

### General Information

**Limitations:** Acceptable concrete substrates must have an effective vapor retarder that is compliant with ASTM E1745 installed directly beneath the slab. The optimal operating temperature for use is between 40°F to 90°F (4°C to 32°C). Avoid prolonged exposure to direct sunlight or other heat sources where temperatures will exceed 90°F (32°C), as discoloration, deformation or damage may occur. Do not install in areas that may be subjected to sharp, pointed objects, such as stiletto heels, cleats or spikes. Do not allow product to be directly exposed to extreme heat sources, such as self-cleaning ovens or other high-heat equipment. Do not install outdoors or in areas that may be exposed to repeated and sustained UV/IR rays, as product may fade, discolor or experience excessive movement. Refer to the Material Usage Guide and, if applicable, the Wet Areas technical bulletin for a full list of acceptable areas and information about approved areas of use. Do not use rubber tires, casters or rubber-backed walk-off mats directly on the flooring surface, as permanent staining may occur.

Copies of ASTM documents are available for purchase at [www.astm.org](http://www.astm.org).

**Receiving Material & Storage:** Remove all plastic and strapping from product after delivery. Confirm that the flooring product color, style, quantity and lot numbers are all 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. Ensure that the adhesive intended for installation is approved for use with the flooring product. The floor covering, adhesive and accessories must be stored in dry indoors conditions between 40° F - 90° F (4° C - 32° C). Do not store outside (even in containers) and do not stack pallets. Deliver all materials to the installation location in its original packaging with labels intact.

#### Recommended Tool List:

- Appropriate Personal Protective Equipment (PPE)
  - Safety Glasses, Cut-Resistant Gloves, Suitable Dust Mask, etc.
- Appropriate Tools & Machinery for Substrate Preparation
  - Floor Buffer, Grinder, Floor Scraper, etc.
- HEPA-Filtered Vacuum
- 6-foot and 1-foot Straight Edge or Level with two quarters (U.S. coins)
- Tape Measure
- Pencil
- Speed Square
- Utility Knife with New Blades
- Chalk Marking Line
- Adhesive Trowel and Blades – 1/32 x 1/16 x 1/32” U-notch (FFA)
- 100 lb. Three Section Roller
- Oscillating Multi-Tool or hand saw (for door jambs)

- Non-Contact Infrared Thermometer
- Knee Pads

**Approved Adhesive Information:** The Novalis NV-GLU Acrylic Transitional Adhesive **must** be used. The NV-GLU is available in 1-gallon and 4-gallon units and covers 175 - 250 sq. ft. per gallon, depending upon the subfloor and trowel angle. Replace trowels every 4 gallons to ensure even coverage - do not re-notch trowels. **Labor costs associated with materials installed with an unapproved adhesive will not be covered under warranty.**

**Warning:** All local, state, and federal regulations must be followed; this includes the removal of in-place asbestos flooring and adhesive, as well as any lead-containing materials. The Occupational Safety and Health Administration (OSHA) has exposure limits for people exposed to respirable crystalline silica; this requirement must be followed. Do not use solvent or citrus-based adhesive removers. When appropriate, follow the Resilient Floor Covering Institute’s (RFCI) Recommended Work Practice for Removal of Existing Floor Covering and Adhesive. Always wear safety glasses and use respiratory protection or other safeguards to avoid inhaling any dust. The label, installation, and maintenance instructions along with the technical data sheet, limited warranty and any appropriate Safety Data Sheet (SDS) of all products must be read, understood, and followed prior to installation. Do not leave spills unattended - wipe up promptly, and allow the floor covering to dry before allowing foot traffic.

**Documentation:** Record and/or photograph the site conditions, test results, and any corrective measures taken. All relevant pre-installation documentation, as well original product invoices and associated shop drawings or project information, should be stored for the entire warranty period.

**Site Conditions & Acclimation:** The area must be fully enclosed and weathertight. During the installation, any direct sunlight should be blocked using window treatments or other protection. Use permanent or temporary HVAC system to control the site conditions. The temperature for the installation must match the temperature when the product will be in use (in-service temperature) and be constant (± 5°F). In addition, ambient temperatures must be between 60°F (16°C) and 80°F (27°C) for ≥ 48-hrs. before, during and after the installation. The ambient relative humidity must be between 35% and 65% and ≥ 10°F above dew point (dew point calculators are available on the internet), or adhesive working and/or curing times will be severely affected. For any project that does not meet these requirements, please contact the technical department before installation.

### Substrate Preparation

**General Substrate Guidelines:** Ensure all substrate and subfloor

preparation requirements have been performed, read and/or understood by all interested parties. Do not proceed with installation until all conditions have been met. Ensure the substrate is clean, dry, flat, structurally sound and suitably prepared according to these instructions prior to installation, as manufacturer is not responsible for problems related to substrates or subfloors that have not been properly prepared. All substrates must be free of visible water or moisture, dust, residual adhesives and adhesive removers, solvents, wax, oil, grease, asphalt, visible alkaline salts or excessive efflorescence, mold, mildew and all other extraneous coating, film, material or foreign matter. Substrate and/or subfloor deflection, movement, or instability may cause issues with the flooring installation – these are not covered under warranty.

**Flatness Guidelines:** Check all substrates for flatness prior to installation. It is recommended that all substrates have a floor flatness of FF32 and/or have a maximum deviation of < 1/8-in. gap (2 x US quarters should not slide underneath) within 6-ft. and ≤ 1/16-in. gap (1 x US quarter should not slide underneath) within 1-ft.. Substrates that do not meet this requirement should be corrected appropriately prior to installation. Failure to follow this recommendation must be pre-agreed upon with customer / end-user before installation begins.

**Concrete Substrate Requirements:** All concrete must be at least 28-days old, free of contaminants and structurally sound. If required, flatten and/or smooth the surface using a suitable, moisture-resistant, commercial-grade leveling or patching compound, following the product instructions. Do not install if water or hydrostatic pressure is visible, present or suspected. If a chemical adhesive remover has been used, contact the technical department.

All expansion joints must have a suitable expansion joint covering system installed to allow for expansion and contraction of the concrete. All dormant construction joints and surface cracks must be cleared of all dust, dirt and debris and filled with a rigid crack treatment designed for use in construction joints or cracks. Follow the products instructions and ensure surface is troweled flush with surface of concrete.

**Concrete Moisture Requirements:** All on and below-grade concrete must have a confirmed and effective vapor retarder that is compliant with ASTM E1745 installed directly beneath the slab. If a vapor retarder is not present, confirmed or adequate, a suitable concrete moisture mitigation product must be installed, following the product instructions. Moisture and pH testing are not normally required.

**Concrete Moisture Mitigation Requirements:** When appropriate, use a dimensionally stable, surface-applied moisture mitigation system that, when tested in accordance with ASTM E96 / E96M Standard Test Methods for Water Vapor Transmission of Materials (Method B), has a permeability value of ≤ 0.1 grains/sq. ft./hr. Confirm compliance with the manufacturer before use.

**Gypsum/Lightweight Substrate Requirements:** Gypsum or Lightweight substrates must be dry (according to the product manufacturer's requirements) and have a minimum compressive strength of 2000 PSI when installed over a wood substrate or 3000 PSI when installed over a concrete substrate. Gypsum or Lightweight

substrates must be installed and prepared in accordance with ASTM F2419 or ASTM F2471, respectively. Gypsum or Lightweight substrates must be firmly bonded to a structurally sound subfloor. All cracked or fractured areas must be removed and repaired with a compatible repair product. New or existing gypsum or lightweight substrates may require a sealant or primer be installed prior to resilient flooring installation - follow the product manufacturer's recommendations regarding preparation for resilient flooring.

**Wood Substrate Requirements:** All wood substrates must be structurally sound, dry and within the moisture content percent (MC-%) for your region. Wood substrates and subfloors must be compliant with and, if necessary, prepared in accordance with ASTM F1482. Wood substrates must be of double layer construction with a recommended total thickness of 1-in. or more, depending on federal, state and local building codes. Sleepers and sleeper systems must not make direct contact with concrete. For standard installations, the top layer must be an APA Underlayment Grade plywood or equivalent with a minimum thickness of 1/4-in. Plywood must be smooth, free of knots or voids and fully sanded. When floors may be subjected to moisture, use an APA-grade exterior grade plywood.

**Resinous Coating Requirements:** When installing directly over a resinous coating, such as an epoxy coating or a moisture mitigation system, ensure the coating is clean and free of contaminants, structurally sound, smooth, dry and has cured for the prescribed length of time.

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

**Other Substrates:** Installing over existing resilient vinyl flooring is not recommended. However, it may be possible over some materials, such as VCT, 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 that existing flooring is a single layer, clean, dry, sound, solid and well adhered. All loose material must be removed and repaired or replaced. All grout lines, wide seams and significant substrate imperfections must be filled and troweled flush with a suitable cementitious patch. Electing to install over any existing floor covering releases the manufacturer from any responsibility regarding the suitability and continued performance of the product, including any resulting effects on the new floor covering.

**Radiant Heating Requirements:** When installing flooring over a substrate that contains a radiant heating system, ensure that none of the heating elements make direct contact with the flooring material. Ensure radiant heat is no higher than 70° F (21° C) 8-hrs. prior to and during the entire installation. After installation, the radiant heat may be gradually increased over the course of 24 hrs., until normal operating temperature is reached. Ensure the temperature of the radiant heating system does not exceed 85° F (29.5° C) and avoid

making abrupt changes in radiant heating temperature.

**Sound Control Substrates:** Additional Sound Control Underlayments cannot be used under this flooring. Any and all issues related to the installation of additional, unapproved underlayments will not be covered under warranty.

**Unsuitable Substrates:** These include, but are not limited to: any floating or loose floor coverings, hardwood, carpet, cushioned vinyl, rubber, cork, foam, asphalt tile, additional acoustical underlayments and any substrate with visible mold, mildew, or fungi and any substrate in wet areas, such as inside showers and saunas. Do not install over substrates that have been coated with a varnish or an oil-based, enamel, paint, primer, primer-sealer or stain-blocker. Do not install over any substrates made of Masonite, chipboard, wafer board, fiberboard, particleboard, construction-grade plywood, CDX, OSB (including AdvanTech), Lauan, cement board or any non-underlayment grade panels – if present, cover with an APA-rated underlayment-grade plywood. Do not use pressure-treated plywood. If using fire-retardant plywood, confirm adhesion using the Mat Bond Evaluation detailed below. Do not install directly over any adhesive or adhesive residue of any kind. Do not install in recreation vehicles, campers or boats.

Note: Issues related to unsuitable substrates are not covered under warranty.

**Adhesive Mat Bond Evaluation:** If the suitability of an otherwise suitable substrate is in question, perform an adhesive bond test per ASTM F3311 Standard Practice for Evaluation of Performance and Compatibility for Resilient Flooring System Components Prior to Installation. Store all records related to this test with other relevant documentation.

## Flooring Installation

**Grouting:** If the product has a micro-beveled edge, the flooring may be grouted. During installation, leave a consistent gap around all four sides of the tile or plank – the gap should be created using appropriate tile spacers and should be 1/16-in., 1/8-in. or 3/16-in. wide. Remove the spacers just before rolling and grout the joints using a flexible grout specifically made for vinyl floor covering. Follow the product instructions regarding application and cleaning.

Note: Any grout residue left on the surface will affect product maintenance and is not covered under the warranty.

**Installation Preparation:** It is recommended that all wooden door jambs be undercut with an Oscillating Multi-Tool - the height must be the thickness of the floor covering. Allow all trades to complete work prior to installation. Clean the entire area to be installed using a HEPA-filtered vacuum.

Inspect all material prior to and during installation to verify that there are no visible defects, damages and excessive flatness, shading, sheen or texture variations. Blend materials from several cartons within the same lot to ensure a consistent appearance. Some flooring products, colors and textures have latent and acceptable color and

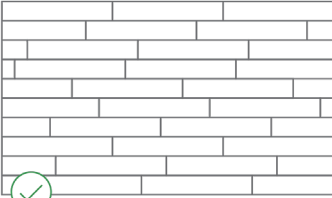
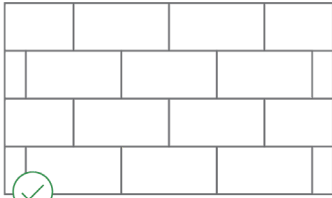
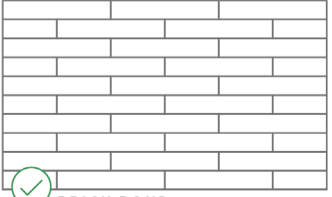
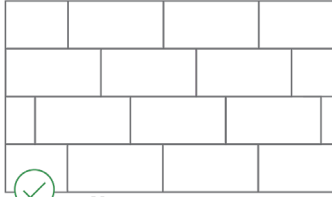
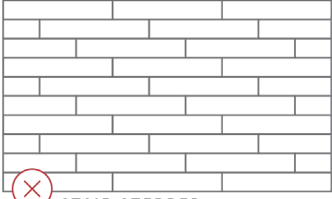

shade variations. If there are concerns regarding product defects, flatness, shade, sheen or texture variation, do not install material and consult a sales representative or manufacturer's technical staff.

**Labor costs associated with materials installed with obvious visual defects will not be covered under warranty.**

Although mixing different lots within the same area will not affect the performance of the product, it is not recommended, as shade, sheen and texture variations may be visible. Prior to installing, compare different lots side-by-side from all directions and lighting conditions to confirm acceptability for the owner or end-user. **Material installed with obvious visual differences related to production lots will not be covered under warranty.**

**Layout:** Prior to installation, confirm the installation pattern and direction per the design specifications or work order. Planks should be installed in a random pattern - plank end joints should be randomly spaced by  $\geq 8$ -in. Avoid "H" joints and do not install in a "Stair Stepped" installation pattern, while ensuring no obvious pattern repeats emerge. Tiles should be installed in a brick-bond or 1/3rd off-set pattern.

### Installation Patterns

Planks	Tiles
 <p style="text-align: center; color: #92D050;">RANDOM PREFERRED LAYOUT</p>	 <p style="text-align: center; color: #92D050;">BRICK BOND PREFERRED LAYOUT</p>
 <p style="text-align: center; color: #92D050;">BRICK BOND ALTERNATIVE LAYOUT</p>	 <p style="text-align: center; color: #92D050;">1/3<sup>RD</sup> OFF-SET ALTERNATIVE LAYOUT</p>
 <p style="text-align: center; color: #D9534F;">STAIR STEPPED NOT RECOMMENDED</p>	 <p style="text-align: center; color: #D9534F;">CORNER TO CORNER WILL VOID WARRANTY</p>

**Starting Line:** Measure the width of each end of the area, then calculate and mark your starting line, at the center of the room. Calculate the width of the last row – if it is less than half the width of the floor covering, adjust your starting line by half the width of the flooring.

**Cutting:** To cut the floor covering, carefully score along the cut line at least twice with a sharp utility knife. When cutting across the width of a piece, use a speed square as a guide. Snap the piece downwards.

**Adhesive Application:** Only apply as much adhesive as can be covered within the working-time (4-hours), typically to only one side of your starting line at a time. Apply the adhesive slowly and evenly to the substrate at a ~45° angle using the specified trowel notch. Avoid skips, puddles or sharp trowel turns. Allow 30-45 minutes of open time for the adhesive, depending on conditions. The adhesive should be dry to the touch - do not install the flooring into wet adhesive.

**Flooring Installation:** After the appropriate adhesive open time has been reached, install the floor covering, including perimeter cuts. Make sure that all arrows on the back are pointed in the same direction. Follow the starting line, keeping all joints snug without over-compressing the material. Make sure the starting row is straight - the acceptable straightness tolerance is within 1/16-in. for lengths over 20-ft. or 1/32 in. for lengths under 20-ft. After each area of flooring is completed (< 1-hour), roll it slowly, first width then length, using a 100 lb. three-section roller. Failure to roll correctly may result in bond failure.

Repeat this process for the remainder of the installation. If adhesive gets on the surface of the material, immediately remove it using a clean, damp cloth. If the adhesive has dried, use a small amount of 70% Isopropyl alcohol and a clean cloth to remove it.

**Post-Installation:** Visually inspect the installation to ensure that the appearance is uniform and straight, that all seams are tight and correctly staggered/spaced. When spot cleaning, do not apply abrasive or solvent-based cleaners directly to the surface of the floor covering. When required, protect newly installed flooring with construction grade paper or protective boards, such as Masonite, Ram Board or plywood, to prevent damage from other trades. Take photographs and have any required documentation signed and filed following completion.

Do not 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" plywood.

## Flooring Protection

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All furniture casters or glides must be intended for resilient flooring and made of a soft material, such as a felt, silicone or a poly-based material. Casters and glides 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. All rolling seating in desk areas must have chairs that use soft, W-Type polyurethane wheels or have a resilient flooring chair pad installed over the finished floor to protect it. **Do not use nylon/hard plastic wheels, glides or casters.**

All fixed furniture legs or corners must have permanent floor protectors installed on all contact points to reduce indentation, wear, scratching and other flooring or finish damage. Floor protectors

must be intended for resilient flooring and made of a soft material (such as a felt, silicone or a poly-based material). Floor protectors must have a flat contact point of at least 1 sq. in. or 1.125 in. diameter and must cover the entire bottom surface of the furniture leg. **Do not use nylon/hard plastic floor protectors or furniture ft..**

Ensure all furniture castors and chair legs are clean and free of all dirt and debris. Routinely clean chair castors and furniture legs to ensure that dirt or debris has not built up or become embedded in castors or floor protectors. Replace chair castors and floor protectors at regular intervals, especially if they become damaged or heavily soiled. Felt floor protection devices may need to be replaced 3 or more times a year to prevent accumulation. Use an effective walk-off mat or system at all outdoor entrances/exits and prevent water from accumulating. Ensure mats are manufactured with non-staining backs to prevent discoloration.