

Materials Required for Installation

- Tape Measure
- Full Face Tapping Block
- Saber Saw/Circular Saw
- Pull Bar
- Tile Cutter
- Carpenter Square
- Utility Knife/Blades
- Chalk Line
- Safety Glasses

NOTE: This product must be installed in accordance with installation instructions outlined in this document so as not to void the applicable warranties.

Asbestos Warning

Warning! DO NOT MECHANICALLY CHIP OR PULVERIZE EXISTING PREVIOUSLY INSTALLED RESILIENT FLOORING, BACKING, LINING FELT, ASPHALTIC "CUTBACK" ADHESIVES OR OTHER ADHESIVES. Previously installed resilient floor covering products and the asphaltic or cutback adhesives used to install them may contain **asbestos fibers** and/or **crystalline silica**. Avoid creating dust. Inhalation of asbestos or crystalline dust is a cancer and respiratory track hazard. Smoking by individuals exposed to asbestos fibers greatly increases the risk of serious bodily harm. Unless you are positive the installed 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 and may govern the removal and disposal of material. See current edition of the Resilient Floor Covering Institute (RFCI) publication "Recommended Work Practices for Removal of Resilient Floor Coverings" for detailed information and instructions on removing all resilient covering structures.

Underlayments

These vinyl flooring products can be installed directly over most existing floor coverings, EXCLUDING carpet (*including needle felt*), floating laminate, floating floor systems, luan and cushioned vinyl flooring. You may install directly over ceramic (*well-bonded with a skim coat*), PVC, VCT (*well-bonded, on- and above-grade*), terrazzo (*well-bonded*), glued laminate, glued hardwood and fixed wooden boards, provided they are installed over a wooden subfloor.

Wood Underlayments

Wood subfloor systems require a double-layer construction. The top layer must be underlayment grade as specified and warranted by the underlayment manufacturer. Always fasten underlayment in accordance with the manufacturer's recommendations.

- A moisture test is required using a pin-type moisture meter. The moisture content must not exceed 14%.
- Wood subfloors must be structurally sound and in compliance with local building codes.
- Double-layered APA-rated wood subfloors should be a minimum 1-inch total thickness with a least 18-inches well-ventilated air space beneath.
- Insulate and protect crawl space with a 6-mil, polyethylene vapor barrier.
- It is recommended that your chosen APA underlayment be designed for installation under resilient flooring and carry a written warranty from the underlayment manufacturer.
- An underlayment can help provide a smooth surface for installation however one will not correct defects in the subfloor such as deflection or unevenness. Structural work on the subfloor may be required prior to the start of the flooring installation.
- Always follow the underlayment manufacturer's installation instructions.
- Wood subfloors directly fastened to concrete or sleeper construction are not recommended.
- APA-rated Sturd-I-Floor panels are designed as combination underlayment/subfloor and are designed for carpet only. Installing this resilient flooring over Sturd-I-Floor panels would require installation of a minimum 1/4-inch underlayment on top of the Sturd-I-Floor subfloor.
- It is NOT recommended to install this flooring directly over fire-retardant treated or preservative treated plywood. An additional layer of APA-rated, 1/4-inch thick underlayment should be installed over top of any treated subfloor.

OSB

- OSB panels and joints must be fastened and reinforced according to the OSB manufacturer's instructions.
- Be aware that OSB panels, and panel joints, can exhibit high and low spots that may telegraph to the surface of the flooring after installation. It is the installer's responsibility to take measures to correct such undulations and unlevel panel joints which are not covered by any Mohawk warranty.

NOTE: The chips in OSB overlap. Without sanding properly, OSB has high and low spots throughout the floor that could telegraph through the vinyl.

Particle Board

- Particle board underlayment panels must be underlayment grade as specified and warranted by the manufacturer.

NOTE: Perform moisture tests using a reliable moisture meter in multiple locations. Moisture readings should never exceed 14% for plywood, OSB, particle board, chipboard or solid hardwood subfloors. If moisture readings exceed 14%, conditions must be corrected at the job site before installing the flooring.

Resilient Floor Covering as an Underlayment

- Must be single layered, non-cushion backed, fully adhered and smooth.
- Show no signs of moisture or alkalinity.
- Wax, polish, grease and grime must be removed.
- Cuts, cracks, gouges, dents and other irregularities in the existing floor covering must be repaired or replaced.

NOTE: The responsibility of determining if the existing flooring is suitable to be installed over rests solely with the installer/flooring contractor on site. If there is any doubt as to suitability, the existing flooring should be removed or an acceptable underlayment installed over it. Installations over existing resilient flooring may be more susceptible to indentation.

Concrete

New and existing concrete subfloors should meet the guidelines of the latest edition of ACI 302 and ASTM F 710 "Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring" available from the American Society for Testing and Materials.

Moisture levels of concrete slabs before, during and after installation must be 8 lbs or less per 1,000 sq ft per 24 hours using an anhydrous calcium chloride test according to ASTM F1869 or if using ASTM F2170 in-situ probes, moisture levels should be less than 90% RH (*relative humidity*). These tests should be conducted for areas up to 1,000 sq ft. Conduct one additional test for each additional 1,000 sq ft. Always measure, record and keep your testing results. The pH of the slab must be between 5.0 and 9.0 pH as tested using test standard ASTM F710.

A minimum 6-mil polyethylene vapor barrier with a density of 0.92 lbs/cubic foot is highly recommended for all floating floor installations. The vapor barrier should have an overlap of 8 inches and should be taped at the seams. The vapor barrier should not be used to resolve moisture issues; the moisture must be mitigated by other means. Claims related to cupping and/or peaking without a proper vapor barrier could be denied.

The final responsibility for determining if the concrete is dry enough for installation of the flooring lies with the floor covering installer.

- Never use liquid adhesive remover or solvent cleaners for removing old adhesive residue or other substances on the substrate. Use of these cleaners will cause future failures with the new flooring.
- On- or below-grade slabs must have an effective vapor retarder directly under the slab.
- Concrete floors shall be flat and smooth within 3/16 inch over a 10 foot span; 1/32 inch over a 12 inch span per ASTM F710.
- F-Number System: Overall values of FF 36/ FL 20 may be appropriate for resilient floor coverings.
- Glossy or waxed floors may require a higher value FF 75/ FL 50 to prevent telegraphing issues.

Other Approved Underlayments

- Self-leveling and patching compounds (*latex-fortified portland cement-based only*).
- Gypcrete can be utilized when necessary due to radiant heat and in high-rise buildings. Gypcrete must be sealed using a manufacturer-approved acrylic floor primer to stabilize the surface. All issues with gypcrete cracking, crumbling, and powdering are NOT warranted by Mohawk.

Storage and Handling

- Always store and transport rigid luxury vinyl flooring on a flat surface in neat stacks to prevent warping. Never store the cartons upright or in moist, dusty rooms or in places with extreme temperatures. Cartons should be evenly stacked and stored away from any heating/cooling ducts and direct sunlight.

Subfloor and Wall/Door Preparation

- Floor must be clean, smooth, flat and dry. Remove all foreign substances such as wax, grease, dirt, construction markings and contaminants, and any substance or chemicals. Fill all holes and cracks with a latex-fortified portland cement-based patching compound. Sand high spots to eliminate the possibility of telegraphing.
- Any unevenness of more than 3/16 inch over a 10-foot span and 1/32 inch over a 12 inch span (*5mm over a length of 3m and 1mm over a length of 30.5cm*) must be leveled out. Remove bumps in the subfloor by sanding or scraping.
- Fill any low spots in the subfloor with a portland cement-based leveling compound.
- Ceramic tile and embossed flooring exceeding the above requirements will require skim coating with a portland cement-based patch to avoid bottom-up pattern telegraphing.
- Remove any existing floor molding. Removal of wall baseboards is optional providing quarter round is installed to cover the required expansion gap.
- Undercut doorjamb to allow the rigid luxury vinyl flooring to slip under doorjamb/case molding.

Old Adhesive Residue

If the adhesive is asphalt-based (*cut-back*) or any other type of adhesive is present, it must be dealt with in one of two ways:

1. It may be mechanically removed using methods such as bead blasting or scarifying, using a licensed professional contractor.
(*See Asbestos Warning above.*)
2. A portland cement-based self-leveling underlayment may be applied over it. Check with the underlayment manufacturer for suitability, application instructions and warranties.

NOTE: Do not use chemical adhesive removers to remove existing adhesive.

Job Site Conditions

- It is recommended that installation not begin until all other trades are completed.
- Flooring must be acclimated in the room of installation between 55° and 85°F (13°-29°C) for 48 hours before installation. These temperatures should be maintained before, during and after the installation is complete.
- Installation in enclosed Three Season Rooms: acclimate product and room at 55°- 85°F (13°-29°C) for 48 hours before, during and 48 hours after installation is complete. Maximum installation span for Three Season Rooms is 40 ft x 40 ft (12.2 m x 12.2 m) with a 1/2-inch (13 mm) minimum expansion for the perimeter or all vertical objects.
- Areas to receive flooring should be clean, fully enclosed, with the permanent HVAC set at a uniform temperature range of 55°F (13°C) and 85°F (29°C) and maintained following the installation.

Temperature - Ambient

- Controlled environments are critical for testing and installation. Fully operational HVAC systems are the best way to ensure temperature and humidity control.
- Do not install resilient flooring products until the work area can be temperature controlled. Minimum installation temperature is 55°F (13°C) with a maximum installation temperature of 85°F (29°C) and humidity below 65% for 48 hours prior to, during and after installation.

NOTE: Do not install flooring if subfloor moisture test results exceed recommended limits.

Temperature - Radiant Heat

- Radiant heated substrates must never exceed 85°F (29°C) surface temperature.
- Several days prior to installing resilient products over newly constructed radiant heated systems, make sure the radiant system has been on and operating at maximum temperature to reduce residual moisture within the concrete.
- Three days prior to installation, lower the temperature to 65°F (18°C). Twenty-four hours after installation, gradually increase the temperature in increments of 5°F.
- After continuous operation of the radiant system, ensure the surface of the floor does not exceed 85°F (29°C).

Installation Instructions

Inspection of flooring material prior to installation is required. Before installation, defects should be immediately reported to the retail store from which the flooring was purchased. Mohawk will not be responsible for labor costs to repair or replace material with defects that were visible at the time of installation.

NOTE: Your starter rows will consist of your first and second row to provide additional stability. See Diagram 1 for examples of the instructions below.

NOTE: Never install cabinets or other affixed, vertical objects over vinyl flooring.

- The first plank (#1) of the first row should be a full-length plank. Trim off the profiles facing the wall and position the cut edges adjacent to the wall making sure that you leave an expansion gap of 3/8 inch (9 mm) between the plank and wall using spacers as needed. The entire installation requires a 3/8-inch expansion space.

NOTE: Tiles and planks may be cut with a small, resilient tile cutter or scored with a utility knife and snapped.

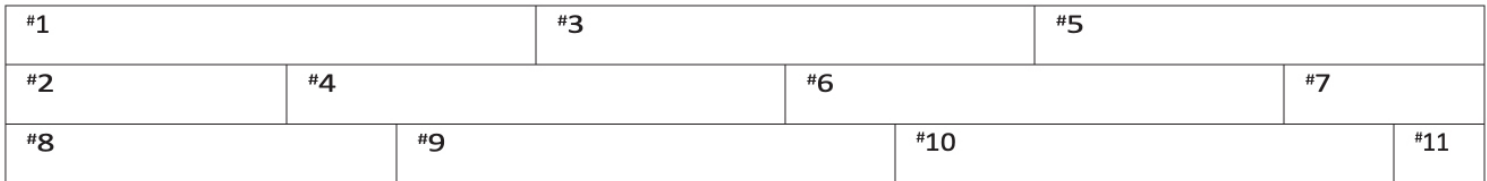
- The first plank (#2) of the second row should not exceed 50% of the length of the plank.
- Align the first plank (#2) of the second row with the first plank (#1) of the first row at an angle and engage the long-side joint by folding down until joints lock. The factory end should face in from the perimeter of the installation. Cut edges always face away from the field of the installation. To properly seal the joint, if necessary, use a small scrap of plank to GENTLY tap along the entire length of the plank. Lock the scrap piece (groove to tongue or tongue to groove) to the plank requiring tightening and gently tap the edge of the scrap with a tapping block. This will bring the plank edges tightly together.
- Align the second plank (#3) of the first row against the end joint of plank (#1) of the first row at a slight angle and fold down until joints lock.
- When joining the next plank (#4) to the first plank in the second row (#2), join the short-side edges first. There will be a gap on the long-side joints when the plank is rotated down.
- Raise the outside long edge of the plank upward approximately 1 inch. This will raise the outside long edge of planks in that row. Maintain this angle as you push the plank in until the long edge of the plank meets the long edge of the first row. Rotate downward on the plank until the joint locks. Tap the long-side or short-side joints closed, if necessary, by using a tapping block or pull bar.
- Align the third plank (#5) of the first row against the end joint of plank (#3) of the first row at a slight angle and fold down until joints lock.
- When joining the next plank (#6) to the second plank in the second row (#4), join the short-side edges first. There will be a gap on the long-side joints when the plank is rotated down.
- Raise the outside long edge of the plank upward approximately 1 inch. This will raise the outside long edge of planks in that row. Maintain this angle as you push the plank in until the long edge of the plank meets the long edge of the first row. Rotate downward on the plank until the joint locks. Tap the long-side or short-side joints closed, if necessary, by using a tapping block or pull bar.
- When joining the next plank (#7) to the third plank in the second row (#6), join the short-side edges first. There will be a gap on the long-side joints when the plank is rotated down.

- Raise the outside long edge of the plank upward approximately 1 inch. This will raise the outside long edge of planks in that row. Maintain this angle as you push the plank in until the long edge of the plank meets the long edge of the first row. Rotate downward on the plank until the joint locks. Tap the long-side or short-side joints closed, if necessary, by using a tapping block or pull bar.
- After each row is complete, ensure there is gap no less than 3/8 inch (10 mm) around the perimeter.
- Repeat these steps to complete the installation.

NOTE: Check floor squareness and straightness regularly.

Diagram 1

Wall



- To install the final row of planks/tiles, you will usually need to cut them. We recommend the following: lay a plank face up on top of the last row installed with the tongue and groove facing the same way as the field of the installation, (*This will represent your final row to be trimmed.*) Place another plank against the edge of the wall and on top of the final row. Mark the plank underneath. Cut the plank and install the last row, leaving ample expansion space.
- Remove all spacers.
- The entire perimeter of the installation must be sealed with the WetProtect molding system and 100% silicone sealant or PerimeterSeal applied in accordance with the installation instructions. For sections where the WetProtect molding system or PerimeterSeal cannot be used, seal the perimeter with 100% silicone sealant, as follows. DO NOT use acrylic sealant.
- PerimeterSeal Tape may be used to seal floor perimeters, corners, and transitions. (*see PerimeterSeal Instructions*)
- First, fill all expansion spaces with 3/8-inch compressible PE foam backer rod and cover with silicone sealant.
- Prior to installing the moldings, apply silicone sealant to the portion of the molding or transition that will contact directly with the flooring surface.
- Install moldings and immediately wipe away any excess silicone sealant.
- Apply silicone at connections to doorframes or any other fixed objects.

NOTE: In place of a resilient tile cutter, a miter or circular saw (with the blade cutting into the design of the plank) can be used to cut the rigid luxury vinyl flooring. A utility knife can also be used, scoring the top of the pattern and snapping the plank. It will be necessary to cut the foam underlayment after snapping the plank.

NOTE: Maintain the 3/8-inch space around cabinets, pipes, toilet flanges, walls, vertical objects and any obstacle in the floor. Quarter round or baseboard molding will cover this expansion space. (It is not recommended to trim around a toilet; however, leave the expansion space around the toilet flange.)

Additional Instructions/Notes

Multi-Width Plank Installation

- To install the multi-width product, install a row of the 7-inch-wide plank alternating between the 5-inch and 9-inch plank sizes. Install a 5-inch row, then 7-inch row, then 9-inch row, and then 7-inch row again, and then repeat this pattern.

Molding and Transitions

- All floor molding and transition strips need to provide a 3/8-inch (10 mm) expansion space to allow expansion and contraction.
- Ensure moldings and transitions strips will not pinch the flooring. This will prevent the floor from properly expanding and contracting as well as allowing the structure to move freely over the floor.
- For rooms that have a run greater than 50 feet, a transition strip must be installed.
- Never allow nails or screws to enter the rigid luxury vinyl flooring or the expansion zone around the flooring perimeter as it will prevent proper expansion and contraction of the flooring structure.
- Quarter round, base board, door jambs, etc., should never pinch the flooring as this may prevent the floor from properly expanding and contracting.

Care & Maintenance

To help protect your floor and keep it clean, follow these proper care and maintenance guidelines:

Preventative Maintenance

- Prevent indentations and scratches by using non-staining floor protectors on the legs of chairs, appliances and all heavy furniture. Floor protectors should be at least 1 inch in diameter.
- Do not overwet or flood the floor with water nor subject the floor to standing water.
- Protect your floor from tracked-in dirt by using mats at all outside entrances. Mats should have a non-rubberized backing and be marked as non-staining.

- Avoid tracking in tar or asphalt from driveways.
- Avoid high-heeled shoes on your floor as they can cause permanent indentations.
- Protect your floors against burns. Burns from cigarettes, matches or other extremely hot items can cause permanent damage.
- Avoid exposure to direct sunlight for prolonged periods as this can cause discoloration.

Cleaning & Maintenance

- Sweep the floor regularly with a soft bristle broom to remove loose dirt.
- Clean the floor with non-abrasive, neutral PH floor cleaner.
- For everyday maintenance, a mop moistened with warm water will suffice.
- Spills should be cleaned up immediately.

DO NOT use the following on your luxury vinyl floor:

- Soap-based detergents
- Abrasive or mop-and-shine products
- Vacuum cleaners with a rotating beater bar
- Ammonia
- Floor wax
- Bleach solution greater than 3%

NOTE: Always read the cautionary information on all cleaners prior to use.

NOTE: Never push, pull or drag furniture, appliances or other items across the floor. When moving furniture or heavy items, always lift and carry the items. To minimize the risks of scratches and gouges when moving heavy objects, place plywood underlayment between the flooring and object to be moved.