

RIGIDFORM™ MLF SPC 5.0mm INSTALLATION RECOMMENDATIONS

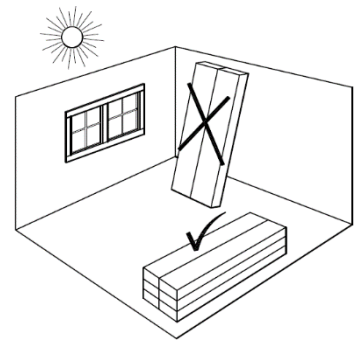


All instructions and recommendations are based on the most recent information available. They should be followed for an ideal installation. Visit our website at www.millikenfloors.com for the latest information and installation instructions. Contact Milliken Technical support if there are any specific concerns prior to installation.

Milliken RigidForm MLF SPC 5.0mm is designed to be a “Floating Floor” installation, however proper preparation of the subfloor is still a major part of a successful installation. Roughness or unevenness of the subfloor may telegraph through the RigidForm MLF SPC 5.0 flooring over time, resulting in an unsightly surface and cause excessive wear on high spots.

Handling and Acclimatization

1. Store boxes flat, and neatly stacked. Do not store on end or sides or allow to bend during storage or transportation. For best results unbox and store as shown in the diagrams. (First check that the batch and product details are correct). MLF vinyl floors should not be exposed to direct sunlight for extended periods of time.



2. Under normal conditions Milliken RigidForm MLF 5.0 does not require acclimation if desired, however acclimation when installing any resilient flooring in commercial spaces is considered an industry practice. Temperature within the space where the product will be installed must be maintained consistent between 50° to 90°F before, during and after installation. If cartons of flooring were exposed over 2 hours to extreme temperatures (under 50°F or over 90°F) within the 12 hours before the installation, acclimation is required. In this case keep the product in room temperature for at least 12 hours in unopened package before you start the installation.
3. Ensure the floor space will be permanently dry, clean, smooth, level, structurally sound, and free of all contaminants (e.g., dust, solvents, grease, chemicals, residual adhesive, adhesive removers, alkaline salts, mold, mildew etc.)
4. To prevent damage to the flooring, the installation should be after all other trades have completed their work. If required, use a reinforced fiber-based temporary floor protector product.

Floor Preparation and Installation

1. Subfloor preparation must comply with up to date and relevant national code of practice for screeds, bases and in situ floorings e.g., ASTM F710 (for USA) AS/NZS 1884, BS 8203, BS 8204, DIN 18365 (Teil. C), DTU 53.2, or other applicable national standards. Including max RH (<90), pH (<9) (for concrete floors) per ASTM F2170.
2. All substrates must be smooth and flat to within 1/8” in 10 feet radius (3mm in 3m) or achieve an “F50” rating by use of mechanical grinding/sanding or by applying suitable non-shrinking, water-resistant Portland based level/patch compound.
3. Substrate should not slope more than 1” per 6 ft in any direction.
4. Depression, deep grooves, expansion joints and other subfloor imperfections must be filled with patching / leveling compound.
5. The following are approved substrates for installation of Milliken RigidForm MLF SPC.
 - **Wood Subfloors:** should be standard double layer construction of 1” thick minimum with at least 18” well ventilated air space. Crawl spaces should be protected by vapor barrier (minimum 6mil poly-film is required).

- Install suitable ¼" underlayment when necessary to assure flat solid surface.
 - ¼" APA underlayment-grade plywood or Luan are most common types.
 - When Luan Plywood is used as an underlayment, it should be Type 1 (Exterior).
 - BB grade Luan plywood is the best, followed by CC and OVL (overlay grade) which is the minimum acceptable.
 - Please note there are many different qualities and species classified as Luan that may introduce problems (indentation, loss of bond, discoloration, and delamination) when used as an underlayment.
 - Underlayment must be installed per manufacturer's recommendation.

- **Concrete Subfloors:** moisture level does not exceed (90%) RH and pH 9 in accordance with ASTM F2170

- Must be:
 - Fully cured, at least 60 days old.
 - Smooth, permanently dry, clean
 - Free of all foreign materials:
 - Dust, wax, solvents, paint, grease, oils, adhesive residue.
- Recommend minimum 6mil poly-film as a moisture barrier between concrete subfloor and flooring.

- **Cement Terrazzo, Epoxy terrazzo, ceramic & porcelain tile & marble.** Fill and level low spots grout lines and other surface imperfections with Portland cement-based patching compounds.

- **Radiant Heated Floors - RigidForm MLF SPC 5.0 can be installed over heated flooring systems provided the following.**
 - **In-Floor Radiant Heat - Flooring can be installed over 1/2" / 12mm embedded radiant heat using the floating method.**
 - **Maximum operating temperature should never exceed 85°F / 30°C.**
 - **Turn heat off 24 hrs. prior to during and 24 hrs. after installation.**
 - **Prior to installing over newly installed radiant heat systems, operate the system at maximum capacity to dry the floor.**
 - **Maintain room temperature between 70-80° before and during the installation.**
 - **In floor temperature sensor is recommended.**
 - **Once installation is completed the heating system can be turned on and increased gradually in 5-degree increments until returning to normal operating conditions.**

- **Note - electric heated mats that are not embedded into the sub floor are not recommended for use underneath flooring and will void the product warranty.**

6. Adhesive residues from previous installations must be completely removed. Old adhesive residue - must be properly prepared with embossing leveler. Note: Solvents and other abrasive chemicals used to clean or remove subfloor contaminants can damage the backing.
5. Ensure that all boxes are of the same batch. Different lots should not be mixed in the same room as they may vary in color, texture, or gloss.
6. When installing RigidForm MLF SPC 5.0, minimize shade variation by mixing planks from different boxes throughout the installation.

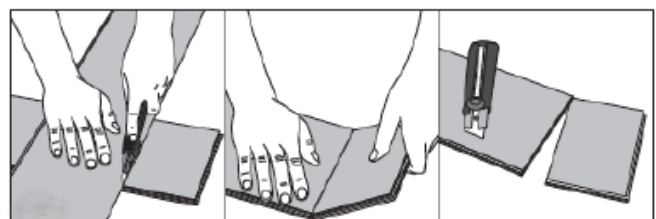
Unacceptable Subfloor conditions (Do not install over)

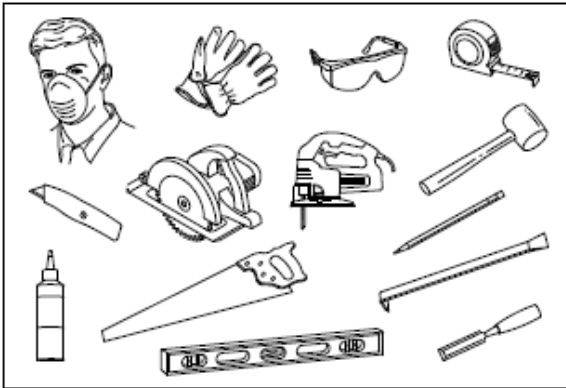
- Any type of carpet
- Existing cushion-backed vinyl flooring
- Floating floor of any type, loose lay, perimeter affixed sheet vinyl.
- Hardwood flooring / wood subfloors that lay directly on concrete or over dimensional lumber or plywood used for concrete.
- Heating systems that are not embedded into the subfloor.
- Additional underlayment not recommended.

Layout and Cutting

Milliken planks simulate wood or abstract designs and can be installed in the same pattern as a wood plank floor: Staggered Ashlar.

Standard flooring tools are useful for installation, including: Circular saw (80T Non-Melt Plastic cutting saw blade), reciprocating jigsaw or oscillating multi tool with fine tooth blade work well for cutting planks. Top cutting with a utility knife (deep and several times along same axis) is an option.

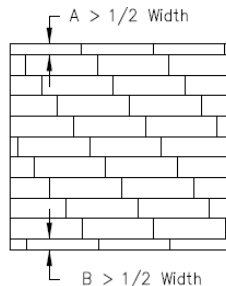




Determine plank orientation to customer preference.

- a Recommend running parallel with longest wall.

- It is important to plan the layout of the plank format to prevent narrow pieces along all wall junctions.
- Using calculated dimensions or dry layout, determine starting and finishing wall plank widths. Such that both are greater than at least 1/2 plank width. Trim starting plank row according to determined measurements.

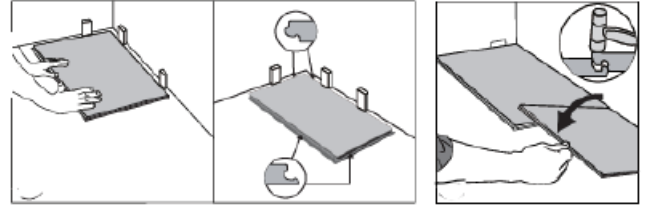


- It is beneficial to snap a chalk line near the first row to assure a straight installation.
- Be sure to allow for a (5/16" / 8mm) spacing along all walls when determining your starting plank width.

Installation

- Remove baseboard, quarter-round moldings, wall base, appliances, and furniture from room.
- Door trim should be undercut to allow flooring to move freely.
- Sweep and vacuum work area to remove all dust and debris. Determine if the starter row will need to be cut from the Layout instructions in step #3.
- If undulations in wall, scribe planks to match wall and cut with jig saw.
- To protect joints when installing, recommend creating 6" tapping blocks by cutting off ends of 1 plank.

- Begin at the left-hand corner of the longest wall and proceed from the wall with the tongue sides facing walls and groove facing outwards (groove sides are marked with arrows on the back of each plank).



- Install the second piece in the first row by aligning its right side over the left side groove of the first. Both planks must be perfectly aligned. Using a rubber mallet, gently tap down on the second plank to lock it into the groove of first plank, until both are the same height.

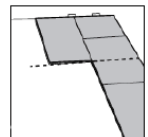
- The mallet should strike directly above the locking system.



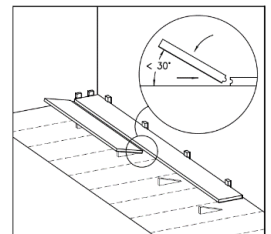
Fasten the piece together by gently tapping down along the seam to align the planks vertically. Use of a soft, white No. 2 rubber mallet and tapping block if necessary, to vertically engage the joint.

- Continue in this manner for the rest of the first row. The last piece in the row should be cut to length while maintaining the (5/16 (8mm) expansion space along the perimeter of the room (recommend use of 5/16" spacers)

- If desiring a uniform brick pattern installation, it is highly beneficial to strike a 90° chalk line to assure consistent alignment for every other row.



- Cut a piece in half of the length to start the second row. Install the first piece in the second row by inserting the long side tongue into the groove of the piece in the first row at a low angle (30°) to the installed piece. Then firmly lower the plank while maintaining a slight pressure towards the installed piece.

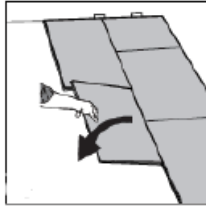


The pieces should fit snugly together and lay flat. **Ensure that expansion space is kept along this wall by using spacers or blocks**

- The click product requires a "T - seam" (achieved via brick pattern installation) to ensure integrity of the click system and its ability to resist heavy foot traffic and rolling loads.

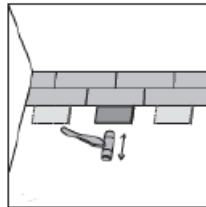
- a **Brick pattern stagger** - minimum 12" with 24" plank, and minimum 8" with 49" plank.

13. To install the remaining planks in the second row, first align the long edge tongue into the groove of the previous row at a 30° angle. Slide the piece to the left aligning the left side over the right-side groove of the first plank. Make sure both planks are perfectly aligned. Gently tap down with the rubber mallet to lock it into the groove of the first plank until both are the same height. The mallet should strike directly above the locking mechanism.



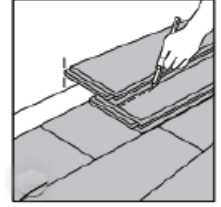
14. Work across the length of the room installing pieces in the second row. It is critical to keep these first two rows straight and square, as they are the “foundation” for the rest of the installation. Check for squareness and straightness often while installing the floor.

15. After finishing installation of each row use a tapping block and rubber mallet to gently tap the planks into the click position of the previous row. This will make sure they are tightly engaged.



16. Use of several 5/16" (8mm) spacer blocks along the first wall will ensure the proper spacing is achieved and that floor does not ‘walk’ back towards the wall during installation.
17. If a random pattern is the desired appearance, alternate starting plank width for subsequent rows based upon desired pattern. For example, 1/4, 1/3, 1/2, random, etc. You want your cut pieces (next to wall) to be greater than 8" or 12" inches depending on plank length. Any new joint should be at least 12 inches from previous joints
18. Continue installing flooring, being certain to maintain a random appearance (planks) or the pattern (tiles) and offset end seams by at least 6" and span joint greater than 24 Inches (at least 12 inches each side of joint). Maintain a 5/16" / 8mm expansion gap at all fixed vertical surfaces. Check to be certain all planks are fully engaged; if slight gapping is noticed or the pieces will not lay flat, simply disengage the long/top side joint and then carefully slide the short/end joint apart. **Do not pull up on this joint as it will damage the locking mechanism!** Reinstall the piece. If necessary, use tapping block and hammer to assure locking mechanism is engaged.

19. To install the last row, position a loose plank exactly on top of the last row laid. Place another board on top, with the tongue side touching the wall. Draw a line along the edge of the plank to mark the first plank. Cut along the edge of this plank to mark the first plank. Cut along this line to obtain the required width. Please note, the last row should be at least 2" wide and maintain the 5/16" (16mm) spacing next to the wall.



20. Being a floating flooring that can naturally expand and contract with exposed environmental conditions, the floating floor should not be locked down (pinched) by wall base board, portable walls, door thresholds, cabinets or any interior structures mounted on or directly secured to or through the RigidForm flooring system.

21. When connecting with thresholds and/or window mullion framing the 5/16" (8mm) expansion gap should be filled with a flexible caulk. This is also applicable to 5/16" (8mm) expansion gaps not covered by molding.

- Color Rite Inc offers 450 caulk colors.
- <https://colorriteinc.com/color-rite/>

22. For matching trim materials please visit:

- Products offered - <https://www.versatrim.com/products.html>
- Online ordering - <https://www.versatrim.com/how-to-order.html>

23. When replacing molding or wall base, allow slight clearance between molding and planks. Do not nail through the flooring.
24. When transitioning to other flooring surfaces a transition molding is required to cover the exposed 5/16" (8mm) gap.
25. The RigidForm floating floor should not be installed over structural expansion joints or construction joints.

Floor surfaces exceed 6,400ft² / 620m² and/or lengths exceeding 80 ft / 25m must use expansion moldings.

After Installation

- Be sure planks are set, flat, and have tight edges.
- If the Milliken RigidForm MLF SPC 5.0 flooring is not the last portion of the construction project, the floor must be protected from construction traffic and damage. Utilize a

reinforced fiber protective board or a heavy kraft paper (min. 60 lbs.) and cover the floor.

- Flooring should not be exposed to temperatures less than 0°F / -15°C or greater than 140°F / 60°C.

Initial Maintenance for owner

- Thoroughly clean the floor using a neutral pH cleaner. If necessary, a slow (175rpm) buffer can be utilized with a white, non-abrasive pad to remove heavier deposits.
- Thoroughly damp mop the floor and allow to dry. Do not pour water on the floor. The use of a residential steam mop is permitted when used at the lowest power setting with a suitable soft pad. Do not let stand in one spot for more than 5 minutes.

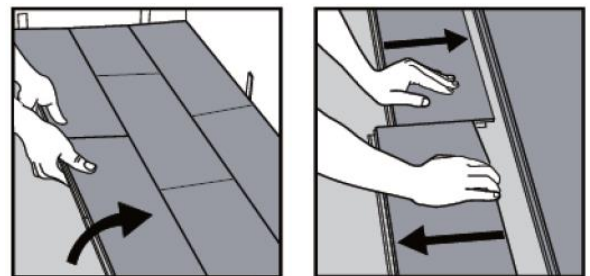
Daily and Weekly Maintenance for owner

- Sweep, vacuum, or dust mop the floor as needed to remove dust, loose dirt, and grit. In high traffic areas, this may be a daily or twice-daily procedure. Use only vacuums that do not have bristle beater bars or metal heads.
- Clean liquid spills immediately to prevent the possibility of stains, slips, or falls.
- Damp mop the floor as needed to remove dirt and stains. Use a neutral pH cleaner and a red pad if needed to remove ground-in dirt. Soft bristle brushes can also be used on flooring with embossed surfaces.
- Use mats at all entry areas to keep dirt, sand, and water from the floor. Clean the mats on a regular basis. If mats are placed directly on top of the floor, be sure the mats have a non-staining back. Rubber mats are also not recommended over Milliken MLF flooring products.
- Furniture shall have protective glides of at least 1" in diameter to minimize the chance of indentations or scratching to the surface of the floor. Do not use narrow chair glides! Felt pads are also excellent protection for the floor for furniture that will be frequently moved directly across the floor.
- Areas with caster chairs must have protective mats under the chairs.
- Do not move heavy furniture, appliances, or fixtures directly across the floor. Use protective boards or appropriate furniture movers designed for use over hard surface flooring.

- Protect the floor from direct sunlight by using appropriate window coverings.
- Periodically clean caster wheels and check for wheels that may be broken or no longer rotating. Replace damaged wheels immediately.
- Avoid use of metal or razor scrapers to remove dirt, residues, or other marks from flooring. This will damage the protective wear layer of the vinyl flooring.
- Do not use abrasive cleaners, bleach, or wax to maintain the floor.

Disassembling Plank Flooring

- Each row must be separated by delicately lifting the whole row at an angle. Planks within a row that have been tapped together must be laid flat on the ground and then slid apart. Should planks not easily separate, slightly lift one side up 5° when sliding apart. Please be careful not to lift more than 5° as this will break the locking mechanism.



Damaged Plank Replacement

- Identify damaged plank to be removed.
- Markup damaged plank to be removed (draw rectangle within body of plank).
 - Mark 2 parallel lines along center of plank approximately 2" apart.
 - Ending approximately 2.5" from each end.
 - Mark two 45-degree angles at each end from the plank corner to the rectangle corner.
- Set circular saw blade to plank depth (use regular or compact circular saw with plastic non-melt 80T blade).
 - Cut along markup lines carefully to not cut into adjoining planks.
- Fine cut in corners with razor blade or small cutting tool (oscillating multi tool).
 - Cut along markup lines carefully to not cut into adjoining planks.
- Lift out center cut plank section using small pry bar.

- a. Be careful to not damage the tongue and groove sides as you lift out long side pieces.
6. Lift / slide out end sections and remaining side pieces.
 - a. Be careful to not damage the tongue and groove sides.
7. Thoroughly clean/vacuum the area to remove any loose debris.
8. Prepare new plank by removing the following:
 - a. Tongue profile on leading edge of long side.
 - i. Set table saw depth to top of tongue.
 - b. Tongue profile on short end – use sharp razor knife and straight edge.
 - c. Bottom groove on short end – cut at an angle with sharp razor knife and straight edge.
 - d. Be careful not to cut into the decorative surface.
9. Place wax paper under all edges to prevent adhesive bonding to the floor
10. Dry fit plank by inserting long side tongue into existing groove.
11. Lift plank – place bead of glue (e.g., Loctite Power Grab – clear) around three cut edges, insert plank.
12. Remove excess glue with clean cloth and mild detergent.
13. Roll plank edges with hand roller.
14. Remove excess glue with clean cloth and mild detergent.

Note, if allowed to dry on surface, the adhesive film is not removable.
15. Place weight on inserted plank edges for 1- 2 hour minimum.
16. Avoid traffic for 12 hrs.