

INSTALLATION INSTRUCTIONS

GENERAL

Contact Technical Services for guidance about sub-floor testing and installation recommendations. Technical Services can be reached at 855-372-7546.

- **DO NOT MIX DYE LOTS OR RUNS IN ANY ONE ROOM OR AREA.**

These instructions cover all fully adhered installations for luxury vinyl dry back and loose lay. All recommendations are based on the most recently available information. The information on these sheets provides general guidelines and instructions which must be followed for a satisfactory installation.

The installation is straightforward and similar to the installation procedures that apply to all quality resilient plank floors. Good preparation is essential for a trouble-free installation. Do not install until jobsite testing and subfloor preparations are finished and the work of all other trades is complete. Site conditions must comply with the relevant building codes and local, state and national regulations.

- Vinyl flooring is recommended for use over properly prepared concrete, suspended wood, metal and other suitable substrates. Never install over residual asphalt type (Cutback) adhesive as “Bleed Through” may occur.
- Vinyl Flooring is not suitable for external installation or unheated locations.
- Vinyl Flooring and Adhesive must be at jobsite and subfloor must be acclimated to a stable condition before installation (See Job site testing).
- Foot traffic should be minimized for 24 hours; point loads and rolling traffic for 48 hours and should utilize minimal wet cleaning for 5 days.

- Vinyl Flooring should remain at a temperature between 55°F - 85° F (13°-29° C) during its service life.
- Adhesive types can have a significantly different moisture tolerance which can influence required subfloor preparation well as install time.
Padded backed products requires TM G100 pressure sensitive adhesive for all installations.
- **4 mm and 5 mm thickness flooring can be installed loose lay** with perimeter R88 spray or G100 Trowelable adhesive. However, for large areas, high traffic and commercial environments, we require a full-spread application of releasable R88 spray adhesive or trowel-applied G100 transitional PSA adhesive. Please use installation method specified by design firm or end user.
- Use of our R88 & G100 PSA releasable adhesives means that damaged tiles or planks can be easily removed and replaced. With spray adhesive, there is no adhesive cure time, so projects can be immediately occupied. TM 4 mm and 5 mm flooring contribute to a quieter environment and all patterns are no-wax, no-buff, no strip. Just sweep, vacuum or damp mop for long-lasting, colorfast and releasable floor.
- TM flooring is very easy to cut by scoring with a sharp blade and snapping or with a vinyl cutter. Avoid small perimeter pieces less than 6" in length and 3" in width.

MATERIAL RECEIVING, HANDLING & STORAGE

1. All floor covering products require care during storage and handling. It is important to store flooring products in a dry, temperature-controlled interior area.
2. The temperature range should be between 65° F - 85° F, and the relative humidity should be controlled and maintained between 35% to 55%.
3. Material must be conditioned for at least 48 hours before beginning the installation.
4. Flooring materials that are shipped in cartons must also be stored properly. Cartons must be kept squarely positioned on the pallet to prevent distortion of the contents and to be fully supported. Do not store close to exterior walls, in direct sunlight or near HVAC vents.
5. Stored cartons are to be protected from forklift and other traffic that can damage carton corners. If pallets need to be double stacked, use a 1.5" thick plywood in between the pallets.

6. Immediately remove all shrink wrapping to acclimate and verify materials delivered are correct style, color, quantity and damage free.
7. Report discrepancies immediately to TM at 855-372-7546. Claims for Installation of products installed with visual defects, mixed production runs, unapproved adhesive or incorrect style will not be honored.

JOBSITE TESTING

1. Before jobsite testing, the building envelope must be sealed (walls, roofing, windows, doorways etc., installed).
2. The installation area and materials to be installed shall be maintained at a minimum of 65°F (18.3°C) and a 85°F (29.4°C) for 48 hours before, during and for 48 hours after completion of the installation. Relative humidity level extremes should also be avoided. General recommended humidity control level is between 35–55%. If a system other than the permanent HVAC source is utilized, it must provide proper control of both temperature and humidity to recommended or specific levels for the appropriate time duration.
3. Test sites must be properly prepared and protected for the duration of testing to achieve valid results.
4. **Surface Flatness for all Subfloors:**
 1. **The surface shall be flat to 3/16" (3.9 mm) in 10 ft. (3050 mm) and 1/32" (0.8 mm) in 1 ft (305 mm).**
 2. To check flatness, place a 10 ft straight edge, string, laser level or use another suitable method on the surface and measure the gap.
5. **Concrete Subfloors:**
 1. **Concrete subfloors must be finished and cured, free of all sealers, coatings, finishes, dirt, film forming curing compounds, or other substances that may prevent proper bonding of the flooring materials (ACI 302.1 and ASTM F710).**
 2. Randomly check concrete subfloor for porosity using the drop water test. Place a 1-inch diameter drop of water directly onto the concrete subfloor. If the water droplet does not dissipate within 60 to 90 seconds, the subfloor is considered non-porous.

3. Concrete subfloors must have a minimum compressive strength of 3,000 psi. Concrete subfloors shall not consist of lightweight concrete or gypsum.
4. Moisture Testing: Perform either the preferred In-situ Relative Humidity (RH) Test (ASTM F2170) or the acceptable Moisture Vapor Emission Rate (MVER) Test (ASTM F1869). For acceptable moisture limits please refer to the specifications of the adhesive being used.
5. Alkalinity: Must test surface alkalinity (ASTM F710). A 7.0 to 9.0 pH is acceptable.
6. Wood Subfloors and underlayment panels shall have the moisture content tested using a suitable wood pin meter. Readings between the wood subfloor and underlayment should be within 3% and have a maximum moisture content of 14% or less.

MOISTURE SUPPRESSANT SYSTEM

Concrete subfloors that exceed adhesive specifications will require a Moisture Suppressant System. Due to complexities associated with moisture vapor transmission, emissions and movement of soluble salts (alkalinity) in concrete subfloors, we do not offer, recommend, or warranty a specific solution for excess moisture in concrete slabs. However, there are many companies that offer solutions with warranties for excess moisture in concrete slabs.

TM suggests that you reference the current ASTM F710, “Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring”.

SUBFLOOR PREPARATION

Careful subfloor preparation is vital for an excellent floor appearance and good tile/plank adhesion. The subfloor must be smooth, firm, flat, clean, dry, free from defects, and fit for purpose. A suitable smoothing compound should be used to ensure that no irregularities show through to the surface of the finished floor. In all cases, the subfloor must meet the moisture and pH requirements before installation.

Below and on-grade concrete subfloors must have a suitable vapor retarder properly installed directly beneath the slab. Always follow manufacturers’

written recommendations for the use and installation of their appropriate surface preparation materials

1. Record and file site conditions, test results and any corrective action(s) taken. It is important to maintain this documentation throughout the warranty period.
2. Subfloor must be clean (free of dirt, sealers, curing, hardening or parting compounds or any substance that may stain or prevent adhesion), smooth, flat, sound, fit for purpose, free of movement, excessive moisture and high alkalinity.
3. Slick surfaces such as power troweled concrete shall be abraded or profiled to allow for a mechanical bond between the adhesive and subfloor.
4. Remove existing resilient floor covering; remove all residual adhesive, paint or other contaminants following RFCI recommended work practice.
5. The use of adhesive removers or solvents in the abatement or removal of existing or old adhesives on concrete prohibited and may void any warranty.
6. Perform corrective actions necessary for elevated moisture or high alkalinity conditions.
7. **Surface Flatness for all Subfloors:** The surface shall be flat to 3/16" (3.9 mm) in 10 ft. (3050 mm) and 1/32" (0.8 mm) in 1 ft (305 mm) Bring high spots level by sanding, grinding etc. and fill low spots. Smooth surface to prevent any irregularities or roughness from telegraphing through the new flooring.

Leveling and Patching For concrete subfloors, use only high-quality Portland cement -based materials (minimum 3000 psi compressive strength according to ASTM C109). Mix with water only, do not use latex.

CAUTION: Do not lightly skim coat highly polished or slick power troweled concrete surfaces. A thin film of floor patch will not bond to a slick subfloor and may become a bond breaker causing flooring to release at the interface of the subfloor and patching material. If in doubt, perform a bond test prior to commencing with the installation.

WARNING: ASBESTOS & SILICA - Refer to the current Resilient Floor Covering Institute (RFCI) document "Recommended Work Practices for Removal of Existing Resilient Floor Coverings" for guidance (www.RFCI.com).

CONCRETE

- The concrete must be free of any curing compounds or adhesives. Even after old glued down carpet has been removed, and the subfloor has been scraped, it should NOT be assumed that the concrete is porous. Often the old adhesive has sealed the floor.
- A porosity test, using water, should be taken. Be aware that porous subfloors may take a different adhesive than non-porous subfloors. See Manufacturer adhesive instructions.
- If oil, grease, or other contaminants have deeply penetrated the concrete, and cannot be thoroughly removed, luxury vinyl flooring cannot be installed. If latex liquid has been used to seal off old cutback adhesives, the concrete has become non-porous.

LIGHTWEIGHT CONCRETES

- Concretes in the lower end of this range are generally used for thermal and sound insulation fills for roofs, walls, and floors. The higher densities are used in cast-in-place walls, floors, roofs, and for pre-cast elements.
- The minimum density of the concrete should be greater than 90lbs per cubic foot.
- The minimum compressive strength should be 3,000 psi or greater.
- Gypsum-based concretes are not recommended.
- Wood subfloors: Should be standard double layer construction, with a finished thickness of at least 1" and should have 18" of well-ventilated air space underneath.
- Crawl spaces should be insulated and protected by a vapor barrier. Do not install vinyl flooring over a sleeper type subfloor, or over plywood that is directly over a concrete slab.

NON-APPROVED SUBSTRATES

Include, but are not limited to:

- Oriented strand board (OSB), particleboard, hardboard, treated plywood, strip wood floors, chipboard, wafer board, Masonite, knotty plywood, glass mesh tile boards, cementitious tile backer boards, fire-retardant or preservative-treated plywood, asphalt tile, rubber tile, self-stick tile. NOTE: Any appearance or performance-related problems related to the underlayment are the responsibility of the installer and/or underlayment manufacturer.

- Quarry tile, terrazzo, and ceramic tile: Properly cleanse substrate using a commercial degreasing/dewaxing solution. Grind any highly polished or irregular surfaces. Fill any low spots, holes, chips and seams that may telegraph through the new flooring.

WOOD

- Wood subfloors require an underlayment (double layer construction) with a minimum total thickness of 1" (25 mm). Use minimum 1/4" (6 mm) thick APA rated "underlayment grade" plywood with a fully sanded face or other underlayment panel that is appropriate for the intended usage. Install and prepare panels and seams according to the manufacturers' instructions. Also, refer to ASTM F 1482 Standard Practice for Installation and Preparation of Panel Underlayment to receive Resilient Flooring.
- Many times, wood panel subfloors are damaged during the construction process or are not underlayment grade. These panels must be covered with an appropriate underlayment. Underlayment panels are intended to be used to provide a smooth surface on which to adhere the finished floor covering. It should be understood that underlayment panels cannot correct structural deficiencies.
IMPORTANT: Particleboard, chipboard, OSB, flake-board and wafer board are NOT recommended as underlayment. All these products have inadequate uniformity, poor dimensional stability, and variable surface porosity. TM will not accept responsibility for adhered installation over these subfloors. In all cases, the underlayment manufacturer or underlayment installer is responsible for all underlayment warranties.
- Panels intended to be used as underlayment should be specifically designed for this purpose. These panels should have a minimum thickness of 1/4" (6 mm) any panels selected as an underlayment must meet the following criteria:
 - Be dimensionally stable
 - Have a smooth, fully sanded face so grain texture will not telegraph through
 - Be resistant to both static and impact indentation
 - Be free of any surface components that may cause staining such as plastic fillers, marking inks sealers, etc.
 - Be of uniform density, porosity and thickness
 - Have a written warranty for suitability and performance from the panel manufacturer or have a history of proven performance

- Any unevenness at the joints between panels must be sanded to a level surface. Gaps between panels, hammer indentations, and all other surface irregularities must be filled and sanded.

INSTALLATION PROCEDURES

Before starting the installation, ensure the following are satisfactorily completed.

- Acclimation: See “Jobsite Testing” (pp. 3-4)
- Flooring Materials: See “Material Receiving, Handling & Storage” (p. 2)
- Expansion joints, isolation joints, or other moving joints are incorporated into concrete floor slabs to permit movement without causing random cracks in the concrete. These joints must be honored and not be filled with underlayment products or other materials, and floor coverings must not be laid over them. Expansion joint covering systems should be detailed by the architect or engineer based upon intended usage and aesthetic considerations.
- See “Surface Flatness for all Subfloors” (p. 5)
- Leveling and Patching: See “Leveling and Patching” (p. 5)
- Subfloor Preparation: See “Subfloor Preparation” (pp. 4-5)
- Inspect Substrate: Perform final acceptance inspection of substrate.
- Adjacent Surfaces Protection: Protect adjacent work area and finish surfaces from damage during product installation.
- Flooring Protection: LVT should be the last material installed to prevent other trades from disrupting the installation and adhesive set-up or damaging the floor.

Start of flooring installation indicates acceptance of current subfloor conditions and full responsibility for completed work.

If TM products have arrows imprinted on the back lay all arrows pointing in the same direction. TM LV comes in plank and tile formats. LVT can be laid out to run either parallel or diagonal to the room or primary wall.

- Tiles should be installed running in the same direction (either block or staggered). If design decision calls for quarter turning the tiles, arrows should alternate. See “Installation for Tile” (p. 10.)
- Plank flooring should have end joints off set by at least 6” and staggered to create a random appearance that avoids alignment of

end joints. (All arrows pointing in the same direction). See “Installation for Plank” (p. 13).

- **Adhesive use for residential and low traffic installations:**

- Glue the entire perimeter using pressure sensitive adhesive. We recommend R88 Spray adhesive. Please follow the instructions printed on the can or call TM office at 855-372-7546 for additional installation instructions. R88 Spray Adhesive and G100 Adhesive should be purchased from TM at time of order to maintain all warranties. Create at least a 14” perimeter for tiles, using a full spread spray in all walkway entrances and under heavy tile and furniture. For detailed instructions see “Adhesives” (p. 15) and “Adhesive Application” (p. 16).

The following conditions must be given consideration when determining how the LVT will be installed.

LAYOUT: Layout shall be specified by end user, architect or designer.

1. Establish center marks and determine the starting point to balance installation in room and have equal tile widths on opposite sides of the room. This can be facilitated by dry laying tiles and marking base lines.
2. The room layout must be set-up so that all flooring can be installed while staying off freshly installed tiles.
3. This will minimize tile shifting, adhesive displacement and wet adhesive from oozing up and getting onto the face of the tiles. This can be accomplished by creating work zones outlined with chalk lines to spread adhesive aligned with established base lines. Create work zones that are no wider than the installers comfortable arm reach and in multiples of the tile width.
4. All Installations: Spread only the amount of adhesive that can be covered within the working time specific to the adhesive being used.

When all preparatory work is satisfactorily completed, including dry fitting cut tiles (if applicable), proceed with installation. Inspect each tile for visual defects before installing. **Installation of the flooring implies acceptance of materials.**

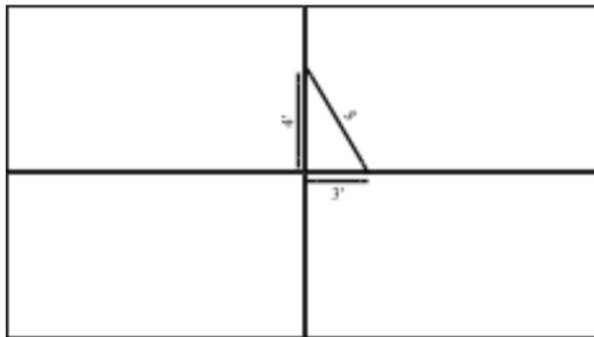
INSTALLATION FOR TILE

SQUARE 18"x18" TILE

Layout of the Room for Squarely Laid Fields

To square the area to be covered, first find the center of one end of the main rectangle. Locate the same point at the other end wall. Snap a chalk line between these points to mark the center line on the floor. Then measure along this center line to find the middle of the room.

Figure 1

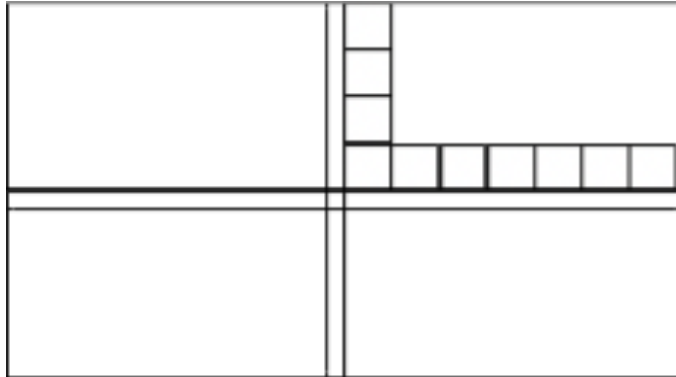


At the center point, mark off a line across the room at exactly right angles to the first line. This may be accomplished by the 3-4-5- triangle method as shown in Figure 1. Then measure 4 feet toward each side wall from the center point. Then measure 3 feet from the center point along the longer line, measure exactly 5 feet from the 3-foot mark on the center line to the 4-foot mark on the crossline. If the 5-foot measurements do not come out exactly 5 feet, the center crossing lines are not at a true right angle. For large rooms, multiples of the above dimensions may be used to obtain greater accuracy (6-8-10 or 9-12-15, etc.).

Dry-lay a row of tiles from the center line to the side wall to determine the space left for the borders. If the resulting border is too small, move the starting point over a half tile width so that it straddles the center line. Repeat

the same procedure lengthwise of the room. (This can readily be figured out from the room dimensions without putting down the tiles if desired.)

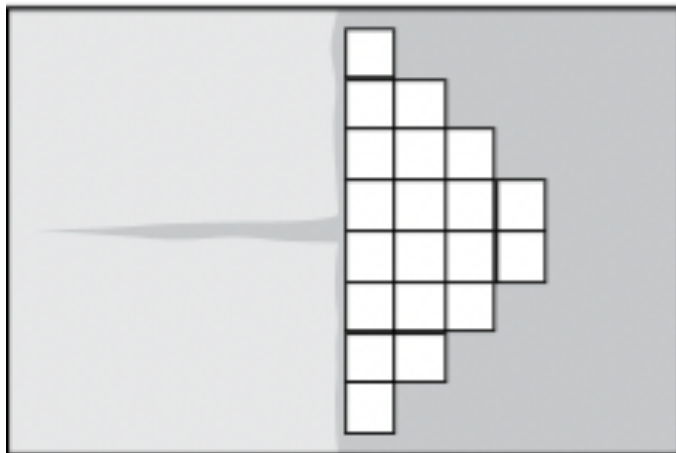
Figure 2



If it is decided to have the center row of tiles straddle either or both of the center lines, additional guidelines should be snapped on the floor 1/2 tiles width on one side of either or both center lines as required. (See Figure 2)

After the border widths have been determined and the center starting lines have been snapped spread the recommended adhesive on the center lines leaving portions of the lines at the center and near each wall uncovered as shown in Figure 3.

Figure 3



Spread the adhesive over one-half the area and after it is ready, start laying tile from the right angle formed in the center of the room by center lines. Lay toward the two corners of the room as shown. Always refer to your guide lines as you progress with laying so that a mistake can be corrected before it

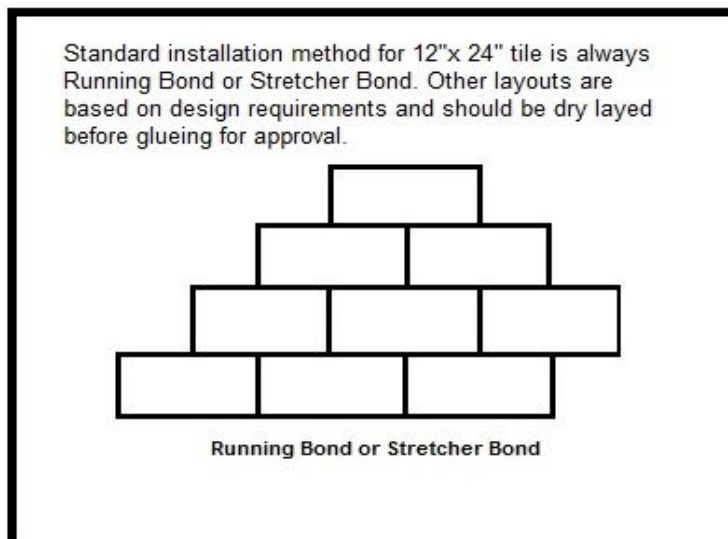
is too late. Sometimes it's necessary to compromise on the rightness of joints to make allowances for unevenness or waves of the sub-floor. Take care to place tile as accurately as possible without sliding them into place.

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

Installation method for 12"x24" tile is running or stretcher bond see below diagram (Figure 4)

After you have found the center of the room, take a tile and mark out the tile width from the center point of the wall to make sure that you do not end up with any cut piece smaller than 6" and adjust your mark at the center point of the room if necessary. Use the same measurement for the center point of the opposite wall. Proceed dry laying the tiles on half the room for optimal cutting and minimal waste against walls and other obstructions. During dry-lay procedure, make sure that tile joints do not coincide with the joints in the subfloor. Spread adhesive on one side of the room when dry laying and cuts are complete. Begin laying tiles from the middle of the room to the edge of the room in the running or stretcher bond pattern shown below.

Figure 4



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

INSTALLATION FOR PLANK

Layout of the Room (See Figure 5)

- Find the center point of the room.
- Strike a line.
- Obtain a true 90° angle by using a carpenter's square.
- Strike a second line which will divide the room in to four equal parts.
- Measure the distance from the center to the wall, parallel to the direction of the plank.
- 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. (Figure 5)

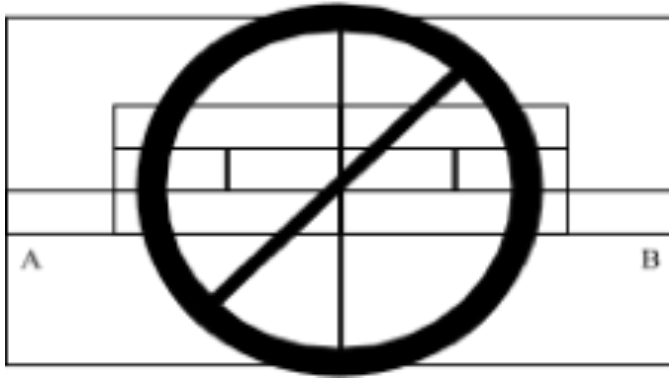
Figure 5

A	B

Layout of the Plank

A		B

Carefully place the first piece of plank at the junction of the chalk lines. Continue to lay the plank, making sure each plank flush against the chalk line and tight against the adjoining plank. 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

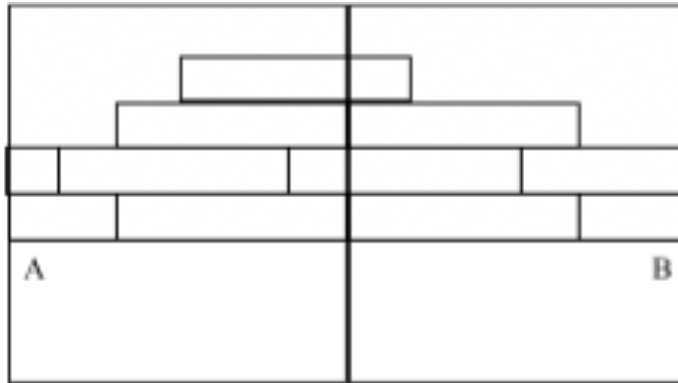
Measure the distance from the last plank in the row to the wall. Mark the plank and cut it against the mark. Lay the plank in place, making sure that the cut edge is against the wall.

Fitting Around Irregular Objects

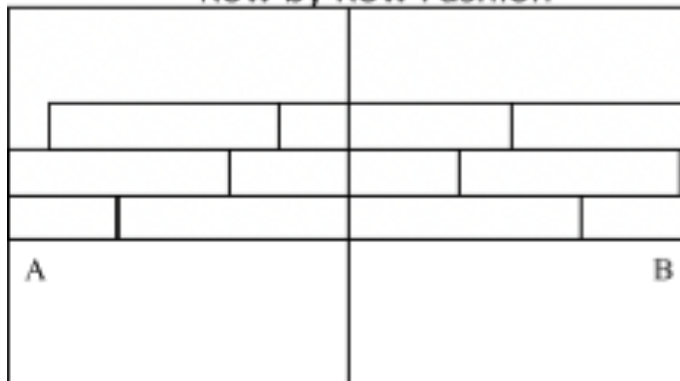
Make a pattern out of heavy paper to fit around pipes and other irregularities. Place the pattern on the plank, trace cutting along the trace lines.

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

Pyramid Fashion



Row by Row Fashion



Adhesives

TM requires the following G100 adhesive for the installation of LVT dry back and G-Core pad backed. Only our recommended adhesives should be used. Other adhesives may not provide adequate performance and could result in a failure. Call with any questions you may have regarding adhesives at (855-372-7546).

Bond Test: To determine compatibility and porosity of the subfloor, install a 2'x2' section of flooring following installation procedures in a light traffic area for 48 hours. Inspect for good adhesion which should make it difficult to remove.

IMPORTANT: TM adhesives are specifically formulated to be fully compatible with backings, chemistry and to maximize the performance of TM products. Using substitutes or failing to use TM approved adhesives as required can cut short product life, cause installation failure and/or lead to a chemical reaction such as hydrolysis which will permanently damage the backing and will void all applicable warranty coverage.

G100 Adhesive: Premium Resilient Pressure Sensitive Adhesive is solvent free and formulated for indoor use only with the installation of dimensionally stable Luxury Vinyl Tile and Plank and vinyl backed resilient sheet flooring. This high strength adhesive is designed for installations over porous and non-porous substrates when tested in accordance with ASTM F-1869 Calcium Chloride at (10) lbs maximum MVER, ASTM F-2170 95% maximum Situ Relative Humidity and 9pH. For best results, install at 70°F (+/-5°) and 50% Relative Humidity.

Spread adhesive using the recommended trowel size: Porous Substrates use 1/16" x 1/16" x 1/16" square notch for 125-150 sq.ft. per gallon coverage. Non-Porous Substrates use 1/16" x 1/32" x 1/16" U-notch for 200-250 sq.ft. per gallon coverage. Refer to G100 adhesive pail on site to familiarize yourself with this adhesive.

Note: DO NOT INSTALL if concrete subfloors exceed 10lbs MVER as determined by the Calcium Chloride MVER test (ASTM F-1869) or 95% RH as determined by the In-Situ Relative Humidity test (ASTM F-2170). These should be considered having excessive with regards to moisture emissions and may require the installation of a moisture mitigation system.

TM will not assume responsibility for floor covering failure due to hydrostatic pressure or moisture vapor emission. The final responsibility for determining if the concrete is dry enough for installation of the flooring lies with the floorcovering installer.

CAUTION: Temperature directly affects adhesive working and setting times. Warmer temperatures shorten working times and colder temperatures lengthen working times of adhesive. Follow instructions on container for proper application.

ADHESIVE APPLICATION: Follow the instructions on the adhesive labels.

1. Use a trowel with appropriate notch size. Do not use worn trowels.
2. Spread adhesive evenly with proper trowel held at 60° angle avoiding skips or voids and excessive adhesive application.
3. Only spread sufficient adhesive that can be covered within the adhesive working and allow to dry to the touch before installing tiles or planks. The dry time to touch will depend on temperature and humidity. Follow label instructions.
4. Install rows to chalk line making sure tiles/planks are precisely aligned with chalk line and adjacent tiles.
5. If tiles/planks shift, use releasable painter's tape diagonally over seams to keep tiles tight and aligned.
6. The floor must be rolled in both directions using a 100lb 3-section roller. Roll floor as soon as conditions permit and roll floor again 90 degrees to the first within 1 hour. TM G100 adhesive will not transfer 100% to the backing of the tile/plank. Be sure not to exceed the manufacturer's recommended working time on the label.
7. Clean excess adhesive as you install before it's allowed to dry. Use a soapy clean soft cloth to remove wet excess adhesive.
8. Clean up all debris as you work.
9. Wait 24 hours for normal foot traffic and wait 48 hours for point and rolling loads after installation.
10. During the first five days minimize heavy wet cleaning to allow adhesive to fully set.

SPECIAL CONSIDERATIONS

Radiant Heat:

1. TM flooring can be installed over Radiant heating (hydroponic) systems. There must be at least 1/2 inch of separation between the radiant heat source and the TM flooring. The maximum temperature of the subfloor surface must not exceed 85°. Before installing flooring products over newly constructed radiant-heating systems, operate the system at maximum capacity to force any residual moisture from the cementitious topping of the radiant-heating system. Then set the thermostat to a comfortable room temperature for the installation. For existing systems, the system must be switched off for a minimum of 48 hours before, during and 48 hours after flooring installation. This is the only type of radiant heat that is approved. Subfloors should have

been operational for at least 3 weeks prior to installation to drive out moisture and calibrate temperature settings. All radiant heat floors should be turned down so subfloor temperature is maintained at 65 degrees for 3 days prior to installation and kept at 65 degrees for at least 48 hours after installation to allow the adhesive to fully cure. Maximum operating temperature should never exceed 85°F.

2. Direct Sunlight: Installations in areas where there is heavy direct sunlight exposure for long periods of time should utilize window treatments.
3. Protecting New Installations: New Installations must be protected while the adhesive cures. Early foot traffic, point or rolling loads can cause adhesive displacement or breaking of the bond between the adhesive and the tile or substrate.