

# HERRINGBONE INSTALLATION INSTRUCTIONS

## Materials Required for Installation

• Tape Measure	• Full-Face Tapping Block	• Saber Saw/Circular Saw	• Pull Bar	• Tile Cutter
• Carpenter's 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.

## Underlays

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 Underlays

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, having 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 on 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 jobsite 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 F710 "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 pounds or less per 1,000 square feet 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 square feet. Conduct one additional test for each additional 1,000 square feet. Always measure, record, and keep your testing results. The pH of the slab must be between 5.0 and 9.0 as tested using test standard ASTM F710.

A minimum 6-mil polyethylene vapor barrier with a density of 0.92 pounds/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 and 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 of FF 75/ FL 50 to prevent telegraphing issues.

### **Other Approved Underlays**

- 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 (*5 mm over a length of 3 m and 1 mm over a length of 30.5 cm*) 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 doorjambs 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.**

## Jobsite Conditions

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- It is recommended that installation not begin until all other trades are completed.
- Flooring must be acclimated in the room of installation between 55°F and 85°F (13°C-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°F-85°F (13°C-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 between 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

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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. The manufacturer will not be responsible for labor costs to repair or replace material with defects that were apparent before or noticed at the end of an installation.

**NOTE: Do not install cabinets on top of vinyl flooring.**

**NOTE: Cutting tiles and planks may be cut with a small resilient tile cutter or scored with a utility knife and snapped.**

**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 a 3/8-inch (0.95 cm) expansion space around all walls and vertical objects. Quarter round or baseboard molding will cover this expansion space.**

**NOTE: Maintain the 3/8-inch space around cabinets, pipes, toilet flanges, and any obstacle in the floor. (It is not recommended to trim around a toilet; however, leave the expansion space around the toilet flange.)**

In order to obtain a good result, we advise following all given instructions carefully.

**Step 1.** Measure the room before you start fitting. Indicate the middle of the width of the room, as shown in figure 1.

**Step 2.** Make sure that you have an equal amount of A and B types of panels. Later in these instructions, the A-type panels will be indicated with the letter A, and the B-type panels will be indicated with letter B.

**Tip: During installation, make sure that you mix up the A and B types of panels sufficiently so that there are not too many identical, lighter, or darker panels next to each other. Fit an underlayment if necessary.**

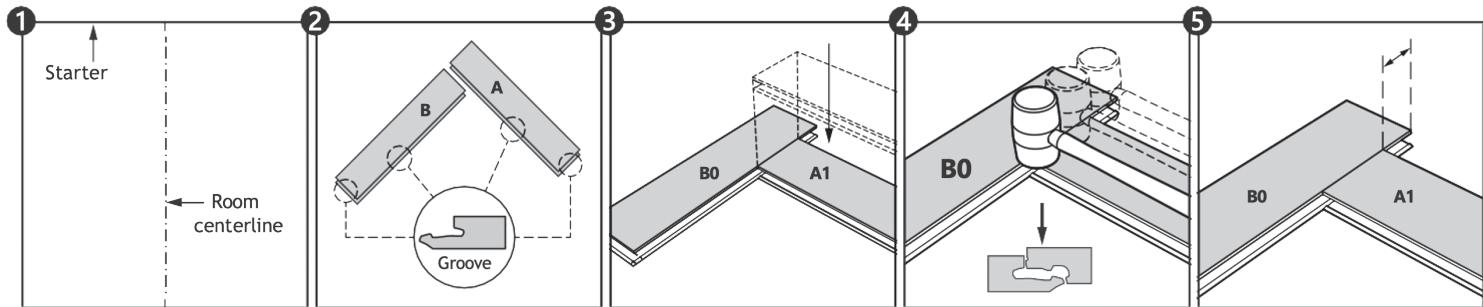
**Step 3.** Start by positioning the panels in the correct orientation before you install them. Panels A and B should be positioned with the tongue side facing the starter wall, meaning that the long-side groove of both panels A and B are facing toward you. Panel B should be positioned with the tongue on the short side toward panel A. See figure 2.

**Step 4.** Position an extra panel B0 above panel A1. The purpose of panel B0 is to ensure correct alignment of the following panels. It will be removed later. Connect the tongue of the short side of panel A1 with the groove of the long side of panel B0 with a drop-down movement, as shown in figure 3. Use a rubber hammer to fully connect the short side of panel A1.

The hammering should be done in the direction of and partly over panel B0. Please be careful not to damage the profile or edges while engaging the panels. See figures 4 and 5.

**Step 5.** The long sides of the panels must be joined by an "angle movement". Insert the tongue of panel B1 into the groove of panel B0 at an angle of about 20-30 degrees. Slide panel B1 until the tongue on the short side is positioned just above the groove of panel A1, then press panel B1 down to ensure the long sides of panels B1 and B0 are connected. Finally, connect the tongue on the short side of panel B1 by making use of the rubber hammer in the same way as described in Step 4. See figures 6-8.

Make sure that the joints are completely engaged over the whole length of the panel. If the angle movement doesn't go easily, it means that the planks aren't correctly engaged with each other.



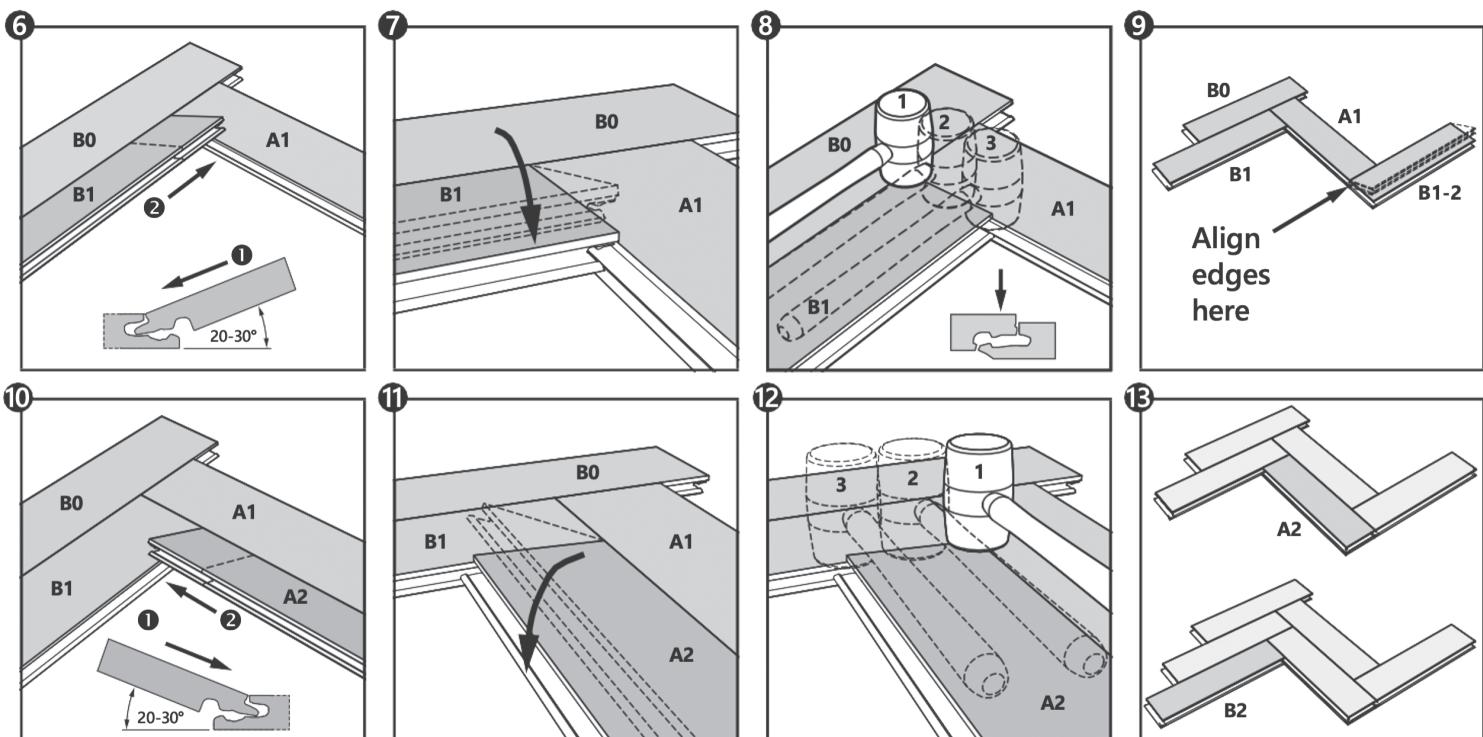
**Step 6.** The next step is to connect another B panel with the already installed panel (A1) at an "angle movement". Insert the tongue of this panel (B1) into the groove of panel A1 at an angle of about 20-30 degrees and press panel B1-2 down. See figure 9.

Make sure that the edges of the two panels are perfectly aligned with each other.

**Step 7.** Now you can install plank A2 in the same way as you installed panel B1. Connect the tongue of the long side of panel A2 with the groove of the long side of panel A1 at an angle of about 20-30 degrees.

When the long sides are correctly installed, you can connect the tongue of the short side of panel A2 with a fold-down movement into the groove of the long side of panel B1. Fully engage these short sides by making use of the rubber hammer in the same way as described Step 4. See figures 10-13.

Install the next B panel in the first V-row of your floor in the same way. See figure 13.



**Tip:** It is advisable to kneel or stand on the already installed panels to ensure that they don't start shifting during further installation.

**Step 8.** Follow the above steps 4-7 to continue the installation.

1. First you lay a B0 panel as a temporary supporting panel.
2. Then you can connect the next A panel with the supporting B0-2 panel and already installed B panel. The long-side groove of panel A1-2 can be joined with the short-side tongue of the B panel by an angle movement.

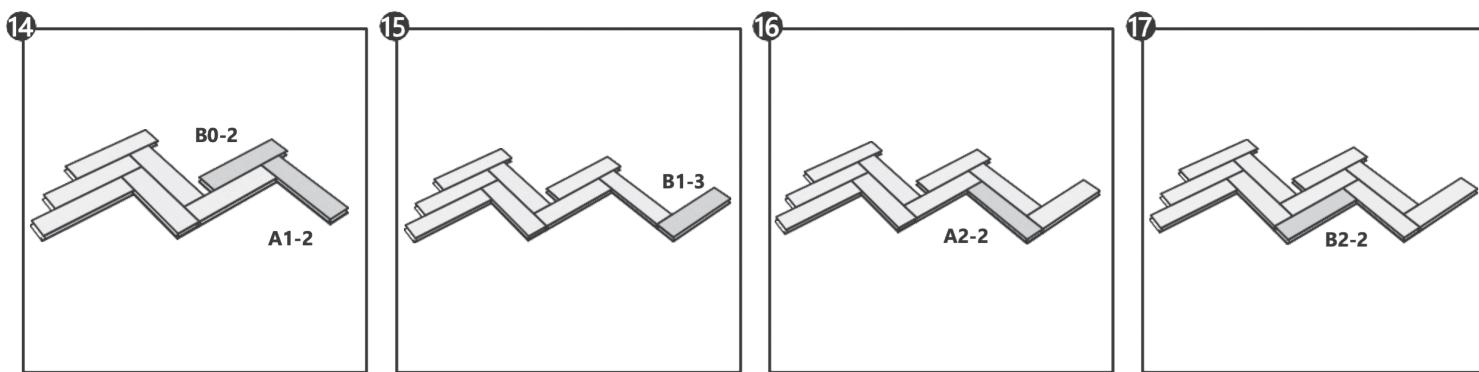
When the long side of panel A1-2 is correctly installed, you can connect the tongue of the short side of panel A1-2 with a fold-down movement into the groove of the long side of the supporting B0-2 panel. Fully engage both the short side of the B0-2 panel and the short side of panel A1-2 by making use of the rubber hammer in the same way as described in Step 4. See figure 14.

3. The next step is to connect the long-side tongue of the next B panel to the short-side groove of the newly installed A panel by making use of an angle movement. See figure 15. Always ensure that the edges of the two panels are perfectly aligned with each other.
4. Now that you have created the next V-row, you can install the following 4 panels of this and the previous 'V-row'. Always connect the long-side tongue of the panels to the long-side groove of the adjacent panels by making use of an angle movement.

Afterwards, connect the tongue on the short side of the panels to the groove of the long side of the adjacent panels with a fold-down movement. See figures 16-19.

5. After installing these panels, you can start creating the next 'V-row' with a new supporting B panel and follow then repeat the above steps. It is very important to make sure the rows are perfectly centered in the middle of the room. Please take a moment to verify this.

**Step 9.** After having installed about 5 full V-rows, you can take away the supporting B panels and move the rows up to the starter wall, as shown in figure 20.



Don't forget to take into account an expansion gap between the wall and the panels.

**Step 10.** The open triangles between the starter wall and the installed V-rows still need to be installed. These panels need to be cut off at the correct angle. To draw the cut-off line, rotate the panel by 180 degrees and place it on the floor in its intended position, but with its corner aligned with the corner of the adjacent board, as indicated in figure 21 by the arrow and the letter C. The dashed gray line in figure 21 shows that if the cut-off line was extended, it would intersect the corners of the nearby panels. The projecting grooves of the rotated panel will overlap the expansion gap while the cut-off is being marked. This expansion gap is needed to allow the floor to move naturally after installation. The marked panel can now be sawn.

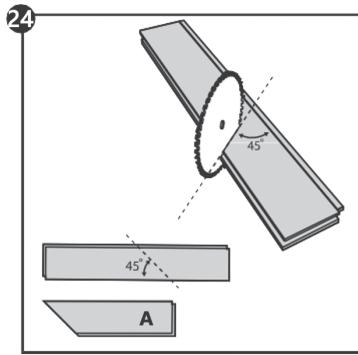
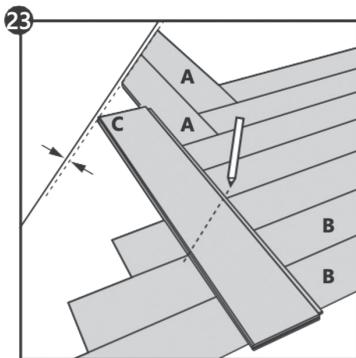
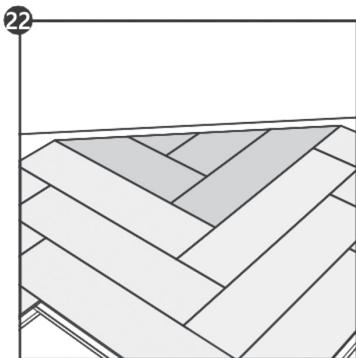
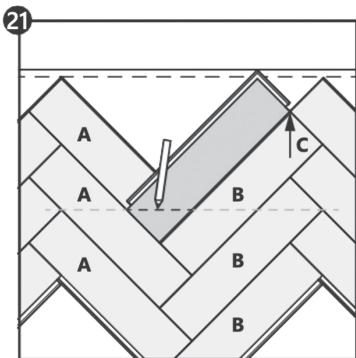
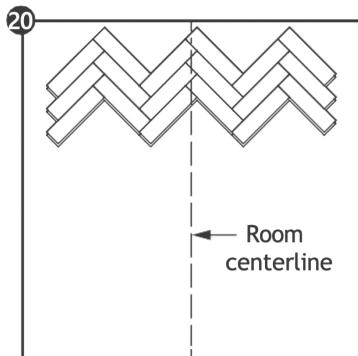
Insert the long sides of the cut-off panels at an angle of about 20-30 degrees. Press the panels down to ensure these long sides are fully connected. Finally, connect the short sides of the panels by a snapping movement.

Use the tapping block and rubber hammer for this. Place the tapping block against the opposite short side of the panel and gently tap until the short sides of the panels are fully connected.

**Tip:** It is advisable to kneel or stand on the already installed panels to ensure that these panels don't start shifting during installation. Check after tapping panels into place that they are still well connected and perfectly aligned.

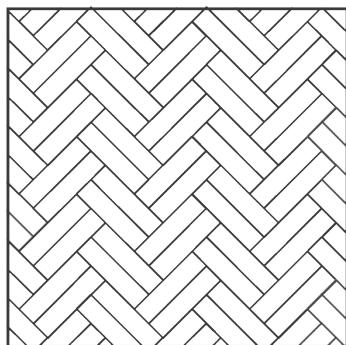
**Step 11.** After installing all rows of full planks, the last step in the installation of the herringbone floor is the installation of the cut-off planks along the side walls of your room. To draw the cut-off line, rotate the panel by 180 degrees and place it on the floor in its intended position. The corner "C" must be on the line of the expansion gap. Draw the line parallel with the wall at the point where the rotated panel intersects the already installed panel (the position of the pencil in figure 23). Now you can saw the panels.

## Installation of Other Patterns



Besides the single herringbone pattern, Unidrop can also be installed in other patterns. These are double herringbone and mosaic patterns.

For the double herringbone you can refer to the same installation instructions as for the single herringbone pattern. The only difference is that you need to put 2 panels next to each other.



## 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 and 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 nonstaining 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 or 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 nonstaining.
- 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 nonabrasive, 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.***