

INSTALLATION AND MAINTENANCE INSTRUCTIONS

ALWAYS CHECK WWW.NOVAFLOOR.US FOR THE LATEST INSTALLATION, WARRANTY AND MAINTENANCE INSTRUCTIONS. IT IS THE RESPONSIBILITY OF THE INSTALLER TO ENSURE THAT THE MOST CURRENT DOCUMENTS ARE USED DURING INSTALLATION OF NOVAFLOOR® FLOORING PRODUCTS.

PRODUCT HANDLING AND SITE CONDITIONS

1. Store cartons of tile and/or plank with cartons stacked one on top of the other. Do not store on end or sides or allow cartons to bend during storage or transportation.
2. This item should be installed in an indoor, climate-controlled location between 65°—85° F (18°—29° C). It should NEVER be installed outdoors.
3. This item must be acclimated in climate-controlled locations at 71°F for 24—48 hours before starting installation. Store cartons lying flat at all times and protect from direct sunlight during acclimation.
4. This item should only be installed after the jobsite has been cleaned and cleared of debris that could potentially damage a finished plank installation.
5. During the installation, mix and install planks from several different cartons to minimize shade variation.
6. The finished flooring installation should be protected from exposure to direct sunlight.
7. To prevent adhesion problems with direct-glue installations, areas to receive resilient flooring shall be permanently dry, clean, smooth, level and structurally sound. They shall be free of all contaminants or any foreign material that might prevent a proper adhesive bond.

GENERAL INSTRUCTIONS

This information provides general instructions for the NovaFloor® NovaLay™ flooring product. All instructions should be followed for an ideal installation.

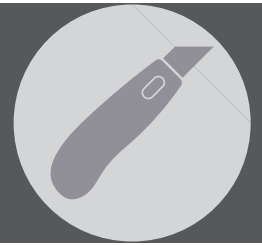
1. Inspect your shipment of Novalis products to ensure that all cartons are of the same lot / manufacturing run. Contact your Distributor with any discrepancies or assistance with locating this information.
2. To minimize shade variation during the installation of NovaFloor® NovaLay™ flooring mix and install planks from several different cartons.
3. Install flooring perpendicular to direct sunlight sources, including

- large windows, doors, etc. Use of suitable window coverings during the times of most direct sunlight is strongly recommended.
4. All subfloor/underlayment patching must be done with a non-shrinking, water-resistant Portland cement patching compound.
5. Use of a 9" band of adhesive on either side in all entryways is recommended to keep flooring from excessive movement due to dynamic foot traffic in these areas.
6. All moldings should have a minimum of 1/32" expansion space between the flooring and any fasteners or mounting channels to facilitate expansion / contraction of the flooring.
7. Adhesives used with this product must be branded by Novalis® International and be an acrylic base.
8. NovaFloor® NovaLay™ flooring is to be installed in a perimeter fashion with Novalis NFA-300 spray adhesive or NFAT226 full spread adhesive. A band of adhesive equal to the width of one (1) row of tile or plank should be placed around the perimeter of the room.
9. Commercial applications should utilize an additional "X" pattern of adhesive from corner to corner.
10. Heavy Commercial applications or areas subjected to heavy traffic, rolling loads, etc. should be installed in a full-spread adhesive application with Novalis T-226 adhesive.
11. For larger areas or runs greater than 20 feet (6 meters) it is recommended to section the area into equal 10-12' sections and utilize the perimeter-X pattern for the adhesive.

Approved Substrates:

The following are approved substrates for installation of NovaFloor® NovaLay™. See the next section for proper testing and substrate preparation prior to installing your floorcovering.

- All substrates regardless of composition must be smooth and flat to within 1/8" (3.18mm) or achieve an "F50" rating by use of mechanical grinding/sanding or suitable Portland cement-based patching and leveling compounds.
- Above, on or below grade concrete without hydrostatic pressure, excess moisture or alkalinity; must be fully cured and dry, free from curing compounds, sealers, etc.



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- Above or on 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 B-C plugged face
- APA registered exterior grade plywood sanded face with a rating of B-C or better, with a sanded and plugged face
- APA Rated underlayment veneer panels
- APA Approved / Rated OSB panels minimum of 23/32" thickness. Must follow Novalis OSB installation guidelines and only use Novalis T226 adhesive for warranty.
- Properly prepared and well bonded existing resilient floor covering
- Cement Terrazzo, Epoxy terrazzo, ceramic tile, marble – must be properly prepared; all grouts are patched with appropriate patching compounds or leveler.
- Certain metal floors – all gaps are patched with appropriate patching compounds or leveler.
- Old adhesive residue- must be properly prepared with embossing leveler
- Radiant heated floors where heat does not exceed 85°F (29°C)

The following are not approved substrates for installing NovaFloor® NovaLay™ flooring: Rolled or panel-type foam, rubber, cork or other compressible underlayments unless installed in a double-glue method according to the underlayment manufacturer's specification and instruction; rubber, cork or asphalt tiles; textured or cushion backed resilient flooring; "Sleeper" floor systems or plywood floors that have been installed directly over a concrete slab; lauan and mahogany-type plywood panels; Masonite™ or other hardboard or fiber based underlayment; 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; hardwood flooring(consult Technical Services); paint, wax, oil, grease, residual adhesive, mold, mildew, and other foreign materials that might prevent floating planks and tiles from natural movement; other uneven or unstable substrates.

SUBFLOOR INFORMATION

Although NovaFloor® NovaLay™ flooring is designed to be a "loose-lay" floor installation, proper preparation of the subfloor is still a major part of a successful installation. Roughness or unevenness of the subfloor may telegraph through the new NovaFloor® NovaLay™ flooring, resulting in an unsightly surface and cause excessive wear on high spots.

Substrate Preparation

All substrates must be properly prepared and tested according to the following instructions. Although NovaFloor® NovaLay™ flooring is not susceptible to damage from moisture, excessive subfloor moisture is an ideal breeding ground for mold, mildew, fungus and mites - all of which can contribute to an unhealthy indoor living environment. If excess moisture is found in the substrate proper remediation steps should be taken prior to installation.

1. Concrete Subfloors

- a. Concrete substrates should be properly prepared according to the latest revisions of ASTM F710, Preparing Concrete Floors to Receive Resilient Flooring and ACI 302.1R-15, Guide to Concrete Floor Construction.
- b. All concrete substrates, regardless of grade or age of slab, must be properly tested using one of the methods outlined below for warranty to apply. Acceptable test method is the ASTM F 2170. Testing shall be conducted according to the relevant ASTM documentation and instructions of the manufacturer of the testing equipment. Consult Technical support for RH values greater than 85%.
- c. Concrete Alkalinity / pH Test shall be conducted in accordance with ASTM standards. Acceptable level of pH in the substrate is between 7 and 10.

2. Wood Subfloors

- a. All wood substrates should be prepared according to the latest revision of ASTM F1482 Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring.
- b. Wood panel subfloor construction shall be a minimum of 1" in total thickness.



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c. Panels designed as suitable underlayment shall be at a minimum ¼" in thickness, dimensionally stable, fully sanded face to eliminate grain texture or show-through and have a written manufacturer's warranty and installation instructions. Panels shall be installed according to manufacturer's instructions regarding stapling pattern, sanding and filling of joints, and acclimation to installed environment. Where not specified consult ASTM 1482 or the relevant document from the American Plywood Association.

3. Gypsum and Lightweight Cellular Concrete Substrates shall be per ASTM F2419 or F2471 respectively.

Contact Technical Services at 886.668.2547 or techsupport@novalis-intl.com for instructions over gypsum and lightweight concrete substrates.

4. Existing resilient flooring must be single layer only, thoroughly stripped of all wax, floor finish, dirt and other contaminants. Be firmly bonded to the substrate, flat and smooth with no curling edges or loose seams. Must not be of a cushion back, loose-lay, or perimeter bonded floor. Existing floors shall be dry and free from excessive moisture. All floors shall be tested for moisture regardless of age or grade level. Do not assume that an existing floor is free of moisture related issues. Conduct testing per Section 1.d above. Properly prepare existing floor by use of Portland cement based embossing leveler compounds.

5. Adhesive residue shall be properly prepared by hand scraping, mechanical scraping or grinding be used as a primary means of removing old adhesive residue. Black cutback/asphalt adhesives shall only be scraped by hand to remove any loose patches, trowel ridges and puddles so that only a thin residue layer remains. Residues shall be properly covered using a Portland based patching compound properly mixed with the manufacturer's recommended latex/acrylic additive. Do not use chemical adhesive removers.

6. Ceramic, porcelain, marble and granite tiles are suitable and must be properly bonded with intact grout joints and free of cracks or loose tiles. Surface of tile and grout joints should be free from sealers, coatings, dirt and contaminants. Properly prepare the surface of tiles by grinding any high areas and using a suitable Portland-based leveling compound and primer to fill in all low

areas.

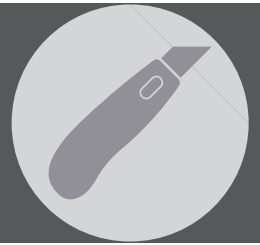
7. For any subfloors or substrates not listed please contact Novalis® Technical Services. Any surface deemed unsuitable should be covered with an approved ¼" wood underlayment or suitable Portland-based cement leveler or patching compound. Always follow the manufacturer's recommended practices when covering an existing substrate.

Installing NovaFloor® NovaLay™ Loose Lay Luxury Vinyl Flooring

1. General

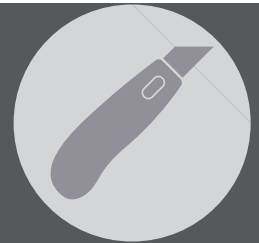
- When using more than one carton, make sure that the cartons are all the same run / lot number. Different lots may have a variation in color, texture or gloss so they should not be mixed in the same room. Contact Technical Services before installing product from differing runs or lots.
- NovaFloor® NovaLay™ plank simulates wood planks and is best installed in the same pattern as a wood plank floor in a random pattern, staggered design, diagonally or other design. Planks are best in appearance when lying parallel to the longest walls in the room. NovaFloor® NovaLay™ tiles are best laid in a brick/ashlar pattern.
- NovaFloor® products can be cut using a guillotine-type cutter or a utility knife. Keep knife blades sharp for easy, accurate and safe cuts. Fit planks to walls, columns, door jambs, etc. using the same methods other floor tiles; overlap, pattern scribe, wall scribe and free hand.
- When working on top of loose lay flooring during the installation, be sure to not disturb tiles and planks that have already been laid. If a piece does become dislodged simply peel it up and reinstall; use of a scrap piece as a tapping block can help readjust disturbed tiles and planks also.
- If it is necessary to heat the planks to achieve a cut, heat slightly from the back only with minimal heat setting (a standard hair dryer will produce enough heat). Carefully make cuts with a sharp utility knife on the heated plank.
- Install flooring perpendicular to direct sunlight sources, including large windows, doors, etc.

2. Novalis® trowel-grade adhesive installation method



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- a. Follow complete instructions on bucket label and/or latest version of adhesive Technical Data Sheet.
 - b. Novalis® adhesives are designed to be used on most interior installations over most concrete and wood substrates, and other approved substrates that are properly prepared and leveled. A complete guide to Novalis® adhesives can be found at www.novafloor.us.
 - c. Some commercial applications and special substrates a two-part epoxy or urethane adhesive is recommended. Typical applications for these types of adhesives are wet areas, floors subjected to heavy point loads and/or rolling loads, and floors that will be exposed to extreme temperature changes or extreme temperatures. Contact Novalis Technical Support at 866-NOVALIS or techsupport@novalis-intl.com for proper adhesives and installation procedures.
 - d. If it is determined that a non-Novalis adhesive is to be used on an installation, Novalis recommends a written warranty be obtained by the adhesive manufacturer warranting this specific installation with their products.
3. Novalis® aerosol spray grade adhesive method
- a. Follow complete instructions on bucket label and/or latest version of adhesive Technical Data Sheet.
 - b. NFA-S300 spray adhesive can be used on porous and non-porous substrates. Non-porous substrates may require a lighter application of adhesive and should be tested in a small area before beginning installation.
 - c. Spray pattern should be enough that one 22 oz. can produces spread rate of 150 ft² for a permanent application and 185 ft² for a pressure sensitive application.
 - d. To apply S300 adhesive, shake can well before using and point can downwards towards the floor. Press the side of the nozzle tip as you slowly walk back and forth; do not use a sweeping motion. Clean up all drips and be sure to achieve full coverage when installing luxury vinyl products with S300 adhesive.
4. Layout
- a. Determine the center of the room and dry lay a section of tile/plank from the center line to one wall to determine that the pattern is centered and fit. Measure the border cuts along the wall and compare to the following criteria. If necessary, adjust the first row at the centerline to meet either the plank or tile
 - b. Planks should never be less than 9 inches long or less than half of the width of the plank. Avoid small pieces in border areas and adjust the center lines to achieve the proper pattern.
 - c. Tiles should not be less than 9" in length or width. Avoid small pieces in border areas and adjust the center to achieve the proper pattern
 - d. Tiles can be laid in any fashion, a brick/ashlar patterns will yield the best installation results and is the recommended method. All tile sizes and patterns look best when the layout is balanced in the installed room.
5. Installation of flooring
- Spread adhesives using the proper trowel notch; more adhesive is not a good thing with LV products.
- a. Before spreading adhesive, strike a parallel chalk line to the centerline of the length of the room approximately 2' to 3' from the wall. Actual position is to be determined by the layout of the planks, ensure that the pattern is followed from your initial starting point determined in the dry layout performed earlier. If necessary, re-lay part of the pattern from centerline starting point to determine the exact measurement of the parallel line.
 - b. After determining the starting point, apply adhesive in a band 18" along the starter wall and down the side walls, keeping in mind the open time for the adhesive on the side walls. Allow to tack up. Some slippage of the plank/tile may occur with a "wet" method. Be careful to follow layout lines and allow adhesive to set before rolling.
 - c. Begin laying the first row of flooring into the adhesive, keeping an 1/8" gap along all vertical surfaces. Lay the flooring by tightly butting the edges of the pieces together, making sure that the runs are parallel to your centerline or layout lines. Work toward the first wall from your starting



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line into the band of adhesive.

- d. Once your starter rows are secure and the flooring planks/tiles are tightly butted together, continue applying adhesive along the perimeter of the adjacent walls so that enough flooring can be placed within the working time of the adhesive. Novalis recommends an additional "X" pattern be placed corner-to-corner in the room for commercial applications.
- e. Start laying the next rows by continuing the pattern and tightly butting all joints together. A scrap piece of flooring or a tapping block can be used to lightly tap the pieces into the previous row.
- f. Continue in this manner spreading only enough adhesive along the perimeter and the center "X" pattern that can be safely installed within the working time of the adhesive.
- g. Be sure to stagger all end joints by at least the width of one plank or a minimum of 9" for planks and tiles. Vary the length of your planks during installation to ensure that end joints are not bunched, and a randomness is achieved in the pattern.
- h. During installation, roll the areas of the floor that are utilizing adhesive with a 3-section 100 lb. roller to ensure proper transference of adhesive to the plank backing.

After Installation

1. Be sure planks are set, flat and have tight edges. Re-roll the entire installation along the perimeter and any area where adhesive is used with a 3-section 100 lb. roller to ensure all planks are properly set into the adhesive. If necessary, weigh down any loose planks overnight to ensure bond. Adhesive can be carefully reactivated using a heat gun after drying to re-install planks.
2. Clean adhesive residue from the face of the flooring following these directions:
 - a. Wet adhesive residue on the surface of the planks can be cleaned with a clean, white cloth dampened with warm, soapy water. Do not use excess water as this can seep between the seams of planks and lead

to an adhesion failure!

- b. Dry adhesive residue can be cleaned with mineral spirits or denatured alcohol and a clean cloth in a sparingly manner. Carefully follow the directions on the mineral spirits container. Please note: improper use of any chemical can harm the finish of the Birkdale Luxury Vinyl Flooring product.
 - c. Aerosol spray adhesives can be cleaned up when wet with soap and water on a clean cloth. Dried spray adhesive may require use of a solvent.
 - d. Do not pour soapy water, mineral spirits or denatured alcohol directly on the Birkdale Luxury Vinyl Flooring.
 - e. If working with epoxy or urethane adhesives you must clean these up while wet according to the adhesive manufacturer's instructions, which can be generally found on the container label.
3. Novalis® adhesives should be cured according to the following guidelines:
 - a. It is important to allow the adhesive to set before accepting any foot traffic for a minimum of 12 to 24 hours. Failure to adhere to this guideline may result in shifting of planks, oozing of adhesive through seams or permanent indentations.
 - b. Do not allow heavy loads, rolling traffic, furniture or fixtures on the floor for 24-48 hours after installation.
 - c. Novalis® is not responsible nor will warrant our products in the event that this is not properly followed.
 - d. Proper rolling of floors during and after installation is a must on Luxury Vinyl products. Use a 3-section, 100 pound roller to set flooring into the adhesives.
 4. In the event that the Novalis® Luxury Vinyl Flooring is not the last portion of the construction project, the floor must be protected from construction traffic and damage. Wait 24 hours and utilize a reinforced fiber protective board or a heavy Kraft paper (min. 60 lbs.) and cover the floor. Failure to wait 24 hours before covering can impact adhesive curing.
 5. Initial maintenance
 - a. Wait 7 days after installation is completed and thoroughly clean the floor using a neutral pH cleaner.
 - b. If necessary, a slow (175rpm) buffer can be utilized with a white, non-abrasive pad to remove heavier deposits.
 - c. Rinse the floor thoroughly and allow to dry.



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6. Daily and weekly maintenance
 - a. Sweep, vacuum or dust mop the floor as needed to remove dust loose dirt and grit. In high traffic areas this may be a daily or twice daily procedure. Use only vacuums that do not have bristle beater bars.
 - b. Clean liquid spills immediately to prevent the possibility of stains, slips or falls.
 - c. Damp mop the floor as needed to remove dirt and stains. Use a neutral pH cleaner and a red pad if needed to remove ground in dirt. Soft bristle brushes can also be used on flooring with embossed surfaces.
7. Preventative steps
 - a. Use mats at all entry areas to keep dirt, sand and water off of the floor. Clean the mats on a regular basis. If mats are placed directly on top of the Novalis floor, be sure the mats have a non-staining back. Rubber mats are also not recommended over Novalis flooring products.
 - b. Furniture shall have protective glides of at least 1" in diameter to minimize the chance of indentations or scratching to the surface of the floor. Do not use narrow chair glides! Felt pads are also excellent protection for the floor for furniture that will be frequently moved directly across the floor.
 - c. Do not move heavy furniture, appliances or fixtures directly across the floor. Use protective boards or appropriate furniture movers designed for use over hard surface flooring.
 - d. Protect the floor from direct sunlight by using appropriate window coverings.
 - e. Use chair mats at desks to protect the floor from damage due to chair legs or casters.
 - f. Periodically clean caster wheels and check for wheels that may be broken or no longer rotating. Replace damaged wheels immediately.
 - g. Avoid use of metal or razor scrapers to remove dirt, residues or other marks from flooring. This will damage the protective wear layer of the vinyl flooring.

Reference Documents

The latest versions of all listed Standards, Guides and Work Practices shall be used in all cases.

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| 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 RFCI | Guide for Concrete Floor and Slab Construction Recommended Work Practices for Removal of Resilient Floor Coverings |
| APA | American Plywood Association |
| CANPLY | Canadian Plywood Association |