

### General Information

**Important Information:** The current versions of all associated technical documents, including technical data sheets, installation and maintenance instructions, and warranties, especially warranty exclusions, must be read, understood, and followed before and during installation. For suitable applications, refer to the Material Usage Guide. For guidance on wet areas, consult all applicable technical bulletins.

Before installation begins, all parties involved must review and understand all subfloor and substrate preparation requirements, including moisture-related concerns. Do not proceed until all required conditions have been met.

Site-related issues, including those resulting from the substrate, installation conditions, or job-site conditions, are not covered under warranty.

Do not install outdoors or expose the flooring to direct sunlight, prolonged UV/IR radiation, or high-heat sources, such as self-cleaning ovens, as these can lead to fading, damage, or excessive product movement. Avoid installing in areas where sharp or pointed footwear or objects (such as stiletto heels or cleats) may be present, as they may damage the product. Do not use rubber wheels, rubber casters, or rubber-backed mats directly on the flooring, as they may cause permanent stains. Allow all other trades to complete their work before installation begins. All ASTM standards referenced in this document can be purchased at [www.astm.org](http://www.astm.org).

**Warning:** All local, state, and federal regulations must be followed; this includes the removal of in-place asbestos flooring and adhesive and lead-containing materials. When appropriate, follow the Resilient Floor Covering Institute's (RFCI) Recommended Work Practice for Removal of Existing Floor Covering and Adhesive. Do not use solvent- or citrus-based adhesive removers. Follow all Occupational Safety and Health Administration (OSHA) guidance regarding exposure limits for respirable crystalline silica. Always wear safety glasses and use respiratory protection or other safeguards to avoid inhaling any dust. All liquid spills must be cleaned promptly; allow the floor covering to dry before allowing foot traffic.

**Receiving Material & Initial Storage:** The floor covering and accessories must be stored indoors in dry conditions between 40°F and 90°F (4°C to 32°C). Do not store outside, even in containers, and do not stack pallets. Remove all plastic and strapping from the product after delivery. Confirm that the flooring product, color, and quantity are correct. Carefully check all materials for shipping damage and note all damage on the bill of lading before accepting the delivery. Material accepted with visible shipping damage that is not reported on the bill of lading is not covered under warranty. Check all product lot numbers: if more than one lot is on-site, mark the pallets or boxes for each lot to facilitate lot management. Although mixing materials from different lots will not affect

performance, it may lead to noticeable visual differences in shade or texture. Therefore, ensure different lots are installed in separate areas. If mixing lots is intended, compare different lots under various lighting conditions before installation and ensure customer approval. Observable visual variations due to mixing production lots are not covered under warranty.

**Recommended Personal Protective Equipment (PPE) & Tools:**

- Safety Glasses, Safety Shoes, Dust Mask, and Cut-Resistant Gloves
- Knee Pads
- HEPA-Filtered Vacuum
- 10-foot or 6-foot Straight Edge or Level
- Utility Knife with New Blades
- Tape Measure
- Pencil
- Speed Square
- Chalk Marking Line
- 2 lb. Soft-Faced Dead Blow Hammer (preferred) or Rubber Mallet
- Wedge Spacers
- Pull Bar
- Jigsaw with Carbide Blades (for complicated cuts)
- Oscillating Multi-Tool or Hand Saw (for door jambs)
- Noncontact Infrared Thermometer
- Appropriate Substrate Preparation Tools

**Documentation:** Record and/or photograph all site conditions, test results, and corrective measures taken. All relevant pre-installation documentation, associated product sales invoices, shop drawings, and/or project information must be stored for the entire warranty period. In the unlikely event of a claim, these documents may be required to identify the product and validate compliance with all associated technical documents. A wireless, cloud-based monitoring system is recommended to monitor and track site conditions, especially when the site is unoccupied.

**Concrete Moisture**

- **Above-grade:** All concrete substrates must be visibly dry prior to and during installation.
- **On and/or Below-grade:** All concrete substrates that may come into direct contact with moisture from the ground must be visibly surface-dry and meet at least one of the following requirements before installation.
  1. Concrete must have a confirmed, effective vapor retarder installed

directly beneath the slab that complies with ASTM E1745 Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slab.

2. Optional for Residential Installations only, concrete must be tested for surface moisture, following the ASTM F2659 Standard Guide for Preliminary Evaluation of Comparative Moisture Condition of Concrete, Gypsum Cement and Other Floor Slabs and Screeds Using a Non-Destructive Electronic Moisture Meter. Electronic moisture meter(s) must be set for concrete substrates and properly calibrated with a 0.0% to 6.9% Moisture Content (MC) scale. Perform at least three tests within a 1-sq. ft. location and record the highest MC reading. Repeat the test at eight or more different locations per 1,000 sq. ft. All results must be  $\leq 4.5\%$  MC.

3. Within three weeks of flooring installation, test the concrete following the ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes. All results must not exceed 90% RH.

4. Test concrete for surface porosity, following the ASTM F3191 Standard Practice for Field Determination of Substrate Water Absorption (Porosity) for Substrates to Receive Resilient Flooring. Concrete must absorb water droplet(s) within 15 minutes to be considered porous. If the concrete is not porous, using mechanical methods to abrade the surface, such as diamond grinding, sanding with a Diamabrush buffer attachment, shotblasting, or similar methods are acceptable. Acid etching is also an option when the manufacturer's instructions are carefully followed. Ensure acid-etched concrete is rinsed with clean water and remove the slurry with a wet vacuum at least twice. Retest per ASTM F3191 to confirm concrete is porous.

5. Use a suitable, effective surface-applied moisture mitigation system that prevents water and/or moisture accumulation directly beneath the flooring, following the manufacturer's instructions.

### Substrate Preparation

**Flatness:** Check all substrates for flatness before installation. Substrates must be smooth and have a maximum flatness deviation of 1/8 in. (3.18 mm) over 6 ft. (1.83 m), when measured using an industry-recognized method. All substrates that do not meet this requirement must be corrected using a suitable repair product before installation. Failure to correct flatness issues may affect the performance of the locking mechanism and the product warranty.

**Concrete:** All concrete must be at least 28 days old, structurally sound, stable, and have a minimum compressive strength of 3,000 PSI before installation. The concrete must be clean, surface-dry, and free of contaminants, such as dust, residual adhesives, solvents, wax, oil, grease, mold, mildew, asphalt, and visible alkaline salts. If site conditions are inadequate or if there is any evidence of water, hydrostatic pressure, or chemical adhesive removers on the concrete, do not proceed with the installation; contact the Novalis Technical Department for guidance.

**Concrete Construction Joints & Cracks:** For construction joints, saw cuts, crack inducers, and other cracks that are  $\geq 1/4$  in., remove

all debris, dust, and dirt from the openings. Next, fill cracks with a rigid crack treatment designed for construction joints, ensuring the surface is troweled flush with the surrounding concrete.

**Concrete Expansion Joints:** Joints between separately poured slabs require an appropriate expansion-joint covering system to manage concrete expansion and contraction. The expansion-joint covering system must be capable of covering the necessary flooring expansion gap without restricting flooring movement.

As needed, flatten or smooth the surface with a moisture-resistant, commercial-grade leveling or patching compound, following the product manufacturer's instructions.

**Gypsum or Lightweight:** Lightweight or gypsum substrates must be dry according to the product manufacturer's specifications and have a minimum compressive strength of 2,000 PSI when installed over wood or 3,000 PSI when installed over concrete. The substrate must be installed and prepared in accordance with ASTM F2471 Standard Practice for Installation of Thick Poured Lightweight Cellular Concrete Underlayments and Preparation of the Surface to Receive Resilient Flooring or ASTM F2419 Standard Practice for Installation of Thick Poured Gypsum Concrete Underlayments and Preparation of the Surface to Receive Resilient Flooring, respectively.

New or existing substrates may require a sealant or primer before resilient flooring is installed. Follow the product manufacturer's instructions for appropriate preparation. Substrates must be firmly bonded to a structurally sound subfloor. Any cracked or damaged areas must be removed and repaired using a compatible repair product.

**Wood:** All wood substrates must be structurally sound, stable, and free from deflection, movement, or instability. Subfloors must comply with International Building Code (IBC) and all other applicable local building codes.

Sleepers and sleeper systems must not be in direct contact with the ground, including contact through concrete foundations. Wood moisture content (MC) must meet the requirements for the region to ensure proper performance, stability, and durability.

Wood subfloors and substrates may be prepared in accordance with ASTM F1482, Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring.

**Resinous Coating:** When installing directly over resinous coatings, such as an epoxy coating or a moisture mitigation system, ensure the coating is clean, free of contamination, structurally sound, smooth, dry, and properly cured according to the manufacturer's instructions.

**Metal:** Metal substrates must be clean, dry, structurally sound, smooth, and free of oil, rust, and/or oxidation. When installing flooring in areas that may be subject to topical water, moisture, and/or high humidity, an anticorrosive coating should be applied to protect the metal substrate. Contact a local paint or coating supplier for coating recommendations.

**Radiant Heating:** When installing flooring over a substrate that

contains a radiant heating system, ensure that no heating elements make direct contact with the flooring material. Ensure radiant heat is set no higher than 70°F (21°C) 8 hours before and during the entire installation. After installation, radiant heat may gradually increase over 24 hours until normal operating temperature is reached. Ensure the radiant heating system does not exceed 85°F (29.5°C) and avoid abrupt changes in radiant-heating temperature.

**Sound Control Underlayments:** Additional sound-control underlayments must not be used beneath this floor covering. Issues related to the installation of additional unapproved underlayments will not be covered under warranty.

**Other Substrates:** Installing over existing resilient vinyl flooring is not recommended. However, installation may be possible over some materials, such as vinyl composition tile (VCT), vinyl asbestos tile (VAT), quartz tile, solid vinyl tile, sheet vinyl, or linoleum, as well as existing hard-surface flooring substrates, such as terrazzo, porcelain, or ceramic tile. Ensure the substrate is dry and the existing flooring is clean, dry, sound, solid, and well adhered. All loose material must be removed and repaired or replaced. All imperfections must be flattened and smoothed with a suitable repair product. Electing to install over an existing floor covering releases the manufacturer from all liability related to the suitability and continued performance of the existing product, including all subsequent effects on the new floor covering.

**Unsuitable Substrates:** Unsuitable substrates include, but are not limited to, floating or loose floor coverings, hardwood, carpet, cushioned vinyl, rubber, cork, foam, asphalt tile, additional acoustic underlayments, any subfloor with visible mold, mildew, fungi, and any subfloor in wet areas, such as showers and saunas. Do not install directly over adhesive or adhesive residue of any kind or in recreational vehicles, campers, or boats.

**Note:** Existing hardwood floor coverings will swell when exposed to moisture. Vinyl floor covering may restrict the movement of moisture in hardwood, which may result in flooring failure, especially when installed on or below grade. Some hardwood floor coverings may also discolor vinyl floor covering. Issues related to unsuitable substrates are not covered under warranty.

### Installation Requirements

**Expansion Gap:** To allow the flooring to expand and contract freely, maintain an expansion gap around the entire perimeter of the installation including all adjacent vertical surfaces, and adjacent flooring, fixed furniture, thresholds, fixtures, door jambs, and other protrusions. The required expansion gap is as follows:

- Areas that are ≤ 50 ft. in length and/or width must have a ≥ 1/4-in. expansion gap.
- Areas that are > 50 ft. and ≤ 85 ft. in length and/or width must have a ≥ 1/2-in. expansion gap.
- Hotel rooms, multi-family units, and assisted-living facilities that may undergo high-heat pest control must have a ≥ 1/2-in.

expansion gap.

- Fully enclosed and weatherproof three-season rooms, sunrooms, and other areas that will remain between 40°F and 90°F (4°C and 32°C) must have a ≥ 1/2-in. expansion gap. These areas must be no more than 30 ft. in length and/or width and must be isolated from other areas with compatible T-molding.
- Areas where heavy furniture weighing ≥ 800 lb. (363 kg) and supported by furniture feet will be installed on top of the flooring must be isolated from other rooms or installation areas with compatible T-molding and have a ≥ 1/2-in. expansion gap.

**Note:** Do not install more than one piece of heavy furniture within the same installation area. When covering expansion gaps, do not adhere accessories directly to, or anchor accessories through, the flooring material, as this restricts movement and may result in locking mechanism failure.

**Expansion Joint:** When the total installation length or width exceeds 85 ft., an expansion joint must be created to allow for expansion and contraction. Expansion joints must be wide enough to accommodate an appropriate T-molding and the required expansion gap on either side of the T-molding. T-moldings must cover the flooring material by at least 1/8 in. on each side and must be glued or anchored directly to the substrate.

**Site Conditions:** The prepared installation area must be fully enclosed and weatherproof. Maintain steady site conditions (within ± 5°F) between 60°F (16°C) and 80°F (27°C) and 35% and 65% relative humidity using an HVAC system. Conditions must be at least 10°F above dew point. During installation, block direct sunlight using window treatments or other protective methods.

**Acclimation:** When stored in accordance with the Initial Storage requirements, the product does not require acclimation.

**Note:** If installed at temperatures > 80°F (27°C), the width of the expansion gap will increase as the temperature decreases.

**Layout:** Confirm the installation pattern and direction in accordance with the design specifications or work order. Planks should be installed in a random pattern, with all end joints randomly spaced at least 8 in. apart. Failure to do so may weaken the integrity of the flooring system and could result in installation failure. Avoid “H” joints, stair-stepping, and obvious pattern repeats. Tiles should be installed in a brick-bond or 1/3-offset pattern.

**Straightness:** Keeping the installation straight is critical. Check the first row using the chalk line and adjust as necessary. The acceptable straightness tolerance is within 1/16-in. for > 20-ft. lengths or 1/32-in. for < 20-ft. lengths.

**Wall Base/Molding:** Remove wall base before flooring installation unless a molding (fixed to the wall or wall base only) will be installed to cover the expansion gap. Undercut all wooden door jambs and the first 1 inch. of any adjacent wall base with an oscillating multi-tool. The undercut height must be the thickness of the floor covering plus 1/64 in., which allows the floor covering to expand and contract naturally. Steel door jambs should be pattern-scribed,

accounting for the required expansion gap. After installation is complete, fill these gaps using color-coordinated 100% silicone sealant. Thoroughly clean the area using a HEPA-filtered vacuum before flooring installation.

**Blending:** Inspect all materials before and during installation to verify that there are no visible defects, damage, or excessive shade, sheen, or texture variations. Blend materials from multiple cartons within the same lot to ensure a consistent appearance. Some flooring products, colors, and textures may have acceptable color and shade variations. If there are concerns regarding defects, shade, sheen, or texture variations, do not install the material; consult a sales or technical representative. Labor and associated costs for materials installed with obvious visual defects and/or mixed production lots are not covered under warranty.

### Installation

**Starting Line:** Determine the best location to begin the installation. In a room, this is typically along the longest straight wall with a doorway. Measure the width at each end of the installation area, then calculate the width of the final row. If the final row is less than half the width of the flooring, adjust the width of the first row to compensate. Mark the starting line using a chalk line.

**Cutting:** Using a speed square as a guide, carefully score along the cut line at least twice with a utility knife and a new blade. Snap the piece downward to complete the cut. Alternatively, a suitable guillotine cutter may be used. For complicated cuts, a jigsaw with a carbide blade may be used, as necessary, while following the tool manufacturer's safety instructions.

**First Row (Angle):** At the left corner of the starting wall, position the first piece so that either the pre-cut side or the long side without the extended locking mechanism (tongue) is parallel to the wall. Place wedge spacers between the floor covering and the wall to maintain the required expansion gap. Insert the second pre-cut piece into the previous piece at a ~25° angle and lay it flat, ensuring the end joint is properly seated.

Repeat this process to complete the first row. When reaching a doorway, ensure that the cut edge will be covered by the door jamb and frame while maintaining the required expansion gap.

For the last piece, measure, mark, and cut while maintaining the required expansion gap. Keeping the installation straight is critical. Check the first row using the chalk line and adjust or reinforce the entire row with wedge spacers as needed to straighten it.

**Subsequent Rows - Horizontal Angle-Tap Method:** Starting at the left corner, place a wedge spacer along the wall to maintain the expansion gap. Using a cut piece with proper joint spacing, push the tongue of the long side into the groove of the previous row at a ~25° angle, slide it into position, and lay it flat. Ensure each piece is properly seated before continuing.

Install the next piece by angling the tongue of the long side into the previous row at a ~25° angle and push it into the adjacent groove

until properly seated. The tongue of the short side should slightly overlap the groove of the previously installed piece. Seat the tongue of a ~6-in. scrap piece into the groove at the other end and use a 2-lb. (~32-oz.) soft-faced dead blow hammer (preferred) or rubber mallet to lightly tap toward the previous piece until fully engaged. Complete the following rows using this method. Use a pull bar on the last piece of each row and the last row as necessary.

**Optional - Angle-Angle Method (Planks Only):** First, complete five or six rows using the Angle-Tap method; then turn around and work on top of the installed material. This allows the side joints to be pulled together rather than pushed into place.

Starting at the right end, place a wedge spacer along the wall to maintain the expansion gap. Using a cut piece with proper joint spacing, pull the tongue of the long side into the groove of the previous row at a ~25° angle, slide it into position, and lay it flat. Ensure the piece is properly seated before continuing.

Install the next piece by angling the tongue of the short side into the groove of the previous short side. The tongue of the long side should slightly overlap the groove of the adjacent row. With the short side properly seated, carefully lift the piece and pull it into the adjacent groove until it is fully engaged, then lay it flat. If necessary, seat the tongue of a ~6-in. scrap piece into the groove at the other end and use a 2-lb. (~32-oz.) soft-faced dead blow hammer (preferred) or rubber mallet to lightly tap toward the adjacent row until fully engaged. Complete the following rows using this method, using a pull bar on the last piece of each row and the last row as necessary.

**Uninstalling:** To replace a piece or disengage end joints, first raise the outside edge of the entire row by ~25°, then disconnect the row from the rest of the installation. Once the row is removed, remove one piece at a time by angling upward and separating it in the reverse order of installation.

### Installation Tips:

- Do not hit any part of the locking mechanism directly with a hammer, tapping block, or pull bar unless it is an end piece or the last row. Doing so will damage the locking mechanism and may result in peaking, gapping, and joint separation. To tighten gaps in the installation, use a ~6-in. piece of scrap floor covering, seated in the locking mechanism, and lightly tap toward the adjacent piece or row.
- When installing pieces that are < 3 in. in length or width, place a thin bead of clear liquid super glue on the adjacent grooves before installing to ensure the joints remain locked together during use. Immediately remove excess glue from the surface of the flooring or joint using isopropyl alcohol and a clean white cloth.
- When installing in an area with a long hallway or multiple adjoining rooms, typically begin the installation from the center of the hallway. Mark the starting line and install the first row.

Pre-cut enough 6-in. pieces for use as temporary blocks. A block should be placed at each end and at each joint of the first row. Apply double-sided vinyl flooring tape to the underside of each block.

Position and engage each block, then stand on it to ensure a secure bond. Alternatively, once engaged with the starting row, the blocks may be fastened to the substrate using appropriate screws.

After several rows have been installed, the blocks can be removed, allowing the installation to proceed in both directions and into adjoining rooms simultaneously.

### Post-Installation

Visually inspect the area to ensure that the installation is straight and that all joints are tight and correctly spaced. Fill any perimeter gaps that will not be covered by an accessory with a color-coordinated 100% silicone caulk. When covering perimeter gaps with an accessory (wall base, molding, thresholds, T-molding, etc.), ensure the accessory overlaps the flooring material by at least 1/8 in. All accessories must be glued or anchored directly to the substrate or vertical surface. Take photographs, then have any required documentation signed and filed after completion.

Do not place, slide, or drag heavy objects across the floor. When moving appliances, heavy furniture, or equipment, protect the flooring with appropriate hard-surface furniture sliders or 1/2-in. plywood. Casters, glides, and feet of all furniture or equipment must have a flat contact point that is at least 1 sq. in. or 1.125 in. in diameter to limit indentation and flooring or finish damage. To avoid maintenance-related issues, do not use nylon or hard-plastic wheels, glides, or casters. Before final use, ensure the customer has reviewed the Floor Protection & Maintenance document.

Provide the customer with three or more extra pieces of flooring in the original packaging as attic stock, which should be kept for the lifetime of the floor. In the unlikely event of a product issue, attic stock can play a crucial role in product identification, color matching, product claim verification, and possible repairs.