

Installation Guide for Resilient Flooring

Commercial Luxury Vinyl Tile

Product	Gauge	Size	Adhesive
PROMARK™	0.080 in. (2.0 mm)	6" x 36"	S-288, S-543*, S-315, S-240**, S-980*, S-1000

**It is necessary to smooth out the adhesive trowel ridges using a medium 3/8" (9.5 mm) nap paint roller.*

*** 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 PROMARK LVT in areas subject to direct sunlight, topical moisture, or temperature fluctuations, Armstrong Flooring S-240 Epoxy Adhesive or S-1000 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)
- Polymeric poured (seamless) floors
- Ceramic tile, terrazzo, marble
- Existing vinyl composition tile (VCT)
- Approved suspended wood
- Steel, stainless steel, aluminum
- Existing resilient sheet flooring
- 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.
- Allow all flooring materials and adhesives to condition to the room temperature for a minimum of 48 hours before starting the installation.

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- 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).
- 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 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 or S-1000 in areas where the product will be subjected to direct sunlight, topical moisture, concentrated static and dynamic loads or temperature fluctuations.

** 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.*

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).

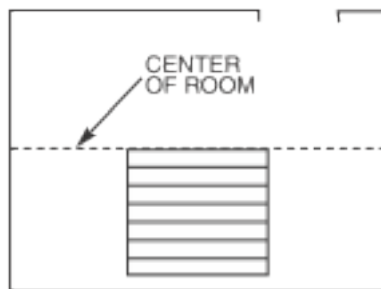


Fig. 1 Dry layout to determine width of border plank.

- 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.

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Adhesives	Commercial Installations	Set-in-Wet	Dry-to-Touch
S-288*	PROMARK		Open Time: 30 minutes or more for Dry-to-Touch only Trowel: Fine Notch 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2.0 mm) apart
S-980**	PROMARK		Open Time: 30 minutes or more for Dry-to-Touch only Trowel: Square Notch 1/16" (1.6 mm) deep, 1/16" (1.6 mm) wide, 1/16" (1.6 mm) apart
S-240***		Open Time: Approximately 10–20 minutes Trowel: Fine Notch 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2.0 mm) apart	
S-1000		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	
S-315 Roll Strong			Open Time: >15 minutes Roll on with medium nap roller. Dry-to-Touch only.

*It is necessary to use a U Notch 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 1/32" (0.8 mm) apart trowel when using S-288.

** It is necessary to smooth out the adhesive trowel ridges using a 3/8" (9.5 mm) 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: When installing PROMARK LVT in areas subject to direct sunlight, topical moisture, or temperature fluctuations, Armstrong Flooring S-240 Epoxy Adhesive or 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. the proper open time will help to minimize tile shifting.

Procedure

S-1000 Flooring Adhesive

- 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).]
- Apply the 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 45 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.

- 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.
- 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 work on newly installed tile except to roll tile. If unavoidable, use a kneeling board.
- Repeat steps 1 through 4 until the installation has been completed.
- The planks may be walked on immediately; however, the floor should not be exposed to heavy rolling load traffic for 8 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-288 Flooring Adhesive, S-599 ChoiceStrong™

- Apply 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-980

- Apply adhesive
- Roll the trowel ridges with a medium nap roller saturated with adhesive.
- 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"

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(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.

- The planks may be walked on immediately; however, the floor should not be exposed to heavy rolling load traffic for 6 hours after the installation if using S-980. Use pieces of hardboard or underlayment panels to protect the floor when moving heavy furniture and appliances back into the room.

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 PROMARK 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 S-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.

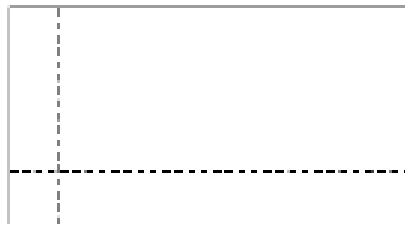


Fig. 2 Chalk lines.

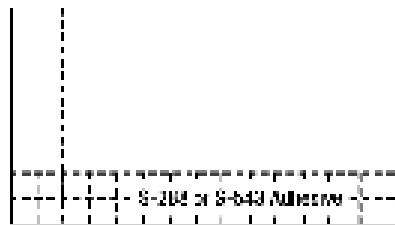


Fig. 3 Adhesive band.

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.

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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-315 Roll Strong Adhesive:

1. A clean substrate is extremely important with the use of S-315 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-315 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.

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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-980 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 and 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 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.

- Wall Base can be mitered or formed and wrapped around outside corners. Shave a strip approximately 1/4" (6.4 mm) wide and one quarter of the thickness from the back of Wall Base

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where the corner will be positioned. This will reduce the thickness to make bending around the corner easier and neater. Do not cut behind the coved toe.

- Wall Base can be mitered, scribed or wrapped with a V-shaped notch in the toe at inside corners.
- Fitting should be completed for each piece before applying adhesive.