



INSTALLATION GUIDELINES

LockStep

GENERAL INFORMATION

These instructions cover all fully adhered and floating installations of Mannington Commercial Luxury Vinyl Plank & Tile Floors (LVT) and PVC free Proxy tile and plank with LockStep underlayment. This includes all LVT utilizing a proprietary locking system that is installed as a “floating” floor and does not require adhesive. The underlayment is to be used in multifamily, hotel rooms, independent senior living rooms or similar locations and is not designed for commercial use, large open areas or heavy rolling loads.

The installation of Mannington LVT is straight forward and similar to the installation procedures that apply to all quality resilient floors. Good preparation is essential for a trouble-free installation. Do not install LockStep 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.

- LockStep is recommended for use over properly prepared concrete, suspended wood, metal, and other suitable substrates. Never install LockStep / LVT over residual asphalt type (cutback) adhesive as “Bleed Through” may occur.
- LockStep is manufactured in rolls 3 X 33.34 lineal Feet (100 sf / 11 sy) and weighs 13.125 pounds per roll.
- LockStep is not suitable for external installation or unheated locations.
- LockStep, Flooring, adhesive, jobsite, and subfloor must be acclimated to a stable condition before installation (see “Job Site Testing”).
- After installation of fully adhered LVT (glued down application), foot traffic should be minimized for 24 hours; full use for 48- 72 hours. Immediate use for all floating products. In addition, utilize minimal wet cleaning for 5 days.
- All Mannington LVT flooring should remain at a temperature between 55°-85° F (13°-29° C) during its service life.



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 55° F and 100° F, and the relative humidity should be controlled and maintained between 30% and 70% percent during storage.
3. Store Lockstep lying flat on a solid surface single layer only. Refrain from stacking or storing other products on top of the rolls. You must follow these storage recommendations to prevent compression and distortion of the underlayment.
4. Store Lockstep in its original packaging, including both the bag and box.
5. Avoid exposure to light, heat and exhaust fumes from forklifts or similar emissions. Exposure to these elements can cause discoloration but will not impact performance of this product.
6. Report product discrepancies immediately to Mannington at 1 800 241 2262 EXT 2 (Claims). Installation of products installed with visual defects will not be honored.

JOB SITE TESTING

1. Before jobsite testing, the building envelope must be sealed (walls, roofing, windows, doorways, etc. installed).
2. Maintain the installation area and materials at a minimum of 65°F (18.3°C) and a maximum of 85°F (29.4°C) for 48 hours before, during, and for 48 hours after completion of the installation. Avoid extremes in relative humidity level. 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 these recommended 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: The surface shall be flat to 3/16 (4.7mm)“ in 10 ft. (3,050 mm) and 1/32” (0.8 mm)in 1 ft (305 mm). To check flatness, place a 10 ft straight edge, string, laser level, or another suitable method on the surface and measure the gap.
5. All subfloors must be finished and cured, free from dust, dirt, paint, grease, wax, curing agents, oils, sealers, solvents, old adhesives, or other contaminants that may prevent proper bonding of the flooring materials (ACI 302.1 and ASTM F710). The use of adhesive removers or solvents in the abatement or removal of existing or old adhesives is prohibited and will void any warranty.
6. Concrete and lightweight or acoustical subfloors must have a minimum compressive strength of 3000 psi and a dry density of minimum of 105 pound per cubic foot. Lightweight or acoustical concrete with a psi of less than 3000 or is overly porous or dusty must be primed with a compatible primer such as Mannington Premium Universal Primer. Some substrates may require a second coat.

7. Concrete Subfloors- Below or On grade must have an acceptable vapor retarding membrane directly below the slab. Mannington will not be responsible for failures due to Hydrostatic Pressure or moisture vapor emissions.
 - Moisture Testing: Perform either the preferred In-situ Relative Humidity (RH) Test (ASTM F2170) or the acceptable Moisture Vapor Emission Rate (MVER) Anhydrous Calcium Chloride Test (ASTM F1869). Acceptable moisture limits are a maximum of 95% RH or 8lbs CC.
 - Alkalinity: Test surface alkalinity via ASTM F710. A 7.0 to 10.0 pH is acceptable. To bring out of range pH levels down, apply Mannington Premium Universal Primer and retest. If needed, apply a second coat.
8. 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.

SUBFLOOR PREPARATION

Concrete Subfloors:

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 material.

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).

- Perform corrective actions necessary for elevated moisture or high alkalinity conditions.
- The surface shall be flat to 3/16" (4.7 mm) in 10 ft. (3,050 mm) and 1/32" (0.8 mm) in 1 ft (305 mm). Bring high spots level by sanding, grinding, etc. and fill low spots. A smooth surface is required to prevent any irregularities or roughness from telegraphing through the new flooring.
- 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 the 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.

Wood Subfloors:

1. Wood subfloors require an underlayment (double layer construction) with a minimum total thickness of 1" (25mm). 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's to Receive Resilient Flooring."

2. 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. Panels intended to be used as underlayment should be specifically designed for this purpose. These panels should have a minimum thickness of ¼" (6 mm) any panels selected as an underlayment must meet the following criteria:
 - a. Be dimensionally stable.
 - b. Have a smooth, fully sanded face so graining or texture will not telegraph through.
 - c. Be resistant to both static and impact indentation.
 - d. Be free of any surface components that may cause staining such as plastic fillers, marking inks, sealers, etc.
 - e. Be of uniform density, porosity, and thickness.
 - f. Have a written warranty for suitability and performance from the panel manufacturer or have a history of proven performance.
3. 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 PROCEDURE – GLUE DOWN

Adhesives

Mannington Commercial requires V-88 or XpressStep spray adhesive for the installation of LockStep underlayment system. Other adhesives may not provide adequate performance and could result in a failure.

INSTALLATION – LOCKSTEP TO SUBFLOOR – GLUE DOWN METHOD

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.

1. Thoroughly clean the subfloor by sweeping and vacuuming all dirt and debris.
2. Roll out the LockStep underlayment. Be certain to have Shiny side facing down. Lay the LockStep underlayment at right angles (perpendicular) to the direction of the LVT. Avoid placing seams in the LVT over underlayment seams.
3. When multiple drops of underlayment are required, place each drop with the side and or butt seams with a net fit, no overlaps or gaps. If the factory edge is not suitable overlap the underlayment 1 ½" - 2" minimum and double cut with a utility knife and straight edge.
4. After trimming, pull back one half of the underlayment. Make sure to keep the floor clean.
5. Spread the adhesive evenly over the subfloor with a 1/16 wide x 1/32 deep x 1/32 apart U notched trowel. Hold the trowel at 60-degree angle, avoiding skips or voids and excessive adhesive application. Proper spread rate is essential.

6. For XpressStep Spray Adhesive apply evenly. Do not spray in a sweeping motion as this may result in inconsistent pattern. Proper spray pattern is essential to a successful installation. See adhesive label for details.
7. Lay the underlayment into the V-88 adhesive, with the valleys and ridges tacky- dry to touch, approx. 20-45 minutes. Do not allow the adhesive to flash past the point of a good transfer to the back of the underlayment. Roll immediately with a 100 lb 3 section roller.
8. Butt underlayment seams together, leaving no gaps or overlaps.
9. A 100% adhesive transfer rate to the LockStep underlayment is required. If proper transfer is not achieved, remove the dried adhesive and reapply before proceeding.
10. Follow the same procedures to install the second half of the underlayment.
11. Roll the completed installation with a 100 pound, three-section roller in two directions (i.e., north-south, then east-west) to ensure adequate coverage.
12. Allow minimum of 4- hour cure time before proceeding with the LVT glue down application. If utilizing the spray adhesive method, immediate application of the LVT installation is permitted. If flooring is not to be installed on the same day, take care to protect the underlayment from damage by using plywood panels or other solid protection until the Mannington LVT is installed.

INSTALLATION – LUXURY VINYL PLANK & TILE (LVF) TO LOCKSTEP

1. Follow all Mannington LVT installation instructions. All directional arrows should be flowing in the same direction.
2. To install the LVT, V-88 Adhesive option. Spread the adhesive over the LockStep underlayment using the 1/16 wide x 1/32 deep x 1/32 U notched trowel. (Spread rate 180-200 sq ft per gallon).
3. Allow the adhesive to flash off with the valleys dry/tacky and the trowel ridges slightly wet (cloudy). There should be full transfer of adhesive to the back of the LVT. Drying time is 15-30 minutes and will vary depending on temperature and humidity.
4. Do not spread more adhesive than can be covered in a manageable working time.
5. Install rows making sure tiles/planks are precisely aligned with your chalk line and adjacent tiles.
6. Randomly check tiles/planks for complete coverage of adhesive onto the back of the tile, especially near the end of each adhesive spread.
7. If tiles/planks shift, use releasable masking tape diagonally over the seams to keep the tiles tight and aligned.
8. Mannington XpressStep Spray Adhesive option, Apply proper coverage (150 sq ft per can). Allow the adhesive to flash 10-15 minutes, install LVT.
9. Roll the floor in both directions using a 100 lb 3-section roller immediately after placing into the applied adhesive. Roll the floor again within 1 hour to insure proper bonding and adhesive transfer.
10. Clean excess adhesive as you install before it is allowed to dry. Use a soapy, clean, soft cloth to remove wet excess adhesive.
11. Immediate use for normal traffic and wait 24 hours for heavy use after installation.
12. During first five days, minimize heavy wet cleaning to allow adhesive to fully set.

INSTALLATION – FLOATING LUXURY VINYL PLANK & TILE WITH LOCKSTEP

LockStep Underlayment can be installed in both the full adhesive option or in the floating option when installing Click/Floating LVF flooring. Mannington's strict LockStep and floating LVF guidelines must be followed. LockStep can be in-stalled using this method over most existing hard surface floor coverings provided that the existing floor surface is well bonded and can be made smooth.

1. The subfloor must be clean. Sweep and vacuum all dirt and debris before starting.
2. Roll out the LockStep underlayment "Shiny Side" up. Lay the LockStep underlayment at right angles (perpendicular) to the direction of the LVF. Avoid placing seams in the LVF over underlayment seams. Trim the underlayment to fit the room leaving 1/8-1/4" gap around the perimeter.
3. Install each section of underlayment, butting the seams together and leaving no gaps or overlaps. If the underlayment edges are damaged or not fitting correctly, overlap the sheets 1 ½ "– 2", using the double cut method, take a sharp utility knife and straight edge and cut the underlayment panels to net fit. Apply a quality 2 inch packing tape down the seams securing the underlayment.
4. Install the floating vinyl planks over the underlayment according to the layout previously determined.
5. Leave a 5/16" expansion gap around the perimeter of the room and at all fixed vertical surfaces.

SPECIAL CONSIDERATIONS

- Radiant Heat: Mannington Commercial LVF can be installed over radiant heating (hydroponic) systems. 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.
- Direct Sunlight: Installations in areas where there is heavy direct sunlight exposure for long periods of time should utilize window treatment.
- Protecting New Installations: New Installations must be protected while the adhesive cures. Early foot traffic or point loads can cause adhesive displacement or breaking of the bond between the adhesive and the tile or substrate. (Not applicable for Floating installations.) For moving heavy loads over installed flooring, use runner boards e.g. Masonite or plywood to reduce the risk of indentation, gouging, shifting or movement of flooring.
- Protective Coverings should be breathable, non-slippery, capable of preventing debris and abuse from damaging the surface of the flooring installation. Any protective covering that has an adhesive or tacky back applied is not suitable.
- Do not tape protective covering to the installed floor. In any instance where tape is applied to the flooring any claims regarding residue or removal will not be honored.

Contact Mannington Technical Services for additional guidance about subfloor testing and installation recommendations. Technical Services can be reached Monday to Friday, 8:00 a.m. to 5:00 p.m. ET at (800) 241 2262, option 3.