

INSTALLATION GUIDE

Selection of Flooring

Several factors must be considered when specifying resilient flooring. A proper evaluation of site conditions, level of commercial traffic, and other external factors should be considered. Design and pattern, product durability, substrates and site conditions are all basic parts in the specification process that must be considered.

Installation inspection such as quantity, color, design, etc. must be checked and confirmed prior to installation. Be sure to use identical LOT numbers if required. LOT shows lot number and lot type. Lot numbers describe the date of production. Lot type is described by alphabetic code. Identical lot codes mean identical lot numbers and lot type.

IMPORTANT!

Nature's Reflections should not be used for exterior applications, golf shops, locker rooms, food processing facilities, or commercial kitchens.

Adhesives

Please refer to adhesive section for more detailed adhesive information or contact your Local Adhesives Sales Representative. Substrate conditions affect a great deal to the overall appearance of Nature's Reflections. Substrates to receive installation must be clean, completely dry and free of damage.

Tips for a Successful Install

Success Starts with Planning

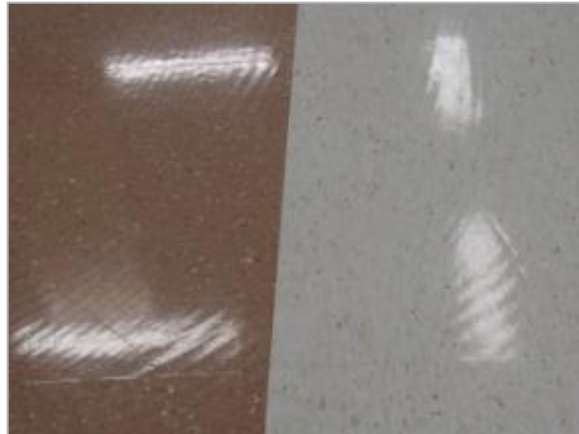
A bad layout plan makes a successful install difficult to achieve. Picture framing in the middle of an entry way or around perimeters is a layout option that is sometimes attempted but more difficult than it appears. This layout can cause unforeseen problems with squaring up the end-joints when finishing. The already installed flooring, the frame border, and the fill pieces all must be cut and laid perfectly square. Even uncut planks that are within tolerance can leave a slight gap that will appear dramatic due to the layout. For these reasons, this layout is not recommended if possible.



Follow Adhesive Manufacturer's Recommendations



Failure— planks lifting at corners and sides.
Inspection Findings - No adhesive transfer to the back of the plank.
Cause— Adhesive set before plank install



Failure— Ridges visible in flooring.
Inspection Findings —Rolling floor after install did not flatten out adhesive trowel marks.
Cause— Adhesive set before plank install

Clean and Inspect More Before Than After



Failure – Vinyl bubbling/lifting away from slab.

Inspection Findings – Bond failure between slab and adhesive bed.

Cause – Adhesive could not bond to slab because the proper prep work/cleaning was not done prior to install.

PRE-INSTALLATION REQUIREMENTS

1. Store cartons of tiles and/or planks with cartons stacked one on top of the other. Do not store material on ends or sides or allow cartons to bend during storage or transportation.
2. Avoid dramatic and large temperature increases.
3. To protect the integrity of floors, the installation of flooring products should occur only after all other trades have completed their work. To prevent damage after installation, the temporary use of a reinforced fiber-based protective floor product is strongly recommended until space is occupied.
4. Areas to receive resilient flooring shall be permanently dry, clean, smooth, level, and structurally sound. They shall be free of all contaminants, including but not limited to: dust, solvents, paint, wax, oil, grease, residual adhesive, adhesive removers, curing, sealing, hardening or parting compounds, alkaline salts, excessive carbonation or laitance, mold, mildew; and any foreign material that might prevent a proper adhesive bond.
5. Strict adherence to the recommendations found within the latest versions of all listed Standards, Guides, and Work Practices shall be followed to ensure an optimum flooring installation.
 - *ASTM F 710 Standard Practice for Preparing Concrete floors to Receive Resilient Flooring*
 - *ASTM F 1482 Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring*
 - *ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride*
 - *ASTM F 2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In - Situ Probes*
 - *ASTM F2419 Standard Practice for Installation of Thick Poured Gypsum Concrete Underlayments and Preparation of the Surface to Receive Resilient Flooring*
 - *ASTM F2471 Standard Practice for Installation of Thick Poured Lightweight Cellular Concrete Underlayments and Preparation of the Surface to Receive Resilient Flooring*
 - *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*

- *ASTM F2678 Standard Practice for Preparing Panel Underlayments, Thick Poured Gypsum Concrete Underlayments, Thick Poured Lightweight Cellular Concrete Underlayments, and Concrete Subfloors with Underlayment Patching Compounds to Receive Resilient Flooring*
- ACI 302 Guide for Concrete Floor and Slab Construction
- *RFCI Recommended Work Practices for Removal of Resilient Floor Coverings*

GENERAL GUIDELINES

This information provides general guidelines for direct-glue flooring products. All instructions and recommendations should be followed for an ideal installation.

1. Install flooring only after the jobsite has been cleaned and cleared of all debris that could potentially damage a finished installation.
2. Inspect the product shipment prior to installation to ensure that all cartons are of the same lot/manufacturing run and material is free from damage or defects. Contact the distributor with any discrepancies or assistance with locating this information.
3. Mix and install planks from several different cartons during flooring installation to minimize the appearance of shade variation.
4. Any subfloor/underlayment patching shall be done with a non-shrinking, water-resistant portland cement patching compound. Only branded, acrylic-base adhesives shall be used with this patching compound.

Substrate Preparation

All substrates must be properly prepared and tested in accordance with the recommended guidelines prior to any flooring installation.

The following are approved substrates deemed suitable for the installation of resilient flooring products:

- Above, on-grade, or below-grade concrete without hydrostatic pressure, excess moisture or alkalinity.
- Above, on-grade, or below-grade lightweight concrete, properly prepared and without hydrostatic pressure, excess moisture or alkalinity.
- Above or on-grade Gypsum concrete surfaces, properly prepared and sealed, and without hydrostatic pressure, excess moisture or alkalinity.
- APA registered underlayment, sanded face exterior grade with minimum rating of C-C plugged face.
- APA registered exterior grade plywood sanded face with ratings as follows: APA A-B, A-C, B-B, B-C, C-C plugged face.
- Properly prepared and well-bonded existing resilient floor covering, (single layer only).
- Cement Terrazzo, ceramic tile, or marble – see adhesive for proper surface preparation.
- Certain metal floors – (see adhesive for proper types and preparation). May require use of a 2-part epoxy.
- Radiant heated floors where heat does not exceed 85°F (29°C). Flooring Installation Guideline Assistance

The following are not approved substrates for the installation of resilient flooring products:

- Existing adhesive residue.
- Epoxy terrazzo.
- Rubber, cork or asphalt tiles.
- Textured or cushion backed resilient flooring.
- “Sleeper” floor systems.
- Plywood floors installed directly over a concrete slab.
- Luan, OSB, particle or chip boards, CCA (pressure treated), oil treated, or other coated plywood.
- CDX or other plywood with knots or open defects.
- Underlayment made of pine or other soft woods.
- Masonite™ or other hardboard underlayment.
- Hardwood flooring.
- Paint, wax, oil, grease, residual adhesive, mold, mildew, and other foreign materials that might prevent adhesive bond.
- Any uneven or unstable substrates.

1. Concrete Subfloors

- a. Shall be in accordance with the latest version of ASTM F710 *Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring*.
- b. All surface patching and leveling is to be in accordance with the latest version of ASTM F2678 *Standard Practice for Preparing Panel Underlayments, Thick Poured Gypsum Concrete Underlayments, Thick Poured Lightweight Cellular Concrete Underlayments, and Concrete Subfloors with Underlayment Patching Compounds to Receive Resilient Flooring*.
- c. To prevent moisture problems, concrete slab construction shall be in accordance to industry standards for specification related to concrete mix design, curing methods and drying times.
- d. On-grade and below-grade slabs should be installed with a suitable vapor retarder directly underneath the concrete slab.
- e. New concrete shall be properly cured and dried prior to the installation of floor covering. Curing agents, surface hardeners, and other membranes or compounds shall be mechanically removed immediately after initial cure to allow the slab to properly dry prior to flooring installation. (Standard is approximately 30-days per 1" of slab thickness).
- f. To ensure manufacturer warranty, all concrete substrates, regardless of grade or age of slab, must be properly tested using the methods outlined below.

- Acceptable test method is ASTM F 2170 *In Situ Relative Humidity*. Testing shall be conducted according to the test method and instructions of the manufacturer of the testing equipment.



Initial non-destructive testing is vital to save time and money by mapping out the concrete slab to determine where to conduct In Situ testing under ASTM F 2170.



In Situ testing measures the conditions of the concrete slab at a depth of 40% of the overall thickness and gives invaluable evidence needed to ensure a good install and long lasting performance of the flooring material.

- Concrete Alkalinity / pH Test shall be performed when the test site is at the same temperature and humidity expected during normal use; or at a temperature of 65° - 80°F (18° - 26° C) and 45% - 50% humidity for minimum 48-hours prior to testing. Using distilled water, place drops of water to form a small puddle approximately 1-inch diameter. Wait 60-seconds, and then dip a portion of the pH paper into the water. Acceptable concrete pH level is between the ranges of 5-9, as compared to the color chart provided within the test kit.

Alkalinity levels above 9 on the pH scale will cause bond failure between the concrete slab and the adhesive bed.



- Concrete Surface Porosity Test shall be conducted prior to the application of adhesive to evaluate bonding capacity.

Concrete Slab Preparation

a. Concrete slabs shall be well-cleaned prior to the installing any floor coverings. Remove all sealers, curing agents and compounds, grease, oil, adhesive removers, existing adhesive residue, dirt, paint, etc. to ensure a clean bond surface for the adhesives.

b. Concrete floors shall be smooth and level to prevent irregularities, roughness or other defects from telegraphing through the new resilient flooring.

- The surface of the slab shall be flat to within 3/16" in 10 feet.
- Slopes shall be less than 1/16" in 2 feet.
- Uneven areas should be mechanically ground to smoothness.
- Cracks, depressions or other similar irregularities should be leveled using a suitable portland cement-based patching compound (always follow the patch manufacturer's instructions regarding mixing and applications.)

c. Overly porous, dusty, flaky or soft concrete surfaces are not suitable for resilient floor coverings. It may be necessary to mechanically remove the top layer concrete in such cases and/or these surfaces may need to be primed and covered with a cement-based underlayment compound. (Follow the patching or leveling compound manufacturer's instructions regarding preparation of the concrete surface, priming, mixing of the product, thickness of application and drying time for resilient floor covering installation.)

d. Expansion joints, isolation joints, control joints, or other moving joints in the concrete slab shall not be filled with patching compound nor covered with resilient flooring.

2. Gypsum or Lightweight Cellular Concrete Substrates

Gypsum or lightweight concrete subfloors or substrates shall be in accordance with and properly prepared in accordance with appropriate ASTM specifications.

Unprimed gypsum and gypcrete surfaces often have a dusty surface and an open, porous surface, which will lead to an adhesion bond failure, if not properly sealed and treated. It is the responsibility of the installation contractor to obtain written verification from the general contractor, architect, owner, or responsible party that the gypsum was properly sealed with the gypsum manufacturer's recommended sealer. If this data is not available, conduct testing in accordance with the appropriate *ASTM Test Method for Gypsum Surfaces*. Flooring Installation Guideline Assistance

a. Conduct a *Surface Porosity Test* to ensure that the surface is properly sealed. If the water is quickly absorbed, do not proceed with installation before contacting the manufacturer's technical services for assistance.

b. Check moisture content of the gypsum substrate, via the appropriate method according to the ASTM Standards listed above.

- Moisture content of the subfloor/substrate shall not exceed the adhesive requirements or 75% RH, or 3 lbs./1,000 square feet/24 hours MVER.
- When using the *D4263 Test Method* no discoloration of the surface should be found.

c. All patching compounds shall be suitable for use with gypsum, gypcrete, or lightweight cellular concrete surfaces as outlined by the patching compound manufacturer. (Follow the manufacturer's instructions regarding mixing, use, and application.)

d. All gypsum surfaces must be properly primed according to the gypsum manufacturer's instructions. If gypsum manufacturer recommendation unavailable, follow the instructions of the adhesive manufacturer.

3. Wood Subfloors

a. A combination of wood subfloor and panel underlayment construction shall be a minimum of 1-inch in total thickness.

b. There shall be at least 18-inches of well-ventilated air space beneath all wood subfloors. Crawl spaces shall be insulated and protected by a suitable vapor barrier.

c. Wood panels designed as suitable underlayment shall be at a minimum of ¼-inch thickness, dimensionally stable with fully sanded face to eliminate grain texture or show through; have a written manufacturer's warranty and installation instructions; and be free of substances such as ink, fillers, and resins, which may stain the resilient flooring.

d. Wood panels shall be installed according to manufacturer's instructions regarding stapling pattern, sanding, and filling of joints, and acclimation to installed environment.

4. Existing Resilient Flooring

If necessary, to install new resilient flooring over existing resilient floors, the existing flooring must be:

- Single layer only and firmly bonded to the substrate.
- Thoroughly stripped of all wax, floor finish, dirt and other contaminants that may affect adhesive bond.
- Flat and smooth with no curling edges or loose seams.
- Must not be of a cushion back, floating, or perimeter bonded floor.

5. Existing Adhesives

Adhesive residue includes, but is not limited to, any carpet, vinyl, VCT, or wood flooring adhesives. Flooring Installation Guideline Assistance

- a. All existing adhesive residue shall be properly prepared prior to the installation of resilient flooring. Mechanical scraping or grinding is recommended as a primary means of removal.
- b. Black cutback/asphalt adhesives shall be scraped by hand to remove any loose patches, trowel ridges and puddles, so that only a thin residue layer remains. This thin layer shall then be properly covered using a portland based patching compound properly mixed with the manufacturer's recommended latex/acrylic additive.
- c. If chemical/liquid adhesive removers are employed, fully adhere to the manufacturer's recommended instructions for cleaning following remover use. (Resilient flooring manufacturer will not warrant any adhesive failures, indentation, bubbling, or delamination of new flooring as a result of any residue from improper liquid adhesive remover cleaning.)

WARNING!

DO NOT SAND, DRY SWEEP, BEADBLAST, SHOTBLAST OR USE ANY OTHER MECHANICAL MEANS TO PULVERIZE EXISTING TILE FLOORING, BACKING, LINING FELT, ASPHALTIC "CUTBACK," OR ANY OTHER ADHESIVES. THESE PRODUCTS MAY CONTAIN ASBESTOS FIBERS AND/OR CRYSTALLINE SILICA. AVOID CREATING DUST. INHALATION OF SUCH DUST IS A CANCER AND RESPIRATORY TRACT HAZARD. SMOKING BY INDIVIDUALS EXPOSED TO ASBESTOS FIBERS GREATLY INCREASES THE RISK OF SERIOUS BODILY HARM. UNLESS POSITIVELY CERTAIN THAT THE 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.

Tile Installation

STEP 1: SQUARE THE ROOM

The correct starting point for setting out a tiled floor is traditionally the center of the area - although this may not be the final starting point when tile laying begins. Some adjustment of the starting point may be required, for example, to avoid small perimeter cuts. In corridors and small spaces, it may be simpler to work lengthwise from one end, using the center line as a guide. To square the layout of the room, find the center of one end of the room. Locate the same point at the other end-wall. Snap a chalk line between these points to mark the center line on the floor. Then, measure along this center line to find the middle of the room. At the center point, mark off a line across the room at precise right to the first line. This can be accomplished using the 3-4-5 triangle method. Starting from the center point, make a mark measuring 4 feet vertically and 3 feet horizontally. Connect the marks with a diagonal line to complete the triangle. If the diagonal line does not measure exactly 5 feet, then the center crossing lines are not at a true right angle

STEP 2: INSTALL THE TILES

Begin laying tiles at the starting point, ensuring that the tile is laid exactly along the layout lines. If the first few tiles are not installed accurately, the entire installation will be affected. Spread the appropriate adhesive on the center lines, leaving portions of the lines at center and near each wall uncovered. Start laying the planks from the right angle formed by the center lines. Lay the material from the center of the room, working towards the walls as shown. It is imperative that the first row is placed precisely and accurately against the reference line as you install. Make sure each plank is flush against the chalk line and tight against the adjoining plank. The ends of the planks should align perfectly. Lay row-by-row or in pyramid fashion.

TIP: Pay special attention to the edges of the tiles. Do not slide the tiles through the adhesive as you install.

Step 3: FINISHING THE INSTALL

Make sure to dry fit all perimeter pieces before spreading adhesive bed. Allow for a minimum of ¼" expansion gap between the edge of the flooring material and the vertical surfaces. The appropriate trim will cover the expansion gap.

Plank Installation

Note: Plank install is done in the same manner as the tile install listed above with the exception of the starting point. Plank install is typically done with the starting point at the longest straight wall of the installation area. Ensure the first run of planks is started in a straight line against the wall by using a chalk line or laser. Cut-to-fit planks to back fill against the wall if necessary. Plank stagger should maintain an overlap of 5-8" between the end-joints of the previous row.

IMPORTANT: All Nature's Reflections glue down LVT/LVP flooring must be rolled with a minimum 100lb roller after installation. Areas that cannot be rolled with the large roller e.g. abutments such as door frames or skirting boards should be rolled with a hand roller or pressed into the adhesive with a rubbing hammer.