfloor conforms to the guidelines of ASTM F1482, *Guide to Wood Underlayment Products Available for Use Under Resilient Flooring*. A typical wood subfloor system includes a joist spacing of 16" on center with a double layer subfloor/underlayment system - minimum one inch thickness.

3.3.2 Wood subfloor systems shall be suspended at least 18" above the ground. Crawl spaces shall have adequate cross ventilation and a moisture barrier shall be used on the ground to reduce humidity from ground moisture.

3.3.2 Do not install Mats Inc. products over lauan panels, plywood with knots, OSB, hardwood flooring, treated wood (i.e. CCA, fire-rated plywood, or other coated wood), particle board, chipboard, flakeboard, fiberboard, Masonite™, pressboard, or other hardboard underlayment, or other uneven or unstable substrates. To cover unsuitable substrates in a wood subfloor system, use underlayment grade plywood (i.e. arctic birch panels or A/C plywood).

3.3.3 Consult ASTM F1482 or underlayment manufacturer for recommendations regarding plywood thickness, fastener selection and spacing and conditioning of panels.

3.4 Gypsum Substrates:

3.4.1 Do not install over trowel applied gypsum patching compounds.

3.4.2 Do not use poured gypsum underlayment over concrete slabs on or below grade

3.4.3 Compressive Strength: Gypsum underlayment, *for commercial installations, shall provide a minimum of 3000 psi compressive strength after 28 days.** If the finished floor will be in a commercial use, this standard must be followed. Underlayment shall be mixed according to manufacturer's guidelines.

3.4.4 Drying Time: Manufacturer's recommended drying time and recommended testing method for dryness shall be followed. Usually a specific moisture meter is recommended by the manufacturer. The calcium chloride test method is not acceptable for testing gypsum underlayment.

3.4.5 Sealer/primer: After drying and prior to installing adhered floor coverings, Gypsum underlayment shall be sealed/primed per the underlayment manufacturer's instructions for covering the underlayment with adhered floor coverings. If the underlayment is not sealed, the surface will be overly porous and the floor covering adhesive will not work correctly.

3.4.6 Patching or "skimcoating" over gypsum substrates: There are a number of patching compounds that can be used over gypsum underlayment. Follow compound manufacturer's instructions for doing so. It may be necessary to prime the gypsum substrate prior to patching.

3.5 Do not install over existing resilient floor coverings.

3.5.1 Concrete Subfloors: Existing resilient floor coverings and adhesives over concrete shall be removed and the concrete shall be repaired using a cement based patching or leveling compound per manufacturer's guidelines. All adhesive residues must be removed prior to installing. Also remove any floor patch below the adhesive layer. DO NOT USE CHEMICAL ADHESIVE REMOVERS. Black asphaltic adhesive can be scraped to a thin, well-bonded residue and encapsulated with an approved patching or leveling compound per manufacturer's instructions. All other adhesives (carpet adhesive, VCT adhesive, epoxy, etc) shall be completely removed from concrete substrates.

3.5.2 Wood Subfloors: Existing resilient floor coverings and/or adhesive residue over a wood subfloor system shall be covered with a plywood underlayment per section 3.3.

3.5.3 NOTE: If removal of existing resilient flooring or adhesive is required, follow "Recommended Work Practices for Removal of Resilient Floor Coverings" available from the Resilient Floor Covering Institute at 706-882-3833 or www.rfci.com. Also, be aware that existing floors and/or adhesives may contain asbestos

or lead. Various federal, state, and local government agencies regulate the removal of lead or asbestos containing material. Review and comply with all applicable regulations.

3.6 Other substrates such as terrazzo, stone, ceramic tile, metal shall be covered with cement based underlayment compound per the manufacturer's instructions and ensure compliance with ASTM F 710 for use of these compounds.
3.7 Do not install over non-compatible substrates such as asphalt, any bituminous or asphalt-saturated material, or floor coverings made of (or containing) rubber.
3.8 Radiant Heat. *Most resilient flooring can be installed on radiant heated slabs providing the maximum temperature of the surface of the slab does not exceed 85°F (29°C) under any condition of use.** To allow proper adhesion of the adhesive to the subfloor, the radiant heating system should be lowered, or turned off for at least 48 hours prior to installation of the flooring material. The room temperature must be maintained at a minimum of 65°F prior to, during and after installation for 72 hours after which the temperature of the radiant heating system can be increased. When raising the floor temperature, do so gradually so that the substrate and the flooring material can adapt to the temperature change together. A rapid change could result in bonding problems.

4. SITE CONDITIONS
4.1 Install new floor coverings after all other trades have completed their work.
4.2 Protect areas where floor covering shall be installed from all traffic before, during and after installation.
4.3 Extremes of temperature and humidity can affect floor covering products and can alter the proper cure of patching compounds and adhesives. Building shall be between 65°F and 80°F for 48 hours before installation, during installation and for 48 hours after installation. Thereafter maintain minimum 55°F. Maintain relative humidity of 35% - 65%.
NOTE: If a system other than a permanent HVAC system is utilized, it must provide constant temperature and humidity control at specified levels for the specified time frame.
4.4 Maximize fresh air ventilation by using exhaust fans at point of use. Face fans out of the area where flooring is being installed, not into the area. Never force dry adhesives or patching compounds by using fans.

5. ADHESIVES AND ACCESSORIES
5.1 Depending on the use of the finished floor and the site conditions, different adhesives can be used for installation of Floorworks® Vinyl tiles and planks including Mats Inc. Perma-Bond premium vinyl tile adhesive, Mats Inc. Perma-Spray 2000 adhesive and Mapei Ultrabond G21 premium two-part urethane adhesive. All adhesives require the use of a 100 lb roller after the tile is set to ensure that the product is firmly set into the adhesive.
5.2 Prior to installing, test for porosity. Plywood substrates and most patching/leveling compounds are considered porous. However, most concrete slabs are not porous so test first by sprinkling small amounts of water on the substrate. If the drops are absorbed, follow the instructions for porous substrates. If they remain on the surface, follow instructions for non-porous substrate.

5.3 Mats Inc. Perma-Bond instructions:
5.3.1 Methods for using Mats Inc. Perma-Bond adhesive on porous substrates include "wet set" (see section 5.3.3), "pressure sensitive" (see section 5.3.4). Use "pressure sensitive" method on non-porous substrates, (see section 5.5.4). Coverage is approximately 160-260 square feet per gallon depending on porosity of substrate. Use a 1/32" x 1/32" x 1/32" v-notch trowel on non-porous substrates and a 1/16" x 1/16" x 1/16" square notch trowel on porous substrates.
5.3.2 Concrete test requirements for installations using Mats Inc. Perma-Bond adhesive:
ASTM F1869: maximum MVER of 6 lbs/1000 sq ft/24 hrs
ASTM F2170: internal relative humidity of 82% or less
5.3.3 "Wet Set" installation method (short open time):
Apply adhesive with the recommended trowel and allow approximately 10 minutes open time before installing flooring. Apply adhesive in small areas at a time so that the adhesive is wet to the touch before installing the floor covering and there is full transfer of adhesive to the back of the material. Periodically use a finger to test the adhesive to see if it has "strings" and is moist to the touch before installing the floor covering. If there is no adhesive transfer to a finger, do not set the material into the adhesive, it has been open for too long. Remove the adhesive and spread new adhesive. Install material while staying off freshly installed material to minimize shifting, adhesive displacement, and wet adhesive oozing between the joints.

For tile installations, since it takes time to scribe and cut the border tiles; first spread the adhesive only where the full pieces will be laid. When the field of full tiles is complete, scribe and cut the border tiles before the adhesive is spread.

5.3.4 "Pressure Sensitive" installation method (long open time):
Apply adhesive with the recommended trowel and allow the adhesive to become tacky before beginning the installation (adhesive should not transfer to the finger when touched). Set-up time will vary with the temperature, humidity, and porosity of the substrate. To test, touch the adhesive lightly; if it does not transfer to your finger, proceed with the installation. Place material into the adhesive within two hours of spreading. Place carefully and accurately because material cannot be repositioned easily.

5.4 Mats Inc. Perma-Spray 2000 adhesive has high tolerance for elevated moisture and pH, has a longer working time than other adhesives, allows for immediate traffic access after installation is complete, and may decrease installation time.

5.4.1 Mats Inc. Perma-Spray 2000 covers approximately 160-190 square feet per can, has high tolerance for elevated moisture and pH, has a longer working time than other adhesives, allows for immediate traffic after installation is complete, and may decrease installation time.

5.4.2 Concrete test requirements for installations using Mats Inc. Perma-Spray 2000 adhesive:

ASTM F 1869: maximum MVER of 7 lbs/1000 sq ft/24 hrs
ASTM F 2170: internal relative humidity of 85% or less
pH test: between 7.0 and 11

5.4.3 Carefully clean the substrate by vacuuming and/or sweeping before applying adhesive to be sure it is clean and dust free.

5.4.4 Apply the adhesive per instructions on can and allow adhesive to dry until there is no adhesive transfer when lightly touched. High humidity and/or low temperature increases tack time. Open time is 8 hours after application. While open, ensure that adhesive is not contaminated by dust. Once the adhesive is dry, install material.

5.5 Mapei Ultrabond G21 premium two part urethane adhesive is preferred for Floorworks® installations where the finished floor will be frequently washed or wet, subjected to extreme hot or cold temperatures, subject to heavy static or rolling loads and/or for floors that have custom designs, logos, and other floors with small pieces.

5.5.1 Mapei Ultrabond G21 covers approximately 185-245 square feet/gallon.

5.5.2 Concrete test limits for installations using Mapei G21:

ASTM F 1869: maximum MVER of 5 lbs/1000 sq ft/24 hr and
ASTM F 2170: internal relative humidity of 75% or less

5.5.3 Apply Mapei Ultrabond G21 using a 1/32" x 1/32" x 1/32" Trowel. Wear rubber gloves and avoid skin contact during mixing, application and cleaning.

5.5.4 Mix adhesive using a low speed mixer according to manufacturer's instructions, pouring all of Part B (liquid) into Part A (paste). Do not allow the mixed product to sit in the container. Immediately after mixing, apply the adhesive to the substrate. Do not spread more adhesive than can be covered with floor covering within 40 minutes. Apply the adhesive uniformly using the recommended trowel and application rate.

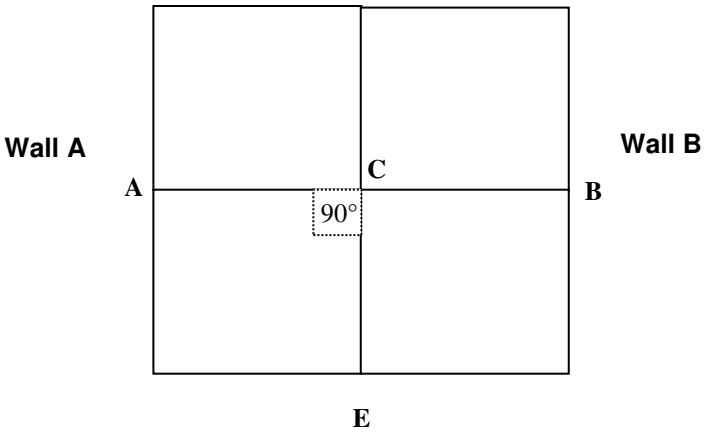
5.5.5 After spreading the adhesive immediately install the flooring material into the adhesive while it is still fresh.

6. INSTALLATION

6.1 Thoroughly sweep and/or vacuum the substrate to remove all dirt and debris.

6.2 Follow the layout specified by the end user, architect, or designer. Floorworks® tiles can be laid out to run either parallel or diagonal to the room or primary wall. Install product running in the same direction (block or staggered) or quarter turned as specified. Floorworks® products can be installed in a random design or in a set pattern as desired. It is advisable in all cases to "dry lay" a section of floor prior to spreading adhesive so that the owner/specifier can accept the design.

6.3 Measure and mark guidelines on the floor in pencil or chalk. Draw the center line as illustrated in the diagram below: snap a chalk line from the middle of wall A to the middle of wall B. Find the center of line A-B (point C). Draw a perpendicular line through C using the 3:4:5 method to find line D-E.



6.4 Starting at center point C, measure out the length and width to the walls to make sure you will have at least a half of a tile at the border. Adjust lines A-B and D-E if necessary.

6.5 Dry lay tiles before beginning to be sure the pattern appears as specified and is approved. Mark guide lines on the floor in pencil or chalk.

6.6 Start from the center of the room ensuring that the tile is laid exactly along the chalk lines. Work outward from the first tile in a pyramid fashion, until the first quarter is finished. Make sure that tiles do not run off the guide lines. Firmly butt each tile to the prior tile(s) laid. If the first few tiles are not installed correctly, it will affect the entire installation. Never bend or force tiles into place. In corridors and small areas, it may be simpler to work lengthwise from one end, using the center line as a guide.

6.7 Placing a cut edge against the uncut edge of another piece of tile or plank may not look natural. Cut edges using a sharp knife and a straight edge for a tight fit and a smooth edge. In border areas where tile/plank edges will be covered with moldings, a tile cutter or a utility knife can be used.

6.8 When using the “wet set” method over porous substrates, first spread the adhesive only where the full tiles will be laid. When the field of full tiles is complete, scribe and cut the border tiles before the adhesive is spread.

6.9 Once lines are established and the floor is clean, apply adhesive according to section 5.

6.10 Roll the floor with 100 lb floor roller, and then allow the adhesive to dry and cure without traffic for a minimum 24 hours.

7. CLEAN UP AND FINAL FINISH

7.1 Covering exposed edges of flooring is recommended including base molding on the walls around perimeter of room and protective molding at doorways or areas where the new flooring will fit against existing flooring.
7.2 Maintain the room temperature between 65°F and 80°F for 48 hours before installation during installation and for 48 hours after installation. Thereafter, maintain temperature at a minimum of 55°F.
7.3 Check appearance of entire installation. Use a white cloth moistened with water to remove any adhesive on the surface of flooring or walls.
7.4 Sweep or vacuum to clear the area of debris and grit. Do not use a “beater bar” vacuum.
7.5. Traffic on the newly installed floor:

7.5.1 When using Mats Inc. Perma-Spray 2000 adhesive, the floor is ready for use as soon as the floor is rolled.

7.5.2 When using Mats Inc. Perma-Bond 2000 or Mapei Ultrabond G21 adhesive, do not permit foot traffic on the new floor for 12 hours and wait 36 hours before allowing rolling traffic and furniture placement.

7.6 Protection of the floor: If construction is to continue after the floor is installed, cover with brown Kraft paper to protect from soil and foot traffic. If floor will be exposed to rolling traffic, cover the Kraft paper with plywood or hardboard panels. Do not roll heavy equipment or furniture directly on top of the newly installed floor. To move furniture and equipment across the floor, wait 36 hours after the floor is installed. Sweep or vacuum the floor, cover with brown Kraft paper and plywood or hardboard panels.
7.7 If sealing the floor has been recommended, follow the latest version of the Mats Inc. Floorworks® maintenance instructions available from www.matsinc.com.

8. INITIAL MAINTENANCE
8.1 Initial Cleaning: The newly installed floor can be swept and damp mopped. Do not wet clean the floor for at least 4 days.
8.2 Maintenance shall follow the latest version of the Mats Inc. maintenance instructions for Floorworks®, available from www.matsinc.com. To comply with MI Life Preserver™ Extended Warranty, use MI Sealer according to instructions. For other types of cleaners and floor finishes, see maintenance instructions.
8.3 Entrance matting: Because 90% of all dirt in a building comes in on footwear, Mats Inc. strongly recommends installing and maintaining entrance matting (preferably permanently installed) at all outdoor entrances (20-30 linear feet for major entrances; less for infrequently used entrances). Doing this will improve indoor air quality, reduce flooring maintenance costs, and lengthen the life of your floors.
8.5 Furniture: To minimize the chance of damage, proper glides must be used on chairs and other furniture that may side directly across the floor. Chairs shall have glides that are a minimum of 1 inch in diameter. Heavy objects such as equipment, appliances, fixtures and heavy furniture shall not be moved directly across the floor. Using protective boards will reduce the chance of damage in these cases.
8.6 Sunlight: Direct sunlight can damage most interior finishes so proper protection in the form of window coverings is recommended

*ASTM F 710 *Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring*, ASTM International, West Conshohocken, PA, 2003, www.astm.org.