

RIGIDFORM FREE™ 12.0mm HYBRID WOOD INSTALLATION INSTRUCTIONS

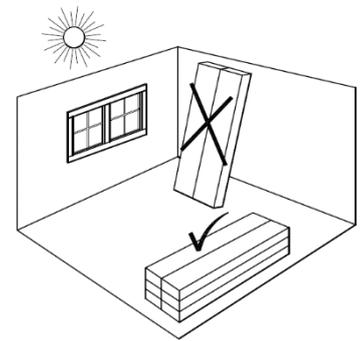


All instructions and recommendations are based on the most recent information available. They should be followed for an ideal installation. Visit our website at www.millikenfloors.com for the latest information and installation instructions. Contact Milliken Technical support if there are any specific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

Installation contractor is responsible for reasonable inspection of the product prior to installation and for maintenance of batch 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.

1. Milliken RigidForm Free Hybrid Wood Plank 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 Free Hybrid Wood Plank flooring over time, resulting in an unsightly surface and cause excessive wear on high spots. Please note Floating Floors are designed to expand and contract, and this natural movement must not be restricted. The floating floor should not be locked down (pinched) by wall base board, portable walls, door thresholds or any interior structures mounted on or directly secured to or through the RigidForm Free Hybrid Wood Plank flooring system.



Handling and Acclimatization

1. Store boxes flat and neatly stacked no more than 5 cartons high. 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). RigidForm Free Hybrid Wood Plank floors should not be exposed to direct sunlight for extended periods of time. Do not store on top of in-floor radiant heated areas.
2. Under normal conditions Milliken RigidForm Free Hybrid Wood Plank does not require acclimation, however acclimation when installing any resilient flooring in commercial spaces is considered an industry practice. Both room and surface Temperature within the space where the product will be installed must be maintained consistent between 60° to 85°F and the rooms relative humidity should be between 35 - 65% RH before, during and after installation. If cartons of flooring were exposed for over 2 hours to extreme temperatures (under 50°F or over 100°F), then acclimation at the above conditions must occur for at least 12 hours before the installation. Acclimation must occur in the 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. During installation shuffle planks from multiple boxes to obtain a pleasant blend of shades and designs. Installers must pull planks from at least 3 to 5 different boxes simultaneously during the installation process.
 - a Do not install planks from a single box at a time.
 - b Randomly select planks from different opened cartons to blend the natural variations of the product.
5. To prevent damage to the flooring, the installation should occur 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 <80%, pH

10 (for concrete floors) per ASTM F2170, and wood subfloors (moisture content \leq 12%). If moisture RH exceeds these limits a 6.0mil Poly vapor barrier with taped overlapped seams must be used. See additional details below.

2. All substrates must be smooth and flat to within 3/16" 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. The following are approved substrates for installation of Milliken RigidForm Free Hybrid Wood Plank

Wood Subfloors: should be structurally sound with standard double layer construction of 1" thick minimum with at least 18" well-ventilated air space. Crawl spaces should be protected by 6.0mil virgin PE vapor barrier. Seams are to be overlapped and taped.

- o 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 80% RH and pH 10 in accordance with ASTM F2170
 - o For on grade and below grade slabs the placement of 6mil virgin PE vapor barrier over concrete substrate is required. Seams are to be overlapped by 6" and taped with duct tape.
 - o Please note, for below grade applications the placement of the 6mil virgin PE between the substrate and flooring will not stop the condensation of moisture vapor between the substrate and 6mil virgin PE vapor barrier.
 - Recommend considering the use of a moisture mitigation product.
- **Cement Terrazzo, Epoxy terrazzo, ceramic & porcelain tile & marble.** Fill and level low spots grout lines and other

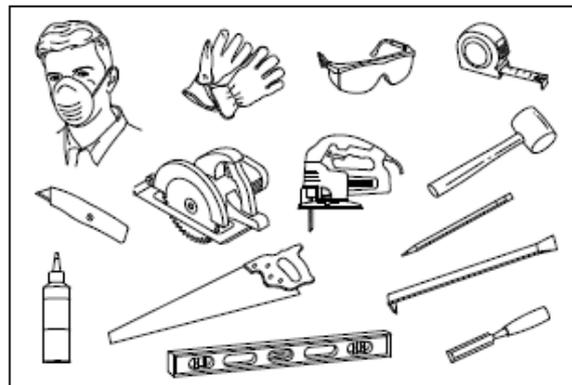
surface imperfections with Portland cement-based patching compounds.

- o For on grade and below grade slabs the placement of 6mil virgin PE vapor barrier over concrete substrate is required. Seams are to be overlapped by 6" and taped with duct tape.
 - **Radiant Heated Floors - RigidForm Free Hybrid Wood Plank should not be installed over ELECTRICALLY heated flooring systems. Flooring is only approved over hydronic (water) radiant heat systems that are embedded in the concrete. Radiant heated floors should never exceed 85 degrees Fahrenheit. For assistance contact Milliken Technical Services.**
4. 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 Free Hybrid Wood Plank, minimize shade variation by mixing planks from different boxes throughout the installation.

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.

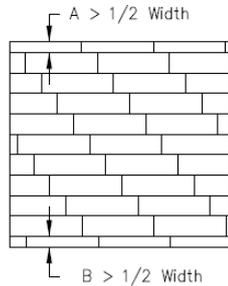
Standard flooring tools are useful for installation, including: Circular saw, chop saw (80T Non-Melt Plastic cutting saw blade), reciprocating jigsaw or oscillating multi tool with fine tooth blade work well for cutting planks, etc.



1. Determine plank orientation to customer preference.
2. Pull planks from at least 3 to 5 different boxes simultaneously. DO NOT pull from a single box.

3. It is important to plan the layout of the plank format to prevent narrow pieces along all wall junctions.

4. 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.



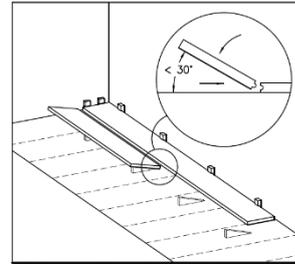
5. It is beneficial to snap a chalk line near the first row to assure a straight installation.
6. Be sure to allow for a 3/8" (9.5mm) spacing along all walls when determining your starting plank width.
7. Existing door frames and bases must be modified by undercutting to accommodate a minimum of 1/4" flooring clearance and 3/8" perimeter expansion gap.

Installation

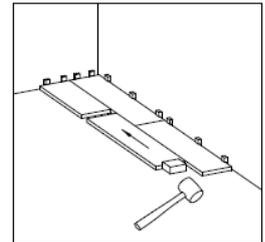
- Determine if the starter row will need to be cut from the Layout instructions above. It will be necessary to cut off the unsupported tongue on long side of edge against the wall so that a clean, solid edge is toward the wall.
- If undulations in wall, scribe planks to match wall and cut with jig saw.
- To protect joints when installing, recommend creating 6" tapping blocks by cutting off ends of 1 plank.
- From the top, left corner of the room put the first plank in place so both the head and side seam grooves are exposed. Planks are to be installed from left to right.
- Install the second piece in the first row by laying the short-end tongue onto the previously installed piece short-end groove. Hold second piece at a 15 to 25-degree angle and lower as you engage the locking mechanism. Use your thumb to ensure that the joints are vertically aligned, and one plank is not lying on top of or away from the other. This is critical to the joint locking properly.
- Fasten the piece together by firmly pressing down with your thumb 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. Do not tap on plank directly without tapping block as this will damage locking mechanism.
- 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 3/8" (9.5mm) expansion space along the perimeter of the room (recommend use of 3/8" spacers) and fixed objects. This allows for natural expansion.

8. 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 piece. Then the plank while a slight pressure towards the piece. The pieces should fit snugly together and lay flat. **Ensure that expansion space is kept along this wall by using spacers or blocks**



9. To install the remaining planks in the second row, first align the long edge tongue into the groove of the previous row at a shallow angle. Slide the piece to the left until the piece meets the previously installed piece. Firmly lower the piece while maintaining a slight pressure towards the installed piece. The pieces should fit snugly together and lay flat. To engage the short edge joint place precut tapping block into tongue and groove joint of exposed end (right side). Align joint on left side, slide plank to left by hitting tapping block placed in right end.



- 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.
- Use of several 3/8" (9.5mm) 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.
- 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 6 inches. Any new joint should be at least 12 inches from previous joints
- 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 3/8" (9.5mm) 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.

14. For rooms greater than 3,600 ft² (334 m²) or runs longer than 60 feet (18 meters) control/expansion joints with a suitable T-molding must be installed with a minimum of 3/8" (9.5mm) gap on each side of the T-molding.
15. Being a floating flooring that has the ability to 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 or any interior structures mounted on or directly secured to or through the RigidForm Free Hybrid Wood Plank flooring system.
16. When connecting with walls, thresholds and/or window mullion framing the 3/8" expansion gap should be filled with a styrene backer rod and covered with a flexible caulk. This is also applicable to 3/8" expansion gaps not covered by molding.
 - a Color Rite Inc offers 450 caulk colors.
 - b <https://colorriteinc.com/color-rite/>
17. The RigidForm Free Hybrid Wood Plank floating floor should not be installed over structural expansion joints or construction joints.

After Installation

1. Be sure planks are set, flat and have tight edges.
2. In the event that the Milliken RigidForm Free Hybrid Wood Plank 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.

Initial Maintenance for owner

1. 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.
2. Thoroughly damp mop the floor and allow to dry. Do not pour water on the floor.

Daily and Weekly Maintenance for owner

1. 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.
2. Clean liquid spills immediately to prevent the possibility of stains, slips or falls.
3. Damp mop the floor as needed to remove dirt and stains. For heavier soil use a neutral pH cleaner or mild solution of (1 cup vinegar per gallon of water or 1/3 cup ammonia per gallon of water). Avoid abrasive cleaners and excessive water
4. 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 RigidForm Free Hybrid Wood Plank flooring products.
5. 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.
6. Areas with caster chairs must have protective mats under the chairs, or use "W" type casters to prevent scratches. Use of incorrect castors can damage the surface of the product.
7. 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.
8. Protect the floor from direct sunlight by using appropriate window coverings.
9. Periodically clean caster wheels and check for wheels that may be broken or no longer rotating. Replace damaged wheels immediately.
10. 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.

Damaged Plank Replacement

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