FLEXFORM™ 2mm & 2.5mm PLANK & TILE INSTALLATION GUIDE

All instructions and recommendations in this guide are based on the most recent information and installation techniques available. Please follow this guide to ensure a trouble free and warranty supported installation.

Always check millikenfloors.com for latest installation, warranty, and maintenance guides. It is the responsibility of the installer to ensure that the most current documents are used during installation.

Installation contractor is responsible for reasonable inspection of the products prior to installation and for maintenance of dye lot integrity during installation. Milliken will not be responsible for visible defects after LVT has been installed.

Contact Milliken Technical support if there are any specific concerns or questions prior to installation.

HIGHLIGHTS FOR THE FLEXFORM™ 2mm & 2.5mm LVT PRODUCTS

i To prevent installation problems, areas to receive flooring shall be permanently dry, clean, smooth, level and structurally sound. They shall be free of all contaminants, including but not limited to dust, solvents, paint, wax, oil, grease, residual adhesive, adhesive removers, curing, sealing, hardening, or parting compounds, alkaline salts, excessive carbonation or laitance, mold, mildew; any foreign material that might prevent a proper adhesive bond. **Milliken requires full-spread coverage of adhesive in all areas of installation.**

ii The subfloor must be smooth, level, and structurally sound to prevent undesirable vertical or lateral movement of the resilient flooring. **The surface of the subfloor shall be flat and smooth to <1/8-inch gap (3.2mm) within 6 feet (1.8m) in all directions (2 x US quarters should not slide underneath), and <1/16-inch gap (1.6mm) within 1 foot (25.4 mm) (1 x US quarter should not slide underneath). The F-number system value shall be FF32.**

- a Cracks, depressions, or other irregularities should be leveled using a high moisture resistant, non-shrinking, Portland cement-based, patching compound.
- b Uneven and high areas should be mechanically ground to levelness and smoothness.

iii **FOR PERMANENT INSTALLATION for subfloors with a RH moisture ≤95% (majority of applications)**, a full-spread, semiwet-lay installation using **Milliken LVT Standard™** adhesive is required. The installer can work “on-the-product”.

- i Trowel Application: 1/16" x 1/32" x 1/32" U notch.

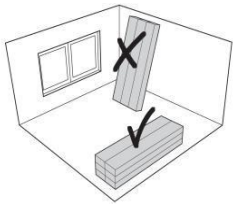
iv **FOR PERMANENT INSTALLATION for subfloors with a RH moisture >95%**, a full-spread, **WET-LAY** installation using **Milliken LVT Moisture XT** adhesive is required. THIS ADHESIVE REQUIRES OPEN, POROUS SLABS WITH NO RESIDUAL ADHESIVE. A few drops of water on the prepared substrate should be absorbed within 1 minute. The installer should work “off-the-product” to prevent unwanted movement.

- i Trowel Application: 1/16" x 1/32" x 1/32" U notch.

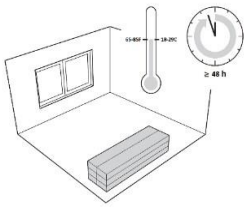
v **FOR APPLICATIONS WHERE SPRAY ADHESIVE IS REQUIRED for subfloors with a RH moisture ≤98%,** a full-spread, dry-lay (no adhesive transfer when lightly touched) installation of **Milliken Mosaic 98™-Spray** adhesive is recommended. The installer can work “on-the-product”.

vi Within 1 hour after the installation, the installed flooring must be rolled with a 3 section 100-pound roller to properly engage the adhesives and “set” the plank/tile.

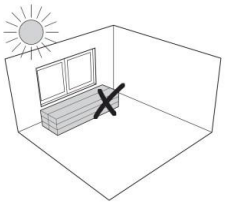
PRODUCT HANDLING and SITE CONDITIONS



1. **Never** install FlexForm™ products outdoors.
2. Check batch and product details and quantity are correct and match purchase order.
3. Inspect your shipment of Milliken flooring to ensure that all cartons are of the same lot/manufacturing run.
4. Store cartons of tile and/or plank with cartons stacked one on top of the other. Do not store on end or sides or allow cartons to bend during storage or transportation.
5. Store in dry indoors condition between 40°Fahrenheit - 90°Fahrenheit (4° to 32° Celsius).



6. Acclimate product to job site conditions by delivering all materials, including adhesives and maintenance products, to the job site at least 48 hours prior to installation. Store all products at 60° to 80° Fahrenheit (16° to 27° Celsius) for 48 hours prior to installation. Unpalletized boxes laid on flat surface will acclimate more evenly. Floorcoverings left stacked may take longer to acclimate.
7. The space where flooring is to be installed shall be fully enclosed and the permanent HVAC system shall be operational prior to installing flooring. The temperature shall be 60° to 80° Fahrenheit (16° to 27° Celsius) for 48 hours before installation, during installation and for 48 hours after installation. The temperature of the space shall be kept at a minimum of 50° Fahrenheit (10° Celsius) continually after installation.



8. Milliken flooring should be protected from direct sunlight and not exposed to intense direct sunlight for extended periods of time. Milliken recommends suitable UV window coverings be in use in areas of large amounts of direct sunlight exposure. Unprotected window exposure can allow heat generation / thermal expansion which can create buckling problems.
9. To prevent damage to the newly installed flooring, the installation of flooring products should be installed after all other trades have completed their work. To further prevent damage after install until space is occupied, use of a reinforced fiber-based temporary floor protector product is strongly recommended.
10. To minimize shade variation during installation of Milliken flooring, mix and install planks from several different cartons. Do not mix different batches.
11. Install flooring perpendicular to direct light sources, including large windows, etc. Use of suitable window coverings during the times of most direct sunlight is recommended.

APPROVED SUB-FLOOR SUBSTRATES

All substrates surfaces shall be flat and smooth to <1/8-inch gap (3.2mm) within 6 feet (1.8m) in all directions (2 x US quarters should not slide underneath), and <1/16-inch gap (1.6mm) within 1 foot (25.4 mm) (1 x US quarter should not slide underneath). The F-number system value shall be FF32. Use mechanical grinding/sanding and suitable moisture resistant Portland cement-based patching and leveling compounds to meet specifications. For more detailed instructions for substrate preparation, see subsequent section, "Substrate Preparation".

- Above-grade, on-grade, or below-grade concrete without hydrostatic pressure, excess moisture, or alkalinity. Must be fully cured and dry, free from curing compounds, sealers etc.
- Above-grade or on-grade lightweight concrete without hydrostatic pressure, excess moisture, or alkalinity. The concrete must be fully cured, dry, and free from curing compounds, sealers, etc. that can weaken the strength of the adhesive bond. Below-grade lightweight concrete is not allowed.
- Above-grade or on-grade Gypsum concrete without hydrostatic pressure, excess moisture, or alkalinity. The concrete must be fully cured, dry, and free from curing compounds, the surface must be sealed with the gypsum manufacturer's recommended sealer. See details below. Below grade gypsum concrete is not allowed.
- Radiant heated floors where heat does not exceed 85°F (29°C).
- Milliken Underlayment.

- Properly prepared and well bonded existing resilient floor covering.
- Cement Terrazzo, ceramic tile, marble – see adhesive for proper preparation.
- Certain metal floors – Please contact Milliken Technical Support for assistance. 1-800-528-8453 – Select Option #2
- APA registered underlayment, sanded face exterior grade with minimum rating of B-C plugged face.
- APA registered exterior grade plywood sanded and plugged face with ratings as follows: B-C, or better.

The following are **NOT** approved substrates for installing Milliken FlexForm™ flooring:

- Raised access flooring unless accessibility is not required. Contact Milliken Technical Support for assistance. 1-800-528-8453 – Select Option #2
- Epoxy terrazzo
- Rubber, cork, or asphalt tiles
- Textured or cushion backed resilient flooring
- "Sleeper" floor systems and other uneven or unstable substrates
- Plywood floors that have been installed directly over a concrete slab
- Luan, OSB, particle or chip boards, CCA (pressure treated), oil treated or other coated plywood
- Advantech OSB as LVT is to be glued down (OSB must be covered with appropriate plywood).
- CDX or other plywood with knots or open defects
- Underlayment made of pine, cork, or other soft woods
- Masonite™ or other hardboard underlayment
- Hardwood flooring
- Uneven or unstable substrates
- Paint, wax, oil, grease, residual adhesive, mold, mildew, and other foreign materials that might prevent adhesive bond

Unsuitable substrates should be covered with an approved 1/4-inch wood underlayment or suitable Portland-based cement leveler/patching compound. Always follow the manufacturer's recommended practices when covering an existing substrate.

SUB-FLOOR SUBSTRATE PREPARATION

All substrates must be properly prepared and tested according to the following guidelines:

1. Concrete Subfloors

a. Shall be in accordance with the most current version of ACI 302 and ASTM F710 – Standard Practice for Preparing Concrete to Receive Resilient Flooring, available from www.astm.org.

b. All patching and leveling is to be in accordance with the most current version of ASTM F2678 – Standard Practice for Preparing Underlayment's, Thick Poured Gypsum Concrete Underlayment's, Thick Poured Lightweight Cellular Concrete Underlayment's, and Concrete Subfloors with Underlayment Patching Compounds to receive Resilient Flooring.

c. Concrete slab construction shall be in accordance with industry standards for specification related to concrete mix design, curing methods and drying times to prevent moisture problems.

When using Milliken LVT Standard™ or Mosaic 98™-Spray, on-grade and below-grade slabs should be installed with a suitable vapor retarder directly underneath the concrete slab. Else, consider using Milliken LVT Moisture XT adhesive for installation. See technical data sheet:

- https://contenthub.milliken.com/api/public/content/e715515d7a834d0197b5508dfb5cd581?v=1a8d2c10

d. New concrete shall be properly cured and dried prior to the installation of floor covering. Curing agents, surface hardeners and other membranes or compounds shall be mechanically removed immediately after initial cure to allow the slab to properly dry before installation. Approximately 30 days per 1" of slab thickness.

e. All concrete substrates, regardless of grade or age of slab, must be properly tested using one of the methods outlined below for warranty to apply. Acceptable test method is the ASTM F 2170 In Situ Relative Humidity. Testing shall be conducted according to the instructions of the manufacturer of the testing equipment.

ASTM F 2170 In-Situ Relative Humidity Test

i. Testing should only be done when the test site is at the same temperature and humidity expected during normal use.

ii. A minimum of 3 test holes for the first 1,000ft^2 (100 M2) and one additional test hole for each 1,000ft^2 (100 M^2) thereafter.
iii. Test holes are to be drilled at a depth of 40% of slab thickness (one-side drying) or 20% of slab thickness (two sides drying).
iv. Test holes should be allowed to acclimate for 72 hours prior to insertion of the test probe. Reusable probes should equilibrate at least 1 hour prior to use in the next test area.

Concrete Alkalinity / pH Test

i. Testing should only be done when the test site is at the same temperature and humidity expected during normal use; or at a temperature of 65° - 80°F (18° - 26° C) and 45% - 50% humidity for minimum 48 hours prior to testing.
ii. Using distilled water, place drops of water to form a small puddle approximately 1" in diameter.
iii. Wait 60 seconds, then dip a portion of the pH paper into the water.

Concrete Slab Preparation

i Concrete slabs shall be clean and smooth prior to installing floor coverings. Remove all sealers, curing agents and compounds, grease, oil, adhesive removers, old adhesive residue, dirt, paint, etc. to ensure a clean bond surface for the adhesives.
ii Concrete floors shall be smooth and level to prevent irregularities, roughness, or other defects from telegraphing through the new resilient flooring. **The surface of the subfloor shall be flat and smooth to <1/8-inch gap (3.2mm) within 6 feet (1.8m) in all directions (2 x US quarters should not slide underneath), and <1/16-inch gap (1.6mm) within 1 foot (25.4 mm) (1 x US quarter should not slide underneath). The F-number system value shall be FF32.**
iii Uneven areas should be mechanically ground to smoothness.
iv Cracks, depressions, or other similar irregularities should be leveled using a suitable high moisture resistant Portland cement-based patching compound. Follow the patch manufacturer's instructions regarding mixing and applications.
v Overly porous, dusty, flaky, or soft concrete surfaces are not suitable for resilient floor coverings. It may be necessary to mechanically remove the top layer concrete in such cases and/or these surfaces may need to be primed and covered with a high moisture resistant cement-based underlayment compound. Follow the patching or leveling compound manufacturer's instructions regarding preparation of the concrete surface, priming, mixing of the product, thickness of application and drying time for resilient floor covering installation.
vi Expansion joints, isolation joints, control joints or other moving joints in the concrete slab shall not be filled with patching compound or covered with resilient flooring.

2. Gypsum and Lightweight Cellular Concrete Substrates

Gypsum and lightweight concrete subfloors and substrates should be primed in accordance with the listed standard. Unprimed gypsum surfaces may have a dusty, very open, porous surface, which will lead to an adhesion bond failure if not properly sealed and treated. It is the responsibility of the installation contractor to obtain verification from the GC, architect, owner, or party responsible for the site that the gypsum was properly sealed with the gypsum manufacturer's recommended sealer. If this data is not available, conduct testing according to ASTM F2419.

a. Gypsum surfaces shall be in accordance with and properly prepared according to ASTM F2419 (Standard Practice for Installation of Thick Poured Gypsum Concrete Underlayments and Preparation of the Surface to Receive Resilient Flooring.)
b. Have a minimum compressive strength of 2000 PSI when installed over a wood substrate or 3000 PSI when installed over a concrete substrate.
c. All patching and levelling are to be in accordance with ASTM F2678 (latest version), Standard Practice for Preparing Panel Underlayment's, Thick Poured Gypsum Concrete Underlayment's, and Concrete Subfloors with Underlayment Patching Compound to Receive Resilient Flooring Compounds
d. Conduct a surface porosity test to ensure that the surface is properly sealed. If the water is quickly absorbed, stop the installation, and contact Milliken Technical Services.

3. Wood Subfloors

a. A combination of wood subfloor and panel underlayment construction shall be a minimum of 1" in total thickness.
b. The surface of the subfloor shall be flat and smooth to <1/8-inch gap (3.2mm) within 6 feet (1.8m) in all directions (2 x US quarters should not slide underneath), and <1/16-inch gap (1.6mm) within 1 foot (25.4 mm) (1 x US quarter should not slide underneath). The F-number system value shall be FF32.
c. There shall be at least 18" of well-ventilated air space beneath all wood subfloors. Crawl spaces shall be insulated and protected by a suitable vapor barrier.
d. Wood subfloors installed directly on concrete or over "sleeper" joist systems are not acceptable.

e. Panels designed as suitable underlayment shall be at a minimum:
   i. Minimum 1/4-inch thickness
   ii. Dimensionally stable
   iii. Fully sanded face to eliminate grain texture or show through.
   iv. Have a written manufacturer's warranty and installation instructions
   v. Be free of substances such as ink, fillers and resins which may lead to staining of the resilient flooring
   vi. Have all knots, voids and defects properly plugged and sanded
f. Panels shall be installed according to manufacturer's instructions regarding stapling pattern, sanding, and filling of joints, and acclimation to installed environment.
g. Milliken will not cover or accept responsibility for the following:
   i. Joint telegraphing, either as a "ridge" or "valley"
   ii. Grain or texture telegraphing
   iii. Discoloration of finished flooring due to materials used for filling of voids and defects in the face of the underlayment
   iv. Use of Luan Plywood underlayment
h. Unacceptable substrates shall be covered using a 1/4-inch or thicker panel underlayment recommended for commercial use. Consult underlayment manufacturer for:
   i. Recommended uses of product
   ii. Warranty coverage
   iii. Joint spacing
   iv. Nailing or stapling pattern
   v. Seam treatment
i. Suitable underlayment panels include Artic (Baltic) Birch, A/C grade plywood with sanded face, or other underlayment grade exterior plywood.

4. Existing Resilient Flooring

When installing new Milliken flooring over existing resilient floors, the existing resilient flooring must be:

i. Single Layer only.
ii. Thoroughly stripped of all wax, floor finish, dirt and other contaminants that may affect adhesive bond
iii. Be firmly bonded to the substrate
iv. Flat and smooth with no curling edges or loose seams
v. Dry and free from excessive moisture. All concrete floors shall be tested for moisture regardless of age or grade level. Do not assume that an existing floor is free of moisture related issues. Conduct RH moisture testing as described above.
vi. Must not be of a cushion back, floating, or perimeter bonded floor
vii. Embossed surfaces may require use of appropriate embossing leveler to not telegraph.

Milliken is not responsible for problems leading to or from indentations, telegraphing of old floor, or adhesion release of old floor after the Milliken LVT is installed.

5. Old Adhesives

a. Adhesive residue shall be properly removed prior to the installation of Milliken flooring product. It is recommended that mechanical scraping or grinding be used as a primary means of removing old adhesive residue to a stain.
b. Residues include, but are not limited to carpet, vinyl, VCT, and or wood flooring adhesives.
c. Black cutback/asphalt adhesives should be tested for asbestos before removal. If asbestos-free, the surface should be scraped by hand to remove any loose patches, trowel ridges and puddles so that only a thin residue layer remains. This layer should be properly covered using a moisture-resistant Portland based patching compound.
d. If chemical/liquid adhesive removers are utilized, the manufacturer's recommended instructions for cleaning after use of the remover shall be followed fully. Milliken is not responsible for any adhesive failures, indentation, bubbling, or delamination of new flooring due to improper cleaning of residue left from liquid adhesive removers. **If your slab has been chemically abated, contact Milliken Technical about Barriercoat options and other LVT products to use in these Chemical Abatement situations, 1-800-528-8453 – Select Option #2.**

6. Radiant Heated Subfloors

a. The radiant coils must not be in direct contact with the Milliken flooring. There must be ≥ 1/2-inch (13mm) separation between the planks/tiles and the heating coils.
b. The temperature of the subfloor and Milliken flooring must not exceed 85°F (29°C) during operation. Use of an in-floor temperature sensor is required to avoid overheating.
c. Room and Floor Temperature Conditioning Options
    1. The system must be off 48 hours prior to and after installation to allow floor temperature to stabilize at 65-70°F (21°C), ambient, room temperature. OR
    2. Ensure the floor temperature of the radiant heat is no higher than 70°F (21°C) for 8 hours prior to installation, during the entire installation, and for 48 hours after the installation.
d. Full spread coverage of adhesive is required.
e. When ready to start the radiant heat for the first time after installation, limit the temperature increase to 5°F (2.5°C) every 6 hours until desired operating temperature is obtained. (The final floor temperature must be less than 85°F (29°C) as said above). This will minimize thermal shock and potential bond failure causing unwanted buckling and gapping of the planks/tiles.

7. Other Subfloors

a. Cement terrazzo and metal floors may be suitable for installation and need to be properly prepared for adhesion. Most will need to be prepared with a suitable, moisture-resistant, Portland-based cement patching compound, see manufacturer's recommendations for use and preparation of subfloor.
b. Ceramic, porcelain, marble, and granite tiles are suitable as substrates when the following conditions are met:
    i. Tiles must be properly bonded with intact grout joints and free of cracks.
    ii. Surface of tile and grout joints should be free from sealers, coatings, dirt, and contaminants.
    iii. Properly prepare the surface of tiles by grinding any high areas and using a suitable Portland based leveling compound and primer to fill in all low areas. Follow leveling compound manufacturer's recommendations for surface preparation and application of product.

WARNING!
DO NOT SAND, BEAD BLAST, SHOT BLAST OR USE ANY OTHER MECHANICAL MEANS TO PULVERIZE EXISTING TILE FLOORING, BACKING, LINING FELT, ASPHALTIC "CUT-BACK" OR ANY OTHER ADHESIVES. **THESE** ***PRODUCTS MAY CONTAIN 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.***

INSTALLING MILLIKEN FLEXFORM™ 2mm & 2.5mm FLOORING

1. General

a. Layout: When using more than one carton, ensure that the cartons are all the same run / lot number. Different lots may have a variation in color, texture, or gloss so they should not be mixed in the same room. **Contact your Milliken representative before installing product from differing runs or lots.**
b. Layout: Planks/tiles are best in appearance when lying parallel to the longest walls in the room.
c. Cutting: Milliken FlexForm™ flooring can be cut with a tile cutter or utility knife. Keep knife blades sharp for easy, accurate, and safe cuts.
    1. When using a utility knife method, scribe the tile and then snap the tile with hands or over an edge.
    2. To fit planks or tiles to walls, columns, door jambs, etc., use the same methods as used with other flooring products: overlap, pattern scribe, wall scribe, and freehand.

2. Adhesive selection

a Milliken requires full-spread coverage of adhesive in all areas.
b **FOR PERMANENT INSTALLATION for subfloors with a RH moisture ≤95% (majority of applications)**, a full-spread, semiwet-lay - installation using **Milliken LVT Standard™** adhesive is required. The installer can work "on-the-product".
    1. Trowel Application: 1/16" x 1/32" x 1/32" U notch.

2. Technical data sheet for adhesive:
   https://contenthub.milliken.com/api/public/content/5c1b405bf7de45b686c6da253f2b8d6a?v=204bac08&_ga=2.260793357.1827362146.1678712728-1943055983.1647606709

c **FOR PERMANENT INSTALLATION for subfloors with a RH moisture >95%**, a full-spread, **WET-LAY** installation using **Milliken LVT Moisture XT** adhesive is required. THIS ADHESIVE REQUIRES OPEN, POROUS SLABS WITH NO RESIDUAL ADHESIVE. A few drops of water on the prepared substrate should be absorbed within 1 minute. The installer should work "off-the-product" to prevent unwanted movement.

1. Trowel Application: 1/16" x 1/32" x 1/32" U notch.
   Technical data sheet for adhesive:
   - https://contenthub.milliken.com/api/public/content/e715515d7a834d0197b5508dfb5cd581?v=1a8d2c10

2.

d **FOR APPLICATIONS WHERE SPRAY ADHESIVE IS REQUIRED for subfloors with a RH moisture ≤98%,** a full-spread, dry-lay (no adhesive transfer when lightly touched) installation of **Milliken Mosaic 98™-Spray** adhesive is recommended. The installer can work "on-the-product".

1. Technical data sheet for adhesive:
   https://contenthub.milliken.com/api/public/content/537aa348e6e14aa79a0d377fb7e09722?v=723bac75&_ga=2.148590135.1827362146.1678712728-1943055983.1647606709

e All installed flooring must be rolled with a 3 section 100-pound roller to properly engage the adhesives and "set" the plank/tile.

Adhesives used with this product must be approved by Milliken. Use of non-Milliken adhesives or non-Milliken recommended adhesive does not affect FlexForm™ product warranties, but any claim related to adhesive performance or workmanship and any damage caused by this would be the total responsibility of the party responsible for using the non-recommended product.

3. Layout

a. Install using conventional tile and plank installation techniques, staggering the seams by at least 6-8 inches. It is preferred to center the rooms and hallway with borders that are not less than half a tile or plank.
b. Before applying adhesive, determine the center of the room and lay a section of tile/plank from the center line to one wall to determine that the pattern is centered and fit. If necessary, adjust the first row at the centerline to properly fit the room.
c. Measure the border cuts along the wall. Planks should never be less than 9 inches long or less than half of the width of the plank. Tiles should not be less than 6" in length or width. Avoid small pieces in border areas and adjust the center lines to achieve the proper pattern.
d. Once fit, strike a parallel chalk line to the centerline of the length of the room approximately 2' to 3' from the wall. (The actual position is to be determined by the layout of the planks, based upon your initial centering and fitting work.) The centerline and parallel second line help keep the installation square and straight.

4. Installation with Milliken LVT Standard or Mosaic 98-Spray Adhesives: Semiwet-Lay Method

a. Apply the adhesive to the subfloor. **Apply only enough adhesive that can be safely installed within the working time of the adhesive.**
b. Allow it to dry to touch and tackiness sufficiently to prevent slippage of the tiles/planks. Loss of adhesion of the flooring can result if it is not installed within the working time of the adhesive.
c. Begin installing the first row of flooring into the adhesive.
d. The new flooring planks/tiles must be installed tightly to themselves. Once the starter row is secure, continue installing flooring, tightly abutting the planks/tiles tightly together.
e. To fit planks or tiles to walls, columns, door jambs, etc., use the same methods as used with other flooring products: overlap, pattern scribe, wall scribe, and freehand.
f. During installation, roll the areas of the applied flooring with a 3-section 100 lb. roller to ensure proper bonding of the adhesive to the backing of the flooring.

5. Installation of flooring with Milliken LVT Moisture XT Adhesive – Wet-Lay Method

a. Since the adhesive is wet, **do not** walk, kneel, or work directly on top of flooring without the proper use of kneeboards until adhesive has dried and cured. Movement and gapping can occur when working on top of wet adhesive.
   i. LVT Moisture XT: Light traffic = 3 hours; Heavy traffic = 4 hours; Heavy rolling loads = 8 hours

b. **Plan and layout how to install from a strategic starting spot BEFORE spreading adhesive**. Before spreading adhesive, make a dry layout of planks/tiles to determine the best starting location. Strike a chalk line parallel to the centerline of the length of the room, approximately 2 – 3 feet from the starting wall as determined by the original dry layout. Since the "plank installer" cannot put weight on the planks over wet adhesive, they must install from the unlaid side. The "adhesive applicator person" must apply adhesive at an appropriate width for the installer to be able to reach across to place the planks.

c. Spread adhesive using a 1/16" x 1/32" x 1/32" (1.6mm x .8mm x .8mm) U Notch trowel. Wait approximately 5-10 minutes after adhesive is spread for the adhesive ridges to level-out and the adhesive to build surface tack. The working time of the adhesive is approximately 45 minutes. **APPLY ADHESIVE UNIFORMLY. THE ENTIRE SUBFLOOR SURFACE MUST BE COVERED WITH ADHESIVE. Proper application results in a uniform white film of adhesive prior to installation of LVT.**

d. Begin installing the flooring into the adhesive. The new Milliken flooring tiles/planks must be installed tightly to themselves.

e. During installation, use a hand roller to apply normal pressure to ensure a good bond.

f. It may be helpful to use Blue Painters' Masking Tape to hold installed planks/tiles securely in place to prevent any accidental movement and/or gapping.

g. Wait 1 hour but no longer than 2 hours after installation, roll and cross roll floor with a 100 lbs. (45 kg) roller to ensure proper transfer of adhesive.

h. Do not wet mop the floor for 24 hours after the install is complete.

6. Proper Installation of Bathrooms

- Remove toilet; prepare sub-floor properly.
- Apply adhesive and flooring planks/tiles as above.
- Use flexible caulk in bathrooms around toilet, tub/shower, and wall base of room; A recommended vendor for color-matched caulk for sealing gaps is Color-Rite Inc.: https://colorriteinc.com/color-rite/.
- Re-install toilet.

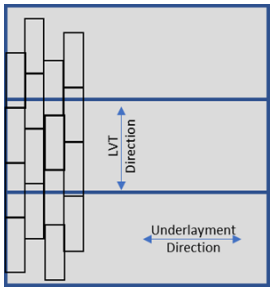
7. After Installation

- Be sure planks/tiles are set, flat, and have tight edges. Re-roll the entire installation, along the length and width of the planks with a 3-section 100 lb. roller to ensure all tiles are properly set into the adhesive. If necessary, weigh down any loose planks overnight to ensure bond.
- Clean adhesive residue from the face of the flooring following these directions:
  a. Milliken LVT Standard or Mosaic 98 adhesive residue can be cleaned with a clean, white cloth dampened with water or denatured alcohol. USE ALCOHOL IN A SPARINGLY MANNER. **The improper use of any chemical can harm the finish of the FlexForm™ product.**
  b. Milliken LVT Moisture XT adhesive residue on the surface of the planks can also be cleaned with a clean, white cloth dampened with denatured alcohol. It is best to clean while wet. USE ALCOHOL IN A SPARINGLY MANNER.
  c. Do not pour water or denatured alcohol directly on the FlexForm™ product.
  d. If Milliken FlexForm™ flooring is not the last portion of the construction project, the floor must be protected from construction traffic and damage. Wait 24 hours and utilize a reinforced fiber protective board or a heavy Kraft paper (min. 60 lbs.) and cover the floor. Failure to wait 24 hours before covering can impact adhesive curing.

INSTALLATION OVER MILLIKEN LVT UNDERLAYMENT

- **Install the underlayment film up, polyurethane side down.** "Double-stick" glue down procedure is required.
- It must be bonded to the subfloor with FULL COVERAGE of Milliken LVT Standard adhesive or Milliken Mosaic 98-Spray adhesive. This prevents any movement on the floor.
- First, plan the layout of the installation space. The underlayment should be applied to floor with the long direction perpendicular to the long direction of the LVT.
- Underlayment is easily cut with a knife or scissors.
- Second, prepare the pieces of underlayment for installation. Roll out underlayment next to wall. Roll out next row in same manner, butting underlayment close to first row (do not overlap). One to two inches extra can be left at wall that is easily trimmed with razor knife after underlayment is glued to floor.

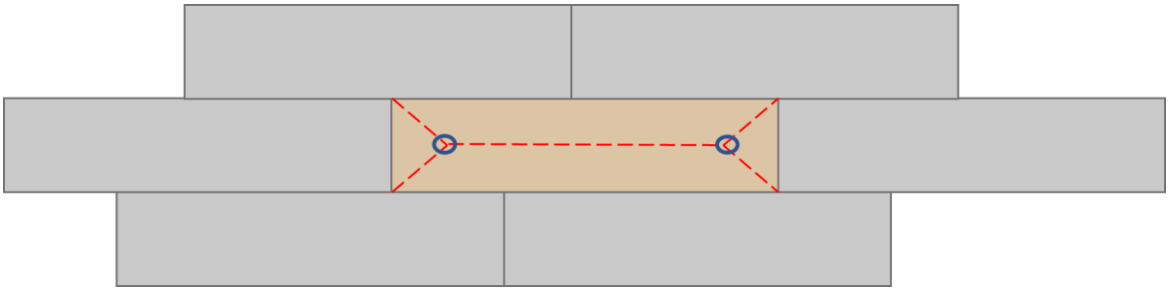
- Remove the prepared pieces of underlayment and set them aside.
- Apply adhesive to floor. Allow it to dry to touch, creating a tacky adhesive surface on the subfloor.
- Start installing the prepared pieces of underlayment, starting next to wall if possible.
- Roll with a 75-100 lb. roller to smooth out any air pockets and to secure a good bond to the adhesive.
- Continue with next row of underlayment, rolling out in the same manner, butting underlayment close to the first row (do not overlap). Roll with a 75-100lb roller. Continue until desired space is covered.
- Next, apply an underlayment seam tape to the seam, sealing the underlayment seams.
- The underlayment covered subfloor is now ready for installation of the LVT. Follow Milliken Flexform™ installation instructions above.



REPLACEMENT OF DAMAGED FLEXFORM™ FLOORING

While FlexForm flooring is very durable, it can sometimes be damaged (e.g., dented by falling objects, scratched, or gouged by movement of heavy furniture, etc.). The following procedure can be used to replace the damaged boards.

a. Acclimate the new replacement product for 48 hours prior to replacement.
b. Using a utility knife, carefully cut the triangular patterns shown below as red dotted lines. Run the knife over the initial cut multiple times until the board is cut through to the subfloor. Change knife blades frequently helps for easier cutting. BE CAREFUL TO PREVENT CUTTING/DAMAGE TO THE SURFACE OF THE JOINTS.
c. Next cut along the centerline of the damaged plank, connecting the triangles.



d. Using a small flat screwdriver or chisel, insert the head into intersection, indicated by the blue circle in the figure, and gently pry the corner of the first small triangle piece up. Insert a larger flat screwdriver or chisel to lift the triangle piece. Gently work the piece away from the joint. USE SPECIAL CARE TO PREVENT DAMAGE TO THE EDGES OF THE SURROUNDING TILES.
e. Repeat with the second small triangle piece.
f. Now use the flat screwdriver or chisel to lift one of the trapezoidal pieces, working along the centerline then toward the edge. Again, gently work the piece away from the joint, USING SPECIAL CARE TO PREVENT DAMAGE TO THE EDGES OF THE SURROUNDING TILES.
g. Clean out any debris from the now open area. With a razor scraper, remove the adhesive to a stain, being careful to protect the edges of the existing flooring. REMOVING THE OLD ADHESIVE PREVENTS THE POSSIBILITY THAT THE NEW TILE WILL BE AT A DIFFERENT ELEVATION FROM THE SURROUNDING FLOORING INSTALLATION. A difference in elevation might be unfavorably noticed in side-light viewing.
h. Before final installation, gently place the replacement tile in the open space, checking that it fits well with no gaps or snags. USE CARE THAT ANY RESIDUAL GLUE DOES NOT GRAB ONTO THE TILE BEFORE DESIRED.
i. Remove the tile and apply a thin layer of adhesive to the floor of the open area. DO NOT APPLY EXCESSIVE AMOUNT OF ADHESIVE OR THE TILE MAY BE UNDESIRABLY RAISED HIGHER THAN THE REST OF THE FLOOR.
j. Place the replacement tile into place, applying pressure to surface of the new tile to ensure proper transfer of adhesive. Remove any adhesive that seeps through seams.
k. After installation, roll all the areas of the floor with a 3-section 75-100 lb. roller to ensure proper transference of adhesive to the plank backing.
l. Using same guidelines as original installation, protect area from traffic until adhesive is dried and cured.

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Call Technical Services Team Toll Free 1-800-528-8453 – Select Option #2

January 2026