

Installation Guide for Resilient Flooring

Luxury Vinyl Tile

| Product | Gauge | Size | Adhesive | Comments |
|---|---------------------|------|---|---|
| NATURAL PERSONALITY (residential only) | 0.080" (2.0 mm) | | S-295, S-299, Flip, S-1000, or S-319 Roll Strong | Proper conditioning of the jobsite and product is extremely important for LVT planks Roll with a 100-lb. roller |
| NATURAL PERSONALITY 2 | 0.080" (2.0 mm) | | | |
| American Charm 6 | 0.080" (2.0 mm) | | S-295, Flip, S- 1000, or S-319 Roll Strong | |
| Vivero Better, Vivero Good | 0.080" (2.0 mm) | | | |
| Vivero Best | 0.100" (2.54 mm) | | | |

Note: When installing LVT in areas subject to direct sunlight, topical moisture, temperature fluctuations Armstrong S-1000 must be used.

NOTE: Installations over existing resilient flooring and acoustical underlayments such as S-1840 may be more susceptible to indentations.

Installation: All Grade Levels | Glue Down

Layout: End joints should be staggered a minimum of 6" (15 cm) apart

Subfloors & 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 Residential LVT Planks Installation Systems.

- Concrete - on all grade levels
- Ceramic tile, Terrazzo, Marble
- Approved suspended wood underlayments
- Polymeric poured (seamless) floors
- Single-layer, fully-adhered, existing resilient floors

DO NOT INSTALL OVER

- Particleboard, waferboard, OSB, or single-layer Sturd-I-Floor panels
- Existing cushion-backed vinyl flooring
- Existing resilient tile floors that are below grade
- Existing Hardwood flooring below grade

Job Site 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.

For Questions: 1-888-Armstrong | **For Full Installation Instructions:** www.floorexpert.com or www.armstrongflooring.com

Installation Guide for Resilient Flooring

- Substrates must be sound, dry, clean, smooth and free from excessive moisture or alkali.
- 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. For renovation or remodel work, remove any existing adhesive residue so that 100% of the overall area of the original substrate is exposed.
- In renovation or remodel work, remove any existing adhesive residue* so that no ridges or puddles are evident and what remains is a thin, smooth film.
- The area to receive resilient flooring and the flooring materials and adhesives should be maintained at a minimum of 65° F (18° C) and for 48 hours before installation, during installation and 48 hours after completion.
- During the service life of the floor, the temperature should never fall below of 55° F (13° C). The performance of the flooring and the adhesives can be adversely affected below this minimum temperature.
- For concrete substrates, conduct moisture testing (moisture vapor emission rate (MVER) and/or percent relative humidity (in-situ probe). Bond tests must be conducted for compatibility with the substrate. Please refer to Chapter 3, Subfloors and Underlayments, Section e.
- Radiant heated substrates must not exceed a maximum surface temperature of 85° F (29° C).

Precautions

- Proper conditioning of jobsite and product is extremely important for the appearance and performance of LVT planks.
- Do not wash or scrub the new flooring for at least 5 days after the installation. This will allow the tile to become “seated” in the adhesive and prevent excess moisture and cleaning agents from interfering with the adhesive bond.

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).

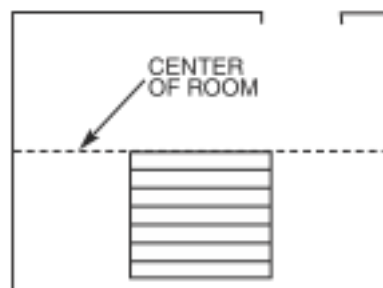


Fig. 1 Dry layout to determine width of border plank.

For Questions: 1-888-Armstrong | **For Full Installation Instructions:** www.floorexpert.com or www.armstrongflooring.com

Installation Guide for Resilient Flooring

- 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.

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.

| Product | Adhesives | Open Time (All Substrates) |
|---|---|--|
| NATURAL LIVING (Residential Light Commercial) | S-295, S-299 Trowel: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 1/32" (0.8 mm) apart. | Dry-to-Touch — Approximately 20 minutes (tacky-to-touch with no transfer to fingers) |
| NATURAL PERSONALITY (Residential only) | Flip Spray Adhesive | |
| NATURAL PERSONALITY 2 American Personality | S-1000 | Set-In-Wet - Approximately 10-20 minutes |
| | S-319 Roll Strong 3/8" nap paint roller | Dry-to-Touch — Approximately 15 minutes or more (tacky-to-touch with no transfer to fingers) |
| Vivero Good Vivero Better Vivero Best American Charm 6 | S-295 Trowel: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 1/32" (0.8 mm) apart. | Dry-to-Touch — Approximately 20 minutes (tacky-to-touch with no transfer to fingers) |
| | Flip Spray Adhesive | |
| | S-1000 | Set-In-Wet - Approximately 10-20 minutes |
| | S-319 Roll Strong 3/8" nap paint roller | Dry-to-Touch — Approximately 15 minutes or more (tacky-to-touch with no transfer to fingers) |

NOTE: In areas subject to direct sunlight, topical moisture, or temperature fluctuations, S-1000 must be used.

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

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 materials, install thicker material first and then butt a 12" (30.5 cm) wide piece of scribing felt against the thicker material. Adhere the scribing felt to the subfloor with suitable adhesive. Use S-194 Patch, Underlayment and Embossing Leveler or S-466 Patch Strong™ to feather the edge of the 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.

For Questions: 1-888-Armstrong | **For Full Installation Instructions:** www.floorexpert.com or www.armstrongflooring.com

Installation Guide for Resilient Flooring

| Adhesives | Set-in-Wet | Dry-to-Touch | Working Time | Traffic Post-Installation |
|--------------------|--|--|--------------|---|
| S-319 Roll Strong™ | - | Open Time: >15 minutes Roll on with medium nap roller. Dry-to-Touch only. | 4 Hours | Can be exposed to Heavy Traffic & Rolling Loads immediately |
| S-299 Adhesive | - | Open Time: >15 minutes. Dry-to-Touch only. Trowel: U Notch 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 1/32" (0.8 mm) apart | 4 Hours | Light Foot Traffic: 24 Hours Heavy Traffic & Rolling Loads: 48 Hours |
| S-295 Adhesive | - | Open Time: >15 minutes. Dry-to-Touch only. Trowel: U Notch 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 1/32" (0.8 mm) apart | 2 Hours | Light Foot Traffic: 24 Hours Heavy Traffic & Rolling Loads: 48 Hours |
| S-1000 Adhesive | Open Time: Approximately 10–20 minutes Trowel: U Notch 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 1/32" (0.8 mm) apart | | 45 Minutes | Light Foot Traffic: 4 Hours Heavy Traffic & Rolling Loads: 8 Hours |

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 with S-295, S-299:

- Line off entire area to be installed.
 1. Apply the 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-1000), 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.

For Questions: 1-888-Armstrong | **For Full Installation Instructions:** www.floorexpert.com or www.armstrongflooring.com

Installation Guide for Resilient Flooring

Install the field area first and then fit in the border tile. 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.

5. Immediately remove any adhesive from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water. 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.
6. Do not allow traffic for 24 hours after installation. Tile should not be exposed to rolling load traffic for at least 48 hours after installation to allow setting and drying of the adhesive.

Armstrong Flooring with Flip Spray Adhesive:

- A clean substrate is extremely important with the use of Flip Spray 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.
- Shake the can well before each use. Point can downwards, press the side of the nozzle tip as you slowly walk back and forth overlapping the spray pattern for an even spray coverage. Do not use a sweeping motion as this may cause uneven coverage. Clean up any larger drops that may occur. Refer to the provided spray patterns for proper application. Over application, especially for sheet vinyl may cause adhesive telegraphing.
- 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 spray the entire can of adhesive onto each measured grid area.
- 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.
- Working time for the adhesive should not exceed 4 hours.
- Install the flooring as per the Armstrong Flooring recommendations for that particular material.
- Roll the floor immediately after the installation is complete with a 100-lb. roller. Normal traffic may be allowed as soon as the installation, finishing and clean-up are complete. Wait 24-hours for heavy traffic or rolling loads.

Safety and Clean Up:

- Wet adhesive overspray or drips should be cleaned up immediately with soap and water on a clean cloth. Dried adhesive may require the use of a solvent adhesive cleaner. Between uses, clean the spray tip immediately with a clean wet cloth to prevent accumulation of dried adhesive.
- Empty aluminum spray cans should be relieved of excess pressure and recycled or disposed of in accordance with local requirements. Do not expose to temperatures exceeding 115° F. Prolonged exposure to heat or direct sun may cause container to burst.

Coverage:

- Rate of application depends on porosity of the substrate: 140–150 square feet per can (approximate)

Armstrong Flooring with S-319 Roll Strong Adhesive:

1. A clean substrate is extremely important with the use of S-319 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.

For Questions: 1-888-Armstrong | **For Full Installation Instructions:** www.floorexpert.com or www.armstrongflooring.com

Installation Guide for Resilient Flooring

ADHESIVE COVERAGE MUST NOT EXCEED 400 ft²/gal! 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-319 Roll Strong adhesive has dried, install LVT as 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-299, S-295 or S-319 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-1000), 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

For Questions: 1-888-Armstrong | **For Full Installation Instructions:** www.floorexpert.com or www.armstrongflooring.com

Installation Guide for Resilient Flooring

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.

USING S-1840 UNDERLAYMENT WITH S-1000, S-295, S-299 ADHESIVES

- Make sure the subfloor is clean, flat, dry and sound. It is important that the subfloor is free of all debris. Check the subfloor for unevenness or protruding objects such as nails or screws.
- When installing over concrete, the concrete must be dry with moisture vapor emission rate not exceeding 7 lbs. per 1000 square feet per 24 hours as measured by the Calcium Chloride Test and 93% RH using In-situ Probe.
- Begin in a corner and install the underlayment parallel to the wall in the opposite direction you plan to install the flooring planks. Leave at least 2" of excess underlayment up the wall and trim after completing the floor installation. See below for additional installation details.
- Roll out the next roll of underlayment in the same manner, making sure that the foam seams are butted together. The use of clear 2" wide packing tape can be used to attach the seams.
- When installing on concrete or below grade subfloors, be sure to tape the seams together with 2" tape that meets the moisture vapor transmission rate for this type of installation.

Adhere the underlayment to the subfloor and LVT to the underlayment. Follow the Procedures above using S-295,S-299 and/or S-1000. Do not use S-319 Roll Strong with S-1840.

For Questions: 1-888-Armstrong | **For Full Installation Instructions:** www.floorexpert.com or www.armstrongflooring.com

Installation Guide for Resilient Flooring

* 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](#).