

Commercial Tile and Plank Flooring Installation Systems and Adhesives

Bio-Flooring	Linoleum	Vinyl Composition Tile	Alterna (Light Commercial)	Luxury Vinyl Tile		Static Dissipative Tile
	Granette	Premium Excelon Raffia ChromaSpin Crown Texture Stonetex Companion Square Feature Tile/ Strips Standard Excelon Imperial Texture MultiColor Safety Zone	Alterna Alterna Reserve	Natural Creations with Diamond 10 Technology** Natural Creations Classics Parallel LVT Vivero Best** Vivero Better**	Natural Creations with I-Set	SDT
Full Spread: S-525 or S-700 Tile-On: S-525	Full Spread S-799 S-780	Full Spread: S-515, S-525, S-700, S-750, Flip Spray or S-240* Tile-On: S-515, S-525, S-750 or Flip Spray	Full Spread S-288	Full Spread S-288, S-543**, S-310 or S-240	Self Stick	S-202

* For Safety Zone Tile only

When installing Natural Creations Classics/Natural Creations with Diamond 10 Technology/Parallel/Vivero Best LVT in areas subject to direct sunlight, topical moisture, temperature fluctuations, Armstrong Flooring S-240 Epoxy Adhesive must be used.

When installing Natural Creations with I-Set in areas subject to direct sunlight, topical moisture, temperature fluctuations, Armstrong Flooring S-240 or S-288 adhesive must be used.

S-543 is **not recommended for installing Natural Creations with Diamond 10 Technology, Vivero Better or Vivero Best.

Commercial Sheet Flooring Installation Systems and Adhesives

	Linoleum	Vinyl Backed	Safety Sheet	Fiberglass-Reinforced (Light Commercial Only)	Heterogeneous and Inlaid
	Marmorette Granette Colorette Linorette Rhythmics	Medintone and Medintech with Diamond 10 Technology Coating Accolade Plus	Safety Zone	Abode Duality	Rejuvenations Classics Timberline Ambigu StoneRun Possibilities Corlon
Full Spread	S-799 S-780	S-599 S-543 or Flip Spray	S-599 S-543 S-240 or Flip Spray	S-289 Releasable (paint roller) Full Spread S-288 (Fine notch trowel) Full Spread S-289 Permanent (Fine notch trowel)	S-599 S-543 or Flip Spray
Perimeter Plus	n/a	n/a	S-599, S-543 or Flip Spray With S-240	n/a	n/a
Flash Cove Area Only	S-580 (optional)	S-580	S-580	S-580	S-580
Concentrated Load Areas	S-240	S-240 or Flip Spray	S-240 or Flip Spray	n/a	S-240 or Flip Spray

Commercial Flooring Installation Systems and Adhesives

Stair Treads and Rubber Tiles		Wall Base	
Rubber Tile	Stair Treads	Wall Base, Risers	Transition Strips
S-240 or S-799	Solvent Based Contact Adhesive	S-725	Solvent Based Contact Adhesive

Installation Systems

(product details)

Commercial Luxury Vinyl Tile Installation System

Product	Gauge	Size	Adhesive
Natural Creations Classics Natural Creations with Diamond 10 Technology	0.125"(3.18 mm)	Various sizes and shapes	S-288, S-543*, S-310, S-240**
Parallel 12, Vivero Better	0.080 (2.0 mm)		
Parallel 20, Vivero Best	0.100 (2.5 mm)		

It is necessary to smooth out the adhesive trowel ridges using a medium nap paint roller. S-543 is **not recommended for Natural Creations with Diamond 10 Technology, Vivero Better or Vivero Best.*

*** It is necessary to smooth out the adhesive trowel ridges using a 3/16" (4.76 mm) nap paint roller. The purpose of this is to create a uniform application of the adhesive.*

NOTE: When installing Natural Creations Classics/Natural Creations with Diamond 10 Technology/Parallel/Vivero Best LVT in areas subject to direct sunlight, topical moisture, temperature fluctuations, S-240 Epoxy Adhesive must be used.

Installation:

Location: All grade levels

Layout: End joints should be staggered a minimum of 6" (15.24 cm) apart

Suitable Substrates:

All substrates listed below must be properly prepared and meet the requirements discussed in Chapter 3, Subfloors and Underlayments. There may be other exceptions and special conditions for these substrates to be suitable for the Luxury Solid Vinyl Flooring Installation System.

- Concrete (all grade levels)
- Ceramic tile, terrazzo, marble
- Approved suspended wood
- Existing resilient sheet flooring
- Polymeric poured (seamless) floors
- Existing vinyl composition tile (VCT)
- Steel, stainless steel, aluminum
- On-grade or suspended only

Job Conditions/Preparation:

- Resilient flooring should only be installed in temperature-controlled environments. It is necessary to maintain a constant temperature before, during and after the installation. Therefore, the permanent or temporary HVAC system must be in operation before the installation of resilient flooring. Portable heaters are not recommended, as they may not heat the room and subfloor sufficiently. Kerosene heaters should never be used
- The surface shall be free of dust, solvents, varnish, paint, wax, oil, grease, sealers, curing compounds, residual adhesive, adhesive removers and other foreign materials that might affect the adhesion of resilient flooring to the substrate or cause a discoloration of the flooring from below. Spray paints, permanent markers and other indelible ink markers must not be used to write on the back of the flooring material or used to mark the substrate as they could bleed through, telegraphing up to the surface and permanently staining the flooring material. If these contaminants are present on the substrate, they must be mechanically removed prior to the installation of the flooring material.
- In renovation or remodel work, remove any existing adhesive residue* so that 100% of the overall area of the original substrate is exposed.

** Some previously manufactured asphaltic "cutback" adhesives contained asbestos (see warning statement on page xvi). For removal instructions, refer to the Resilient Floor Covering Institute's publication Recommended Work Practices for Removal of Resilient Floor Coverings.*

- Allow all flooring materials and adhesives to condition to the room temperature for a minimum of 48 hours before starting the installation.
- The area to receive the resilient flooring should be maintained at a minimum of 65° F (18° C) and a maximum of 100° F (38° C) for 48 hours before, during and for 48 hours after completion. When using S-240 Epoxy Adhesive the maximum room temperature should not exceed 85° F (29° C). When installing Natural Creations with Diamond 10 Technology, the maximum room temperature should not exceed 85° F (29° C).
- During the service life of the floor, the temperature should never rise above 100° F (38° C) nor fall below 55° F (13° C). The temperature should never rise above 85° F (29° C) for Natural Creations with Diamond 10 Technology. The performance of the flooring material and adhesives can be adversely affected outside this temperature range.
- Conduct calcium chloride tests or percent relative humidity tests. Bond tests should also be conducted for compatibility with the substrate. Please refer to Chapter 3, Subfloors and Underlayments.
- Radiant-heated substrates must not exceed a maximum surface temperature of 85° F (29° C).
- Concrete floors should be tested for alkalinity. The allowable readings for the installation of Armstrong® flooring are 5 to 9 on the pH scale.
- Use S-240 Epoxy Adhesive in areas where the product will be subjected to direct sunlight, topical moisture, concentrated static and dynamic loads or temperature fluctuations.

Installation Methods

(installation procedures)

Luxury Vinyl Tile (Residential and Commercial) Installation Method

Layout:

- Whenever possible, plan the layout so that the joints in the planks do not fall on top of joints or seams in the existing substrate. The end joints of the planks should be staggered a minimum of 6" (15.24 cm) apart. Do not install over expansion joints.
- Determine which direction the planks will run. Find the center of each of the end walls (the walls perpendicular to the long dimension of the planks) and place a pencil mark on the floor. Connect these points by striking a chalk line down the center of the room (Fig. 1). Do a dry layout of planks from the center line to the wall running parallel to the long direction of the planks to determine the width of the last row of planks (Fig. 1).

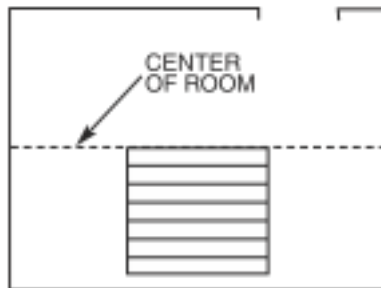


Fig. 1 Dry layout to determine width of border plank.

- Avoid having border pieces less than 2" (5.1 cm) wide for the 4" (10.2 cm) wide planks and less than 3" (7.6 cm) wide for the 6" (15.24 cm) wide planks. If you find the border planks will be less than 1/2 the width of the plank, the center starting line should be shifted a distance equal to 1/2 the plank width. This will "balance" the room and provide for a larger cut piece at the wall.

Product	Adhesives	Open Time (All Substrates)
NATURAL LIVING (Residential Light Commercial)	S-288, S-543 Use S-891 Fine Notch Trowel: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart.	Dry-to-Touch — Approximately 30 minutes (tacky-to-touch with no transfer to fingers)
NATURAL PERSONALITY (Residential only)	Flip Spray Adhesive	
NATURAL PERSONALITY 2 Vivero Good Vivero Better Vivero Best	NOTE: S-543 Must be back rolled with a medium nap (3/8" to 1/2") paint roller. S-289 Use short nap paint roller (3/16" to 1/4")	Dry-to-Touch — Approximately 45 minutes (tacky-to-touch with no transfer to fingers).

Product	Gauge	Size	Adhesive
Natural Creations with Diamond 10 Technology	0.125" (3.18 mm)	Various Sizes and Shapes	S-288, S-310 or S-240**
Natural Creations	0.125" (3.18 mm)	Various Sizes and Shapes	S-288, S-543*, S-310 or S-240**
Parallel LVT Vivero Best Vivero Better	.080 (2.0 mm) .100 (2.5 mm)	Various Sizes and Shapes	S-288, S-543*, S-310 or S-240**

* It is necessary to smooth out the adhesive trowel ridges using a medium nap paint roller. S-543 is **not recommended** for Natural Creations with Diamond 10 Technology, Vivero Better or Vivero Best.

*** It is necessary to smooth out the adhesive trowel ridges using a 3/16" (4.8 mm) nap paint roller. The purpose of this is to create a uniform application of the adhesive.*

NOTE: When installing Natural Creations Classcis/Natural Creations with Diamond 10 Technology/Paralle/Vivero Best LVT in areas subject to direct sunlight, topical moisture, or temperature fluctuations, Armstrong Flooring S-240 Epoxy Adhesive must be used.

NOTE: The amount of open time will vary according to job conditions — temperature, humidity, air flow and type of substrate.

Procedure:

S-288 Flooring Adhesive

- Apply S-288 Adhesive to 1/2 of the area at a time so you can start the installation along the center starting line.
- Begin laying planks along the center starting line and install row by row including the cut pieces at the perimeter until 1/2 of the installation is complete. Stagger the end joints by at least 6" (15.24 cm). Apply adhesive to the remaining portion of the room, allow the adhesive to dry-to-touch and complete the installation of planks in similar fashion.
- After the planks are installed, immediately roll the entire floor with a 100-lb. roller. Use a hand roller in confined areas where the large floor roller will not reach, such as under toe kicks.
- The planks may be walked on immediately; however, the floor should not be exposed to heavy rolling load traffic for 72 hours after the installation. Use pieces of hardboard or underlayment panels to protect the floor when moving heavy furniture and appliances back into the room.

S-289 Releasable Adhesive

- Apply S-289 adhesive to 1/2 of the room area at a time so that you can start the installation along the center starting line.
- Starting at the center and working toward the edges, roll in two directions using a 100-lb. roller. If any adhesive gets on the face of the flooring, use a clean, white cloth dampened with detergent and water to remove it. Mineral spirits will remove dried adhesive residue.

S-543 Adhesive

- Apply S-543 Adhesive and allow the adhesive to set until dry-to-touch, as per the recommended open time on the adhesive label.
- Begin laying planks along the center starting line and install row by row, including the cut pieces at the perimeter, until 1/2 of the installation is complete. Stagger the end joints by at least 6" (15.24 cm). Apply adhesive to the remaining portion of the room, allow to dry-to-touch and complete the installation of planks in similar fashion. Immediately remove any adhesive from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water. Roll the tile in both directions within 30 minutes after installation using a 100-lb. roller. Do not allow traffic for 24 hours after installation. Tile should not be exposed to rolling load traffic for at least 72 hours after installation to allow setting and drying of the adhesive.

NOTE: Products with directional arrows on the back should be installed with the arrows all pointing in the same direction unless you are installing custom layouts.

Fitting:

- Before installing the material, plan the layout so tile joints fall at least 6" (15.24 cm) away from subfloor/underlayment joints. Do not install over expansion joints.
- The end joints should be staggered a minimum of 6" (15.24 cm) apart.
- Recommended fitting procedures include straight scribing, pattern scribing or cutting with a tile cutter.

NOTE: When installing Vivero or Natural Creations with Diamond 10 Technology LVT the use of titanium blades is highly recommended.

Abutting Different Gauges of Resilient Flooring:

When installing thinner gauge material next to thicker gauge material, install thicker material first and then butt a 12" (30.5 cm) wide piece of S-153 Scribing Felt against the thicker material. Adhere the Scribing Felt to the subfloor with S-235 Adhesive. Use the fine notching of the S-891 Trowel over nonporous substrates such as existing resilient flooring, and use the regular notching of the S-891 Trowel over porous subfloors such as wood and concrete. Use -184 Fast-Setting Cement-Based Patch and Skim Coat or S-194 Patch, Underlayment and Embossing Leveler to feather the edge of the S-153 Scribing Felt to the level of the substrate. Allow the patch to dry completely before installing the flooring. Scribing Felt is not recommended to be used under the entire installation.

Adhesive (Modified Loose Lay Installation)	Set-in-Wet for Porous Substrates	Dry-to-Touch for Existing Resilient Flooring and Other Nonporous Substrates
S-288	Open Time: 30 minutes or more for Dry-to-Touch only Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2.0 mm) apart	
S-543*	Open Time: Approximately 10 minutes Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2.0 mm) apart	Open Time: 30 minutes or more Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2.0 mm) apart
S-240**	Open Time: Approximately 10–20 minutes Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2.0 mm) apart	Open Time: Approximately 10–20 minutes Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2.0 mm) apart
S-310 Roll Strong	Open Time: >15 minutes Roll on with medium nap roller. Dry-to-Touch only	

*It is necessary to smooth out the adhesive trowel ridges using a medium nap paint roller.

** It is necessary to smooth out the adhesive trowel ridges using a 3/16" (4.8 mm) nap paint roller. The purpose of this is to create a uniform application of the adhesive.

NOTE: Allowing the proper open time will help to minimize tile shifting. The amount of open time will vary according to job conditions, temperature, humidity, air flow and type of substrate.

Procedure:

See adhesive open times and trowel notchings in chart above.

Armstrong Flooring S-288 or S-543—Porous Substrates:

- Move the chalk lines to the corner or end of the room farthest from the doorway. These lines should be 2' or 3' from the wall depending on your reach (Fig. 2).
1. Apply the S-288 or S-543 Adhesive in 2' or 3' bands (Fig. 3), being careful not to cover the chalk lines. Do not apply more adhesive than you can cover within 20 minutes. Allowing a 10 minute open time and fitting the border tile tightly will reduce tile shifting and adhesive oozing. DO NOT allow the adhesive to dry completely.

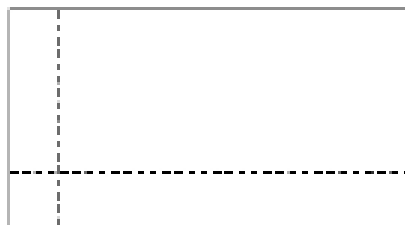


Fig. 2 Chalk lines.



Fig. 3 Adhesive band.

2. Install the tile along the chalk lines. Wood plank visuals must be installed with the arrows pointing in the same direction. Square and rectangle tiles may be installed with arrows pointing in the same direction, quarter turned or randomly installed for customized visuals. Install the field area first and then fit in the border tile.
3. Immediately remove any adhesive from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water. Roll the tile in both directions within 30 minutes after installation using a 100-lb.

roller.

4. Do not work on newly installed tile except to roll tile. If unavoidable, use a kneeling board.
5. Repeat steps 1 through 4 until the installation has been completed.
6. Do not allow traffic for 24 hours after installation. Newly installed flooring should not be exposed to rolling load traffic for at least 72 hours after installation to allow setting and drying of the adhesive.

Armstrong Flooring S-288 or S-543—Nonporous Substrates:

- Line off entire area to be installed.
 1. Apply the S-288 or S-543 Adhesive over the area, being careful not to cover the chalk lines.
 2. You may prefer to install one quarter of the room at a time by starting in the center of the room (Refer to Chapter 6, Layout and Fitting, Section B for layout instructions).
 3. Allow the adhesive to set until dry-to-touch (except S-240), following the recommended open time. To test, press your thumb lightly on the surface of the adhesive in several places. If the surface feels slightly tacky as your thumb is drawn away and does not stick to your thumb, the adhesive is ready for installation.
 4. Install the tile along the chalk lines. Wood plank visuals must be installed with the arrows pointing in the same direction. Squares and rectangle tiles may be installed with arrows pointing in the same direction, quarter turned or randomly installed for customized visuals. Install the field area first and then fit in the border tile.
 5. Immediately remove any adhesive from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water. Roll the tile in both directions within 30 minutes after installation using a 100-lb. roller.
 6. Do not allow traffic for 24 hours after installation. Tile should not be exposed to rolling load traffic for at least 72 hours after installation to allow setting and drying of the adhesive.

Armstrong Flooring S-310 Roll Strong Adhesive:

1. A clean substrate is extremely important with the use of S-310 Roll Strong Adhesive. Thoroughly sweep and vacuum the substrate first. Damp mop to remove any remaining dust or debris. Extra attention to substrate preparation is essential for a successful installation. Failure to properly clean the substrate may result in telegraphing of debris.
2. A roll-on application method is recommended with a medium nap (3/8"nap) roller to achieve a smooth even full-spread coating. Spread rate and drying time of the adhesive will depend on the porosity and texture of the substrates and the ambient temperature and relative humidity. **KEEP PAINT ROLLER WET!** Do not apply pressure to the roller, allow it to freely roll over the substrate. **ADHESIVE COVERAGE MUST NOT EXCEED 400 ft²/gal!** Overly absorbent or rough substrates will require two coats. Once the coating has dried, it must be kept clean and apart from any contact with other surfaces until ready to begin the bonding process. Do not spread more adhesive than can be covered in 4 hours.
3. Bond testing prior to the installation will help identify the appropriate application rate, open and working time, and any potential bonding problems to the substrate or flooring. To determine the accurate coverage rate, measure and chalk line the substrate into grids (using the appropriate square feet of area for the adhesive application) and apply adhesive onto each measured grid area.
4. Allow the adhesive to dry completely with no transfer to fingers when lightly touched. Open time will vary depending on the adhesive coverage, substrate porosity and the ambient conditions.
5. Once the S-310 Roll Strong adhesive has dried, install LVT as per recommended. LVT can be repositioned as necessary prior to applying pressure. After completion of the installation, roll the entire floor in both directions with 100 lb. roller to achieve a full contact bond.

NOTE: After the flooring has been rolled or pressed into place, repositioning is not possible. Normal traffic and rolling loads may be allowed as soon as the installation, finishing and clean-up are complete.

- **SAFETY AND CLEAN UP:** Wet adhesive should be cleaned up immediately with soap and water on a clean cloth. Dried adhesive may require the use of a solvent adhesive cleaner.
- **COVERAGE:** Rate of application depends on porosity of the substrate. Approximately 350-400 square feet per gallon when applied with a 3/8" Nap roller.

LVT installed over an existing single layer of resilient flooring:

NOTE: The responsibility for determining if the old resilient flooring is well bonded to the subfloor and will not show through the final installation rests with the contractor and the installer.

1. Confirm that the existing flooring is completely and firmly bonded.
2. Existing flooring must have been properly installed over underlayments and subfloors recommended as suitable for resilient flooring.
3. They may not show evidence of moisture or alkaline.
4. Waxes, polishes and other finishes must be removed with a commercially available stripper. We would recommend using a 3M Black pad for stripping purposes only. Do not allow the stripping solution to dry at any time. Thoroughly rinse the existing flooring with clean water after removing the stripping solution. Do not flood with water or stripping solution at any time.
5. Indentations or damaged areas should be replaced or repaired.
6. Allow all flooring materials and adhesives to condition to the room temperature a minimum of 48 hours before starting the installation.
7. Line off entire area to be installed.
8. Apply the S-288 or S-543 Adhesive over the area, being careful not to cover the chalk lines. You may prefer to spread and install one quarter of the room at a time.
9. Allow the adhesive to set until dry-to-touch (except S-240), allowing the recommended open time. To test, press your thumb lightly on the surface of the adhesive in several places. If the adhesive feels slightly tacky and does not stick to your thumb, the adhesive is ready for the installation.
10. Install the tile along the chalk lines. Wood plank visuals must be installed with the arrows pointing in the same direction. Squares and rectangle tiles may be installed with arrows pointing in the same direction, quarter turned or randomly installed for customized visuals. Install the field area first and then fit in the border tile.
11. Immediately remove any adhesive from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water. Roll the tile in both directions within 30 minutes after installation using a 100-lb. roller.
12. Do not allow traffic for 24 hours after installation. Tile should not be exposed to rolling load traffic for at least 72 hours after installation to allow setting and drying of the adhesive.

NOTE: Installations over existing resilient flooring may be more susceptible to indentations.

Custom LVT Installations:

Custom LVT installations will use the same layout procedures as standard LVT installations; however they may require some adjustments once the initial layout is completed. Additional lines may be needed depending on the design of the floor. Once the final layout is determined, the starting point may not necessarily be in the corner or the center of the room. The starting point may be adjusted so that the installation of the design is more easily completed. An example would be to install an inset first and then install the field around the inset, which would insure proper placement of the inset. It is important that when using this procedure, enough time is allowed for the adhesive to set, whereby any pressure will not cause slipping or shifting of the tile.