

Installation Guide for Resilient Flooring

**Commercial Luxury Flooring Installation Instructions**

*Unbound™ with Diamond 10® Technology and Unleashed™ Luxury Vinyl Tile*

Product	Gauge	Size	Adhesive
Unbound™ with Diamond 10® Technology	0.20 in. (5.0 mm)	36 in. x 36 in. (914.4 mm x 914.4 mm) 9 in. x 59 in. (228.6 mm x 1498.6 mm) 7 in. x 59 in. (177.8 mm x 1498.6 mm)	S-315 Roll Strong™, S-288, S-1000
Unleashed™	0.20 in. (5.0 mm)	9.25 in. x 5.95 in. (234.9 mm x 1504.9 mm) 36 in. x 36 in. (914.4 mm x 914.4 mm)	S-315 Roll Strong™, S-288

**Installation:**

Location: All grade levels

Layout: End joints should be staggered a minimum of 6 in. (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. (Refer to the Subfloors and Underlayments section of the Armstrong Flooring Guaranteed Installation System Manual at [www.floorexpert.com](http://www.floorexpert.com).)

- 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

**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.
- All substrates must be flat. Variations in flatness must not exceed 1/16 in. (1.6mm) in 1 ft. (30.5 cm) or 3/16 in. (4.8 mm) in 10 ft. (3.05 m). Fill low areas in the substrate with S-194 Patch, Underlayment and Embossing Leveler, S-195 Underlayment Additive or S-456 Patch Strong™ and/or S-453 Level Strong™.

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- 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.
- 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.
- 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. Concrete must meet 95% RH in a modified loose lay with perimeter glue installation. 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.
- Excessive temperature changes will cause expansion and contraction of the Luxury Vinyl Planks/Tiles.
- In areas of exposure to direct sunlight it is recommended to install using the modified loose lay (perimeter adhesive) or full spread adhesive method using S-315, S-288 or S-1000 adhesive.
- For flooring installations that will be subjected to heavy rolling loads, the full-spread installation method should be used.
- Store, transport and handle all flooring to prevent any distortions. Store cartons flat – never on edge. If distortions do occur, they will not disappear over time. Ensure that the planks/tiles are flat at time of installation.
- Do not compress the edges of the planks in any way when installing other flooring materials next to Unleashed™/Unbound™ LVT. Installations of carpet, metal strips and other transition moldings should not pinch the flooring and should allow for slight movement wherever practical.

**Protection:**

When installed, protect all Armstrong® Luxury Vinyl Planks floor from heavy rolling loads, other trades, and appliances by using sheets of plywood or MDF.

\*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](#).

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<b>Product</b>	<b>Adhesives</b>	<b>Open Time (All Substrates)</b>
Unbound™ with Diamond 10® Technology	S-315 Use short nap paint roller (3/8 in.)	<b>Open Time:</b> 15 minutes or more
	S-288	<b>Open Time:</b> 30 minutes or more <b>Fine Notch:</b> 1/32 in. (0.8 mm) deep, 1/16 in. (1.6 mm) wide, 5/64 in. (2.0 mm) apart
	S-1000	<b>Open Time:</b> Approximately 10 - 20 minutes (set-in-wet only) <b>Trowel:</b> U Notch 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 1/32" (0.8 mm) apart
Unleashed™	S-315 Use short nap paint roller (3/8 in.)	<b>Open Time:</b> 15 minutes or more
	S-288	<b>Open Time:</b> 30 minutes or more <b>Fine Notch:</b> 1/32 in. (0.8 mm) deep, 1/16 in. (1.6 mm) wide, 5/64 in. (2.0 mm) apart

**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.

**NOTE:** For all installations open several cartons and mix them as they are installed to help blend any slight shade differences from one carton to the next.

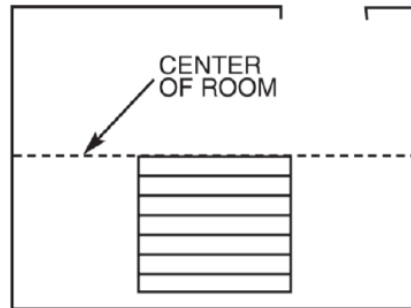
**Layout – Tiles:**

See Armstrong Flooring Guaranteed Installation System F-5061, Chapter VI, Layout and Fitting for room layout. Before installing the material, plan the layout so tile joints fall at least 6 in. (15.2 cm) away from subfloor/underlayment joints. Do not install over expansion joints.

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**Layout & Fitting – Planks:**

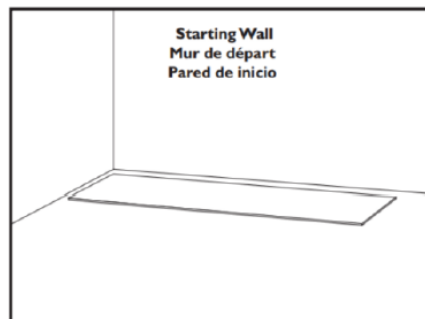
- Before installing the material, plan the layout so tile joints fall at least 6 in. (15.24 cm) away from subfloor/underlayment joints. Do not install over expansion joints.
- The end joints should be staggered a minimum of 6 in. (15.24 cm) apart.
- Recommended fitting procedures include straight scribing, pattern scribing or cutting with a tile cutter.
- 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 1/2 the width of the plank. 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.
- Most installations will start along the longest straight wall in the room. The planks will be installed starting in the corner of the room on the left side of the starting wall (as you are facing it). (Fig. 2)

**NOTE: The planks must be installed tightly together with no gaps.**

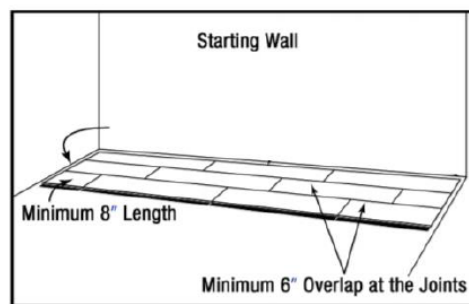


**Fig. 2 Left corner of starting wall**

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- Begin laying the first row of planks. Press into place to obtain adhesive bond. Fit tightly the plank face edges together tightly. Continue, left to right, with the first row of planks until you near the end and need to cut the last plank to fit. Try to avoid having planks shorter than 12 in. at the ends of rows. You may have to cut some additional length off the starting plank and slide the first row toward the left so the last plank will be at least 12 in. in length.
- Start the second row on the left side with a piece cut to about 2/3 the length of the starting plank in the first row. It is important to keep the end joints staggered a minimum of 6 in. in adjacent rows (Fig. 3). Both the long side edges and the short ends of planks should be neatly butted against adjoining planks and those in adjacent rows. Use one hand to hold the plank, and the other hand to guide the edges into place by lowering the plank as you go. It's important to butt the edges together neatly. Press into place to obtain adhesion. If the joints are not tight, pull up the plank and reposition it immediately.

**NOTE: After the first 3 rows of planks are installed, they should be checked with a string line to ensure that rows are still running straight. If they are not, it could be that the starting wall has some irregularities that caused bowing in the installation. If so, the starting row of planks may have to be scribed and re-trimmed to account for any unevenness in the wall.**



**Fig. 3 Stagger end joints by 6 in. and cut pieces at end of row should be 8 in. or greater**

- Continue installing the remaining rows in similar fashion. Maintain the 6 in. minimum staggered end joints between rows. After you have enough rows in place, you may find it easier to turn around and work on top of the newly installed planks for the remainder of the room.

### Procedure:

#### Loose Lay Installation

- In spaces where the room does NOT exceed 20 ft. in any direction, these products can be installed without adhesive. The planks or tiles should be cut tight to all walls and vertical obstructions. Install the planks or tiles along the chalk lines and repeat until the installation has been completed. Base cabinets should not be installed on top of the planks. For larger spaces see the modified loose lay (perimeter adhesive) installation procedure.

#### Modified Loose Lay (perimeter adhesive) or Full Spread

- In spaces where the room exceeds 20 ft. in any direction, a 12 in. band of adhesive should be applied around the perimeter of the room, as well as in areas of heavy foot traffic such as doorways. Unleashed planks/tiles should be cut tight to all walls and vertical obstructions. Unbound planks/tiles must be installed with a 1/8" gap against all walls. Base cabinets can only be installed on top of planks if the planks/tiles are fully adhered to the subfloor with the recommended full spread adhesive. S-315 Roll Strong™ Adhesive, S-288 or S-1000 Flooring Adhesive can be used.

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**Tips for Armstrong® S-315 Roll Strong™ Adhesive:**

- A roll-on application method is recommended with a medium nap (3/8 in. 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 ft.<sup>2</sup>/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.
- 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.
- **COVERAGE:** Approximately 350-400 square feet per gallon when applied with a 3/8 in, nap roller

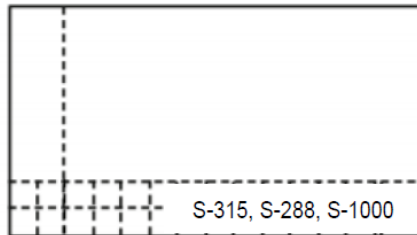
**Procedure:**

**Modified Loose Lay Installation (perimeter adhesive)**

1. Line off entire area to be installed. Move the chalk lines to the corner or end of the room farthest from the doorway. These lines should be two or three feet from the wall depending on your reach (Fig. 4). Apply S-315, S-288 or S-1000 Adhesive in 12 in. bands around the perimeter of the space (Fig. 5). For S-288 or S-1000 adhesive, follow guidelines above per porous and non-porous substrates.
2. Install the planks or tiles along the chalk lines.



**Fig. 4 Chalk lines.**



**Fig. 5 Adhesive band.**

3. Immediately remove any adhesive from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water. When installing with S-315 or S-288 roll the tile in both directions within 30 minutes after installation using a 100-lb. Roller. When installing with S-1000 roll the tile in both directions after 60 minutes but no later than 120 minutes following the 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 2 through 4 until the installation has been completed.

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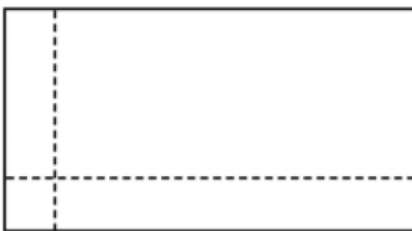
**Procedure:**

**Full Spread Installation Procedure, S-288 or S-315 dry-to-touch method**

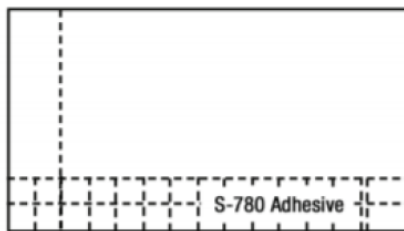
1. Line off entire area to be installed. Move the chalk lines to the corner or end of the room farthest from the doorway. These lines should be two or three feet from the wall depending on your reach (Fig. 4).
2. Apply S-315, or S-288 adhesive over the area, being careful not to cover the chalk lines.
3. You may prefer to install one quarter of the room at a time by starting in the center of the room (Refer to Layout and Fitting section for layout instructions).
4. Allow the adhesive to set until dry-to-touch, 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.
5. Install the tile along the chalk lines.
6. 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.

**Full Spread Installation Procedure, S-1000 set-in-wet method**

1. Line off the area to be installed. 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. 6).]
2. Apply the Adhesive in 2' or 3' bands (Fig. 6), 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. 6 Chalk lines. Fig. 7 Adhesive band.



**Fig. 6 Chalk lines.**



**Fig. 7 Adhesive band**

3. 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.
4. 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.
5. Do not work on newly installed tile except to roll tile. If unavoidable, use a kneeling board.

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6. Repeat steps 1 through 4 until the installation has been completed.
7. 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.
8. Roll the tile in both directions after 60 minutes but no later than 120 minutes following the installation using a 100-lb. roller.

### **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 denatured alcohol or mineral spirits.

### **Special Situations:**

When installing thinner gauge material next to thicker gauge material, install thicker material first and then butt a 12 in. (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 Armstrong S-891 Trowel over nonporous substrates such as existing resilient flooring and use the regular notching of the Armstrong® S-891 Trowel over porous subfloors such as wood and concrete. Use Armstrong 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.

### **Finishing the Job:**

- Replace any molding. Nail the molding to the wall surface (not through the flooring). At doorways and at other areas where it may meet other flooring surfaces, it is preferable to use a trim to cover the exposed edge but not pinch the planks/tiles. Leave a gap between the planks and the adjoining surface.
- When installed protect all Armstrong® Luxury Vinyl Planks/Tiles floor from heavy rolling loads, other trades, and appliances by using sheets of plywood or MDF.
- When replacing appliances, or whenever moving heavy furniture over the flooring, place a wood panel under the object. Without moving the panel, slide or roll the object over it. Follow with additional panels as needed. This prevents scratches, tears or buckling of the flooring material.