

IV

Installation Systems

RESIDENTIAL SHEET FLOORING INSTALLATION SYSTEMS AND ADHESIVES

Residential Felt-Backed	Linoleum	ToughGuard II <small>(Formerly Stratamax)</small>	Fiberglass-Reinforced
<p>Allegany Amble Arras Bernstein Bessemer CAMERON CANYON CREEK Colcord EPIQ INITIATOR LYNX MEDLEY MEMORIES METRO MetroMedia</p>	<p>PARK WEST RHINO CLASSICS Round Rock ROYELLE SIGNIA Smithfield Sperling STARSTEP STATION SQUARE THEMES Vance Ventara Warbler Wembley</p>	<p>MARMORETTE GRANETTE COLORETTE LINORETTE RHYTHMICS</p>	<p>British Autumn Caspia CastleRock Colonial Seasons Equity Expeditions Harpeth Nassour StrataMax Telstar</p>
<p>Full Spread or Perimeter Bond S-235, S-254</p>	<p>Full Spread S-780</p>	<p>S-289 Releasable (paint roller) Full Spread S-288 or S-289 Fine notch trowel (permanent) Modified Loose Lay- Acrylic Double- Faced Tap</p>	<p>AVANTRA Autumn Ventures Carina CASPIAN II CHAMBLIS CONCERTO CushionStep Denarest Duality English Countryside Estates European Travels FlexStep FORSYTHE Fresh Waters Great Manor Worldly</p>
			<p>Harvest Time International KEMPTON Lacerta LANDMARK Lumex Maple Ridge Owasso Palomar Realm River Bank SENTINEL Study Abroad Summit SUNDIAL Taloga Vela Worldly</p>
			<p>S-289 Releasable (paint roller) Full Spread S-288 or S-289 Fine notch trowel (permanent) Modified Loose Lay- Acrylic Double-Faced Tape</p>

IV. Installation Systems

RESIDENTIAL VINYL TILE AND PLANK FLOORING INSTALLATION SYSTEMS AND ADHESIVES

Do-It-Yourself	Vinyl Composition Tile	ALTERNA	Lynx	Residential LVT Plank
ABINGDON ADIAMO AFTON BANBURY CALIBER CLASSIC CLEAR CREEK CRESCENDO ELSTON EPIQ PLUS GRANITE MILLS	CALIBER CLASSIC GRANITE MILLS Natural Visuals STYLSTIK II TERRAZA THEMES COLLECTION UNITS Urethane No-Wax Tile Vinyl No-Wax Tile	ALTERNA CerRoma	Exquisite Fashion Plank Collection HAMPTON LUXE PLANK Ultimate Plank Collection	NATURAL LIVING NATURAL PERSONALITY
Self Stick	S-515, S-525, S-700, or S-750	S-288	Lynx technology with overlapping pressure sensitive adhesive	S-288, S-289 (releasable), or S-543

* S-700 not recommended.

COMMERCIAL TILE AND PLANK FLOORING INSTALLATION SYSTEMS AND ADHESIVES

BioBased Tile	Vinyl Composition Tile	ALTERNAs <small>(Light Commercial)</small>	Commercial LVT	Static Dissipative Tile		
MIGRATIONS STRIATIONS	EXCELON COMPANION SQUARE Feature Tile/ Strips STONETEX ChromaSpin Standard EXCELON IMPERIAL TEXTURE IMPERIAL TEXTURE CLASSICS MULTICOLOR RAVE	ARTEFFECTS RAFFIA	SAFETY ZONE	ALTERNAs <small>(Light Commercial)</small>	NATURAL CREATIONS PARALLEL LVT NATURAL CREATIONS with I-Set	SDT
Full Spread: S-525 or S-700 Tile-On: S-525	Full Spread: S-515, S-525, S-700, or S-750 Tile-On: S-515, S-525, or S-750	Full Spread: S-515, S-525, S-700, or S-750 Tile-On: S-515, S-525, or S-750	Full Spread: S-515, S-525, S-700, S-750, or S-240 Tile-On: S-515, S-525, or S-750	S-288	Lynx technology with overlapping pressure sensitive adhesive	S-202

When installing Natural Creations/Parallel LVT in areas subject to direct sunlight, topical moisture, temperature fluctuations, Armstrong 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 S-240 or S-288 adhesive must be used

COMMERCIAL SHEET FLOORING INSTALLATION SYSTEMS AND ADHESIVES

	Linoleum	Vinyl Backed	Fiberglass-Reinforced (Light Commercial)	Heterogeneous and Inlaid
Full Spread	MARMORETTE GRANETTE COLORETTE LINORETTE RHYTHMICS	MEDINTECH MEDINTONE MEDLEY ROYAL SOLID	Abode Duality	REJUVENATIONS TIMBERLINE Ambigu StoneRun POSSIBILITIES Petit Point Connection CORLON
Perimeter Bond	n/a	n/a	n/a	n/a
Flash Cove Area Only	S-580 (optional)	S-580	n/a	S-580
Concentrated Load Areas	S-240	S-240	n/a	S-240

RUBBER TILES, STAIR TREADS, AND WALL BASE

STAIR TREADS and Rubber Tiles		WALL BASE	
Rubber Tile	Stair Treads	WALL BASE RISERS	TRANSITION STRIPS
S-240	Solvent Based Contact Adhesive	S-725	Solvent Based Contact Adhesive

Residential Felt-Backed Installation System

Product	Gauge	Adhesive	Comments
ROYELLE	0.046" (1.17 mm)	Full Spread S-235 or S-254	Seams: Double-cut Seam treatment: S-500 Seam Coating
EPIQ INITIATOR METRO	0.055" (1.40 mm)	Full Spread S-235 or S-254	
Arras SIGNIA Smithfield STATION SQUARE THEMES Vance	0.062" (1.63 mm)	Full Spread or Perimeter Bond S-235 or S-254	
CAMERON MEMORIES RHINO CLASSICS Sperling Ventara	0.065" (1.65 mm)		
Allegany Bernstein CANYON CREEK Colcord LYNX MEDLEY PARK WEST STARSTEP Warbler Wembley	0.070" (1.78 mm)		

Installation:

- Location: All grade levels
- Pattern Match: Yes; do not reverse pieces of patterned material (TM edge to non-TM edge); pieces of non-patterned material should be reversed (TM edge to TM edge)
- Seam Method: Double-cut
- Seam Treatment: S-500 Seam Coating
- Fitting: All methods

Suitable Substrates:

All substrates listed below must be properly prepared and meet the requirements discussed in Chapter III, Subfloors and Underlayments. There may be certain exceptions and special conditions for these substrates to be suitable for the Residential Felt-Backed Installation System.

- Concrete
- Approved Suspended Wood
- Polymeric Poured (seamless) Floors
- Existing Resilient Floors
- Ceramic Tile, Terrazzo, Marble
- Steel, Stainless Steel, Aluminum, Lead, Copper, Brass, Bronze

Job Conditions/Preparation:

- Substrates must be dry, clean, smooth, and free from paint, varnish, wax, oils, solvents, and other foreign matter.
- In renovation or remodel work, remove any existing adhesive residue* so that 80% 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.
- Resilient flooring should only be installed in temperature-controlled environments. It is necessary to maintain a constant temperature before, during, and after 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 area to receive resilient flooring should be maintained between 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 installation.
- During the service life of the floor, the temperature should never fall below 55°F (13°C). The performance of the flooring material and 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 also be conducted for compatibility with the substrate. Please refer to Chapter III, Subfloors and Underlayments.
- Concrete floors should be tested for alkalinity. The allowable readings for the installation of Armstrong flooring are 5 to 9 on the pH scale.
- When installing over wood subfloors or underlayments, the moisture content of the subfloor should be 13% or less. Please refer to Chapter III, Subfloors and Underlayments.
- Radiant-heated substrates must not exceed a maximum surface temperature of 85°F (29°C).

Fitting:

- Keep all materials rolled face-out until ready to begin the installation. Cut seams net. Pieces that are cut and fit in the morning should be adhered that morning. Pieces that are cut and fit in the afternoon should be adhered that afternoon.
- When installing over an existing resilient floor, lay out the installation so the new seams are a minimum of 6" (15.2 cm) away from the original seams. When going over tile floors, seams should fall in the center of the tile.
- Recommended fitting procedures include straight scribing, pattern scribing and freehand knifing.

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

Adhesive Open Times and Trowel Notchings

Adhesive	Porous	Nonporous
S-235 S-254	<p>Open Time: 0–20 minutes over wood or concrete</p> <p>Regular Notch: 1/16" (1.6 mm) deep, 1/16" (1.6 mm) wide, 3/32" (2.4 mm) apart</p>	<p>Open Time: 10–20 minutes over existing resilient flooring or other nonporous substrates</p> <p>Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart</p>

NOTE: Allowing the proper open time will help to minimize knee marks, roller marks, and trapped air blisters. The amount of open time will vary according to job conditions, temperature, humidity, air flow, and type of substrate.

Keys to a Successful Installation:

- Store rolls and individual cut pieces rolled face-out and wrapped tightly around a cardboard tube. To ensure that the material lays flat and installs wrinkle free, care must be exercised to prevent the roll from bending or sagging.
- Keep rolls on a continuous flat surface while transporting. Avoid uneven stacking.
- Prevent distortions from occurring during installation by not folding or creasing the material. When laying the material into the adhesive after being lapped back, you may notice some fullness in the middle of the sheet. Roll or push any fullness out to the edges.
- If the flooring will not lay flat due to roll distortions, tight fitting, sharp creases, or breaks in the backing during fitting, it should be installed by the full spread method
- Pre-cut the pieces accurately. It is much easier to cut pieces close to size in an area where you can lay them out flat. Generally, allow 1-1/2" (31.8 mm) for each end wall. (With two or more pieces, make sure you have cut them long enough for pattern matching purposes.)
- Use special care when handling material wider than 6' (1.8 m).
- After the material is in the room, make safety cuts so it will lay flat on the floor. This will make final fitting easier and prevent the material from tearing.
- Install material with a net fit against walls when not using molding or against other stationary objects. Tight or compression fitting can cause buckles in unadhered areas.
- The following room areas should be installed by the full spread method: bathrooms, small areas/rooms such as closets and pantries, and rooms with intricate fitting where some fullness or slight buckles are difficult to avoid.

Procedure:

- See Chapter V, Adhesives, Seam Treatments and Grout. See Adhesive Open Times and Trowel Notchings Chart above.
- Use S-235 or S-254 Adhesive as specified for the particular product being installed. Apply the adhesive using the proper trowel notching. Allow the recommended open time before placing the material into the adhesive. Starting at the center and working toward the edges, roll in two directions

using a 100 lb. roller. Clean excess adhesive from the surface of the flooring using a clean, white cloth dampened with detergent and water.

Flash Coving: See Chapter VIII, Flashcoving.

Full Spread Installation using S-235 Adhesive or the S-254 Adhesive

- All fitting should be complete before spreading adhesive.
- Cut material slightly loose and away from walls wherever molding or wall base will be used to cover the edge of the vinyl.
- Apply the adhesive to the subfloor one half of the sheet at a time. Lap or tube back one half of the sheet to expose the subfloor. **Do not roll the product face-in while spreading adhesive.**

S-500 Seam Coating Application

- Prepare the S-500 Seam Coater as per instructions.
- Practice applying the coating on scrap material to get a consistent 1/8" wide bead of coating.
- Tilt the applicator to an angle of about 30 degrees while applying coating.
- Do not attempt to insert the nozzle into seam.
- Apply 1/8" wide bead of coating centered on top of seam.

Perimeter Bond Installation using S-235 Adhesive or S-254 Adhesive

- Temperature recommendations are extremely important to the perimeter bond method.
- All fitting should be complete before spreading adhesive.
- Cut material slightly loose and away from walls wherever molding or wall base will be used to cover the edge of the vinyl.
- To apply the adhesive, lap or tube back one half of the sheet to expose the subfloor. **Do not roll the product face-in while spreading adhesive.**
- Apply a band of adhesive 10" (25.4 cm) to 12" (30.5 cm) wide around the perimeter of the room and around any fixtures, floor vents, etc. Also apply a band of adhesive 10" (25.4 cm) to 12" (30.5 cm) wide centered under any seams.

S-500 Seam Coating Application

- Prepare the S-500 Seam Coater as per instructions.
- Practice applying the coating on scrap material to get a consistent 1/8" wide bead of coating.
- Tilt the applicator to an angle of about 30 degrees while applying coating.
- Do not attempt to insert the nozzle into seam.
- Apply 1/8" wide bead of coating centered on top of seam.
- The freshly applied seam coating must be protected for several hours from dirt, dust and traffic. Follow instructions on package.

Perimeter Bond Installation with Staples

- Staples may be used to fasten the material at the perimeter of the room over wood underlayments where a molding will be installed to cover them. Use a staple gun and space staples 3" (7.6 cm) or less around the perimeter of the

room. Use the largest staple (length) size that can be seated [minimum of 3/8" (9.5 mm) and a maximum of 1/2" (12.7 mm)]. The crown (width) of the staple should be 1/2" (12.7 mm).

- Apply a 10" band of the S-235 Adhesive or S-254 Adhesive under the seam area.

S-500 Seam Coating Application

- Prepare the S-500 Seam Coater as per instructions.
- Practice applying the coating on scrap material to get a consistent 1/8" wide bead of coating.
- Tilt the applicator to an angle of about 30 degrees while applying coating.
- Do not attempt to insert the nozzle into seam.
- Apply 1/8" wide bead of coating centered on top of seam.
- The freshly applied seam coating must be protected for several hours from dirt, dust and traffic. Follow instructions on package.

ToughGuard II

Installation System

Product	Gauge	Adhesive	Comments
StrataMax Good	0.065" (1.65 mm)	Modified loose lay method: Acrylic double-faced tape	Seams: Double-cut
British Autumn Caspia CastleRock Colonial Seasons Harpeth StrataMax Better	0.070" (1.78 mm)	Full Spread Releasable Adhesive method: S-289 Releasable Adhesive	Seam treatment: Apply S-500 Seam Coating or S-761 Seam Adhesive
Equity Expeditions Nassour StrataMax Best Telstar	0.085" (2.16 mm)	Conventional Full spread method (not releasable): S-288 & S-289	

LIGHT COMMERCIAL USE ONLY

Product	Gauge	Adhesive	Comments
Equity Expeditions Nassour StrataMax Best Telstar	0.085" (2.16 mm)	Conventional Full Spread method (not releasable): S-288 & S-289 Flooring Adhesive S-580 Flash Cove Adhesive (when using the S-288 Flooring Adhesive only)	Seams: Double-cut Seam treatment: Apply S-500 Seam Coating or S-761 Seam Adhesive

Installation:

- Location: All grade levels
- Pattern Match: Yes; do not reverse pieces of patterned material (TM edge to non-TM edge)
- Seam Method: Double-cut
- Seam Treatment: Apply S-500 Seam Coating or S-761 Seam Adhesive
- Fitting: All methods

General Information:

ToughGuard II flooring can be installed by three installation methods. It is designed as a floating floor when installed by the modified loose lay installation method using only acrylic double-faced tape under the seams. The modified loose lay method requires that the flooring be cut 1/8" (3.2 mm) to 3/16" (4.8 mm) away from all vertical surfaces (such as walls, cabinets, pipes, etc.). This gap must then be filled and the edges sealed with a good quality silicone or acrylic caulk.

Summary of Residential ToughGuard II Installation Options

	Modified Loose Lay	S-289 Releasable Adhesive	S-288 Flooring Adhesive S-289 Flooring Adhesive (adhered permanently)
Spacing (gap) at vertical surfaces (walls, pipes, etc)	1/8" (3.2 mm) to 3/16" (4.8 mm)	1/8"	None
Base cabinets on top of flooring	Yes	No	Yes
Island cabinets on flooring	Yes	Yes	Yes
Bathrooms	Yes	Yes	Yes
Stairs, landings or rooms with floor drains	No	No	Yes
Seams on suspended wood underlayments	Multiple OK	Multiple OK	Multiple OK

Suitable Substrates:

All substrates listed below must be properly prepared and meet certain requirements discussed in the Subfloors and Underlayments category. There may be certain exceptions and special conditions for these substrates to be suitable for the ToughGuard II Installation System.

- Concrete (on all grade levels)
- Approved Suspended Wood
- Single-layer, Fully Adhered, Existing Resilient Floors
- Ceramic Tile, Terrazzo, Marble
- Polymeric Poured (seamless) Floors
- Approved Suspended single layer wood Subfloor system (Modified Loose Lay Installation only)

NOTE: For wood subfloors and underlayments, the moisture content must be 13% or less.

Do not install over:

- Particleboard or waferboard panels
- Existing resilient tile floors that are below grade
- Existing cushion-backed vinyl flooring
- Carpet
- Hardwood flooring that has been installed directly over concrete

ToughGuard II materials can also be installed directly over suspended single-layer wood subfloors such as plywood or oriented strand board (OSB) **when using the modified loose lay method**. The subfloor system must be designed to meet or exceed applicable building codes with a minimum of 18" (45.7 cm) of well-ventilated air space below. It must be installed according to the subfloor manufacturer's recommendations. The moisture content must be 13% or less for direct installation of ToughGuard II materials.

The subfloor panels must have a smooth, sanded face and show no swelling of edges or surface due to exposure to weather conditions or construction traffic. “Base grade” subfloor panels are not recommended as they generally do not provide a sanded face or the moisture resistance of “better” and “best” grade panels. The panels cannot be contaminated by staining agents. **Otherwise, an additional 1/4" (6.4 mm) or thicker underlayment is recommended.**

Single-layer wood subfloors increase the potential for staining from the panel components, coated nails, construction adhesives, spills, overspray, and show-through from texture and mechanical or water damage when resilient flooring is installed directly over them.

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.
- All substrates must be sound, dry, clean, smooth, and free from excessive moisture or alkali. Remove dirt, paint, varnish, wax, oils, solvents, other foreign matter, and containments that could cause staining or interfere with a good bond.
- Do not use products containing petroleum solvents or citrus oils to prepare substrates as they can cause staining and expansion of the new flooring.
- In renovation or remodel work, remove any existing adhesive residue* so that 100% of the overall area of the original substrate is exposed.
- When fully adhering flooring over an existing resilient floor, use S-194 Patch, Underlayment & Embossing Leveler/S-195 Underlayment Additive to fill and smooth any embossing in the old floor.
- With the modified loose lay method, typical embossing of rotogravure floors (less than 3/16" (4.8 mm) wide and less than 1/32" (0.8 mm) deep) would not show through and would certainly not cause performance problems. Deeper embossing such as on old inlaid Designer Solarian floors, deeply embossed tile floors, and ceramic tile grout joints should be leveled even for the loose lay method.
- The area to receive resilient flooring and the flooring materials and adhesives should be maintained at a minimum of 65°F (18°C) for 48 hours before installation, during installation, and for 48 hours after completion. Maintain a minimum temperature of 55°F (13°C) thereafter.
- For concrete substrates, conduct moisture testing (moisture vapor emission rate [MVER]) and/or percent relative humidity (in-situ probe). Bond tests must also be conducted for compatibility with the substrate. Please refer to Chapter III Subfloors and Underlayments section.

* Some previously manufactured asphaltic “cutback” adhesives contained asbestos (see warning statement on page x). For removal instructions, refer to the Resilient Floor Covering Institute’s publication [Recommended Work Practices for Removal of Resilient Floor Coverings](#).

Precautions for All Installation Options:

- Do not wash or scrub the new flooring for at least 5 days after the installation. This will help prevent excess moisture and cleaning agents from interfering with the bond of the fresh adhesive or vinyl flooring tape.
- When moving appliances or heavy furniture, lay a plywood panel on the floor and “walk” the item across it. This protects the floor from scuffing and tears.
- Use floor protectors, such as Armstrong Floor Protectors, on furniture to reduce indentation. The heavier the item, the wider the floor protector needed.
- The flooring material should not be exposed to sudden changes in temperature and moisture/humidity. The site needs to be closed in with HVAC operating. In new construction, do not power wash the basement and introduce excessive moisture to the subfloor above after the flooring has been installed.
- ToughGuard II materials need to be protected from rolling loads and construction traffic by other trades. Kitchen cabinets, water heaters, furnaces, and other appliances being hauled over the flooring can cause problems if the flooring is not protected with boards.

Keys to Successful Installation:

- Proper conditioning of both the job site and the flooring is necessary. Do not expose the installation to wide ranges in temperature and moisture/humidity levels in the home.
- Store, transport and handle the flooring so as to prevent creases or other distortions in the sheet. Always roll face-out on a cardboard tube. Distortions will generally not disappear or shrink on their own. Sheet must be lying flat at time of installation.
- Just prior to installation, unroll flooring so it can acclimate to the job site conditions. Allow the roll-up stresses to relax and the flooring material to flatten out.
- Undercut door trim to allow for free movement of the flooring.
- Island cabinets are permissible on top of the flooring but perimeter base cabinets should be cut around as noted above.
- Seams must be double-cut, net, with no fullness. Do not straight edge and butt seams. Do not stretch or compress at seams as this will lead to small buckles.
- Do not compress the edges of the sheet in any way when installing adjacent flooring materials. Installation of carpet, metal strips, and other transition moldings should not push fullness into the flooring.
- Always protect flooring from rolling loads from other trades and replacement and/or movement of appliances.
- Radiant heated substrates must not exceed a maximum surface temperature of 85°F (29°C).

- As with many flooring products, the full spread adhesive methods generally require somewhat more attention to the condition of the substrate so that it will not telegraph irregularities through the finished floor.

Fitting:

- Recommended Fitting procedures include pattern scribing, straight scribing, and freehand knifing.
- Do not cut full or compression fit.

Planning and Layout:

- Plan the layout so seams in the new flooring fall at least 6" (15.2 cm) away from seams and joints in existing flooring and underlayments.
- Remove wall base and quarter-round moldings.
- The decorative trim and jamb moldings at doorways should be under-cut to allow flooring to slip underneath as you can't hide perimeter gap with wall base in these areas.
- After preparation work is completed, be sure to sweep and vacuum entire work area, taking extra care to remove all dirt and debris.
- Do not install over expansion joints.

Armstrong cannot be responsible for:

- Joint or texture show-through.
- Tunneling and ridging over board joints.
- Discoloration from stain sources in the panel, regardless of the type of panel used.
- Problems caused by local climate conditions, basement wall and subfloor construction, or improper installation.

Use of S-135 Armstrong VapArrest Professional Moisture Retardant System:

If the concrete slab does not meet the water vapor emission rate, ToughGuard II materials can be installed by the modified loose lay method over the S-135 Armstrong VapArrest Professional Moisture Retardant System. The VapArrest must be allowed to cure for a minimum of 3 days until tack-free. Use double-faced acrylic tape for the modified installation method.

For concrete subfloors, the percent relative humidity must be 80% or less as determined by the ASTM F2170 test method. If subfloor internal relative humidity levels exceed the recommended limit, the concrete must be allowed to dry prior to installing the floor.

Modified Loose Lay Method

Keys to Successful Modified Loose Lay Installation over OSB:

- Not all subfloors will be suitable for direct installation. The builder basic panel is generally not sanded and will have poor resistance to moisture exposure leading to swollen edges, flake pops, and general gauge and fastener issues.
- Use subfloors with a smooth sanded face and properly installed with recommended joint spacing. Most boards are designed to have 1/8" (3.2 mm) gap at joints.

- Do not use staining agents such as plumber's primer or construction adhesives on the surface.
- Do not take short cuts in timing of installation or conditioning the home. Follow standard vinyl recommendations for conditioning of both job site and flooring materials.

Keys to Successful Modified Loose Lay Installation:

- Tape may be used at doorways if needed, but the preferred method is to use transition strips, similar to a "T" molding, that cover the edge of the flooring while at the same time allowing for some movement of the flooring beneath the molding. **Do not use the tape around the entire perimeter of the room and do not install base cabinets on top of the flooring.**
- Multiple seams are allowed when this method is used over concrete subfloors.
- Tape may also be needed under relief cuts that were made to slip around pipes and other objects. and at some doorways where transition moldings cannot be used. Do not overuse tape and do not tape around the entire perimeter of the room.

Adhesive Open Times and Trowel Notchings

Adhesive (Modified Loose Lay Installation)	Set-in-Wet for Porous Substrates	Dry-to-Touch for Existing Resilient Flooring and Other Nonporous Substrates
S-288 Adhesive 2" (5.08 cm) to 3" (7.62 cm) wide band under the seams	Open Time: Minimum of 10-20 minutes Fine Notch: 1/32" (0.8mm) deep, 1/16" (1.6mm) wide, 5/64" (2mm) apart	Open Time: 30 minutes or more Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart
	Set-in-Wet	Dry-to-Touch for all Substrates
S-289 Releasable Adhesive 2" (5.08 cm) to 3" (7.62 cm) wide band under the seams	Not Recommended	Allow the adhesive to set open until dry-to-touch, approximately 45 to 60 minutes. The adhesive should be tacky with no transfer to fingers Short nap roller

Procedure:

This type of flooring is designed for modified loose lay installation using acrylic double-faced tape, S-289 Releasable Adhesive, or S-288 Adhesive only at seams and other critical areas. In bathrooms, the acrylic double-faced tape, S-289 Releasable Adhesive or S-288 Adhesive should be used to secure the flooring in front of tubs and shower enclosures. Other critical areas are doorways where trim cannot be used to cover an exposed edge or an area in the kitchen with a heavy movable appliance. **Do not use the acrylic double-faced, S-289 Releasable Adhesive, or the S-288 Adhesive around the entire perimeter of the room.**

The small gap allowed around all vertical surfaces provides enough space where caulk must be used to seal the edges to prevent moisture from

getting under the new flooring. All edges must be sealed with a good quality siliconized or acrylic caulk, even in areas where trim moldings or vinyl wall base will be put on top. ToughGuard II flooring should not be cut full or snug. Make sure all areas are lying flat before applying caulk in the perimeter gap.

CAUTION:

Do not stand or walk on the release liner, as it is extremely slippery. Place it in a wastebasket immediately upon removal from the tape.

Procedure:

- If more than one piece of flooring is used, the pieces should be pattern matched and double-cut prior to placing the acrylic double-faced tape, S-288 Adhesive, or the S-289 Releasable Adhesive under the seam.
- When installing with S-289 Releasable Adhesive, apply adhesive at the seam and let dry to the touch prior to cutting the seam.
- When installing with the S-288 Adhesive, cut seams dry then apply adhesive.
- The edges where the seam will be cut should be overlapped with a piece of scrap material under the seam to protect the substrate while cutting through both pieces of flooring. It is important that the seam be cut in a straight line using a straight edge as a guide. The knife should be held completely vertical to put a clean 90° edge at the seam. Seams should be cut net, not full or snug, which can result in buckles.

S-500 Seam Coater (Seam Treatment)

- After the flooring has been properly fit and positioned in the room, gently fold back the seam edges and apply the acrylic double-faced tape, S-288 Adhesive or the S-289 Releasable Adhesive centered under the seam. When installing with the tape method, before removing the release liner from the top of the tape, use a clean cloth and hand pressure to thoroughly bond the tape to the subfloor.
- Then, remove the release liner from the tape and carefully reposition the seam for a net fit. Thoroughly roll the seam with a hand roller to complete the bond.
- S-500 Seam Coating Kit may be used to coat the seams at the completion of the installation.
- Prepare the S-500 Seam Coater as per instructions.
- Practice applying the coating on scrap material to get a consistent 1/8" wide bead of coating.
- Tilt the applicator to an angle of about 30 degrees while applying coating.
- Do not attempt to insert the nozzle into seam.
- Apply 1/8" wide bead of coating centered on top of seam.
- The freshly applied seam coating must be protected for several hours from dirt, dust and traffic. Follow instructions on package.

S-761 Seam Adhesive (Seam Treatment)

- Acrylic Double-faced Tape: Double-cut the seam before applying the tape.
- S-289 Releasable Adhesive: Apply S-289 Releasable Adhesive at the seam and let dry to the touch prior to cutting the seam.

- S-288 Adhesive: Cut seams dry and then apply the adhesive, allowing proper open time before setting material into the adhesive.
- After applying the tape or after proper open time for the adhesive, place one side of the material back down.
- Using the S-761 applicator bottle, apply a 1/8" bead of S-761 Seam Adhesive along the seam edge.
- Tuck the seam edge into place, forcing the S-761 Seam Adhesive up through the seam.
- Clean adhesive residue from the surface of the flooring using a clean, white cloth dampened with neutral detergent and water.
- Roll the seam using a hand roller.

NOTE: S-761 Seam Adhesive is highly recommended for patterns that do not contain grout lines.

Replace or install wall base and quarter-round moldings to cover the gap around the perimeter of the room. Do not pinch the molding down on top of the flooring. Leave a slight clearance between the molding and flooring so any effects of seasonal movement in the home due to temperature or humidity changes will be minimized.

Full Spread Method with S-288 & S-289 Flooring Adhesive

Procedure:

If seams are involved, they should be double-cut dry prior to spreading adhesive in the seam area. Use a piece of scrap material under the seam when cutting.

Adhesive Open Times and Trowel Notchings

Adhesive	Porous	Nonporous
S-288 & S-289	Open Time: Minimum of 10-20 minutes Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 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 mm) apart

NOTE: Allowing proper open time will help to minimize knee marks, roller marks, and trapped blisters. The amount of open time will vary according to job conditions – temperature, humidity, air flow, and type of substrate.

S-761 Seam Adhesive (Seam Treatment)

- Double-cut the seam before applying adhesive to the seam area. Leave 1-2' back from the edge of the seam area after full spreading of adhesive on floor.
- Place one side back down.
- Using the applicator bottle, apply a 1/8" bead of the S-761 Seam Adhesive along the seam edge.
- Tuck the seam edge into place, forcing the S-761 Seam Adhesive up through the seam.
- Clean adhesive residue from the surface of the flooring using a clean, white cloth dampened with neutral detergent and water.
- Roll the seam using a hand roller.

- Then, starting at the center and working toward the edges, roll the flooring in two directions using a 100-lb. roller.

S-500 Seam Coating Kit (Seam Treatment)

- Starting at the center and working toward the edges, roll in two directions using a 100-lb. roller. Seams must be hand rolled, then rolled again with a 100-lb. roller. Give special attention to cleaning adhesive residue from the seam areas as they must be clean and dry in order to proceed with the application of S-500 Seam Coating. Clean excess adhesive from the surface of the flooring using a clean, white cloth dampened with detergent and water. Mineral spirits will remove dried adhesive residue.
- The freshly applied seam coating must be protected for several hours from dirt, dust, and traffic. Follow the instructions on the package.

Replace or install wall base and quarter-round moldings as needed. Fasten molding to the vertical surface. Do not nail through the new floor.

Full Spread Method with S-289 Releasable Adhesive – Residential Installations Only

Adhesive	Open Time	Comments
S-289 Releasable Sheet Flooring Adhesive	Allow the adhesive to set open until dry-to-touch, approximately 45 to 60 minutes. The adhesive should be tacky with no transfer to fingers	Use a short nap paint roller (3/16") to apply S-289 Releasable Adhesive.

General Information:

S-289 Releasable Adhesive is a pressure sensitive adhesive with releasable bonding properties. It improves performance of vinyl-backed sheet flooring that is typically loose laid or modified loose laid, but still allows easy removal of the flooring at any time, without tearing the backing or damaging the substrate. The releasable installation system is ideal for reducing the remodel workload in rental units, condominiums, or other spaces that undergo frequent replacement of the flooring.

The releasable adhesive system can be used over recommended substrates in areas not always suitable for loose lay applications. Examples include installations that have multiple seams over wood underlayments, in bathrooms, and in areas of the home that have small rolling appliances such as portable dishwashers or microwave carts. Flash coving with S-289 Releasable Adhesive is not recommended. In certain areas of the country where seasonal moisture and humidity changes are severe, the movement in wood subfloors can cause a raised area or a buckle in the flooring near a perimeter pinch point. Typically, if this happens, it will occur during prolonged periods of cold weather when interior conditions become very dry and the wood subfloor/underlayment components dry out and shrink. Or, it can occur in new construction when job site and product conditioning recommendations are not followed. Should this happen and a buckle occurs, the flooring should be gently lifted and pulled back from the pinch point and re-trimmed.

NOTE: The full spread method using S-288 Flooring Adhesive is required in rooms with floor drains, where flooring is installed on stair treads or landings, and where net fitting is required around the perimeter of the room.

Procedure:

Seams are to be double-cut after the S-289 Releasable Adhesive is spread and dry-to-touch. Scrap material is not recommended under the seam when double cutting to prevent excess fullness with the releasable system.

Tube or lap back the sheet flooring to expose approximately half of the substrate and use a short nap (1/4" to 3/16") roller to apply the S-289 Releasable Adhesive. Follow adhesive open time and working time recommendations on the adhesive label. To ensure releasability, the adhesive must be allowed to dry completely to a tacky state where there is no transfer to your fingers or the back of the flooring when placed into the dried film. This can take 45 minutes or more. The amount of open time will vary according to job conditions – temperature, humidity, air flow, and type of substrate.

S-761 Seam Adhesive (Seam Treatment)

- Place one side of material back down.
- Using the applicator bottle, apply a 1/8" bead of S-761 Seam Adhesive along the seam edge
- Tuck the seam edge into place, forcing the S-761 Seam Adhesive up through the seam.
- Clean adhesive residue from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water.
- Roll the seam using a hand roller.
- Starting at the center and working toward the edges, roll in two directions using a 100-lb. roller. Seams must be hand rolled, then rolled again with 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-500 Seam Coater (Seam Treatment)

- After both pieces of material have been placed into the adhesive, roll the seams with a hand roller and then, starting at the center and working toward the edges, roll in two directions using a 100-lb. roller. Seams must be hand rolled, then rolled again with 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.
- Apply S-500 Seam Coating Low Gloss Seam Coating at the seams at the completion of the installation. The freshly applied seam coating must be protected for several hours from dirt, dust, and traffic. Follow the instructions on the package. S-761 Seam Adhesive is highly recommended for patterns that do not contain grout lines.

Replace or install wall base and quarter-round moldings as needed to cover the 1/8" perimeter gap. Fasten molding to the vertical surface. Do not pinch the flooring and do not nail through the new floor.

Seams:

If a seam is required in a primary part of the room, it should be made after the product has been rough cut and is lying flat in its proper position in the room, but prior to final cutting and fitting around the perimeter. Overlap the selvage edges of both pieces of flooring so that the proper pattern match is achieved. Then, carefully fold back the seam edges without shifting the sheets, so that a strip of scrap material can be placed under the product where the seam will be cut. This will save your knife blade and prevent scoring the substrate directly beneath the seam. Reposition the two edges, ensuring a good pattern match.

Seams must be double-cut. The straight edge and butt method of seaming is not recommended for this product. The seams of the flooring should not be stretched or compressed to obtain pattern match as this will create buckles in the flooring adjacent to the seams.

Use a sharp utility knife with a straightedge as a guide to double-cut through both pieces of material. Most patterns will have a grout line where the seam should be cut. Hold the knife blade vertical, at a 90° angle, to the floor when cutting the seam to ensure a straight, clean cut.

Fold back one side of the cut seam and remove the scrap material and selvage. Mark a pencil line on the substrate along the seam to be used as a reference for positioning the acrylic double-faced tape. Install the tape, centering it under the seam. Use a hand roller or clean cloth to press it against the substrate. Peel the release layer off of the tape and begin to carefully reposition the two sides of the seam on top of the tape. (On long seams it may be easier to just remove only a portion of the release layer at a time until you are sure the seam is falling back into position properly.) When both sides of the seam are properly positioned on top of the tape, use a hand roller to ensure a complete bond.

Use only acrylic double-faced tape intended for use with vinyl flooring. Ordinary carpet tapes may “telegraph” through and cause vinyl discoloration.

NOTE: At the installer’s discretion, a 2” (5.08 cm) to 3” (7.62 cm) wide band of S-288 Adhesive or S-289 Releasable Adhesive under the seams can be used in place of the acrylic tape under the seams and in front of tub and shower enclosures, etc.

Fiberglass-Reinforced Sheet Flooring Installation System

RESIDENTIAL USE ONLY

Product	Gauge	Adhesive	Comments
FlexStep Value	0.055" (1.4 mm)	Modified loose lay method: Acrylic double-faced tape at seams or 2"-3" Band of S-288 Flooring Adhesive or S-289 Releasable Adhesive at the seams Full Spread Releasable Adhesive method: S-289 Releasable Adhesive Conventional Full Spread method (not releasable): S-288 & S-289 Flooring Adhesive S-580 Flash Cove Adhesive (when using the S-288 Flooring Adhesive only)	Seams: Double-cut Seam treatment: Apply S-500 Seam Coating or S-761 Seam Adhesive
FlexStep Good	0.065" (1.65 mm)		
CushionStep Value	0.075" (1.905 mm)		
CushionStep Good Duality Premium	0.080" (2.0 mm)		
AVANTRA Premium 2	0.083" (1.905 mm)		
Duality Premium Plus	0.085" (2.16 mm)		
AVANTRA	0.090" (2.28 mm)		
CushionStep Better	0.100" (2.45 mm)		
CushionStep Best	0.120" (3.05 mm)		

LIGHT COMMERCIAL USE ONLY

Product	Gauge	Adhesive	Comments
Abode Duality Premium	0.080" (2.0 mm)	Conventional Full Spread method (not releasable): S-288 & S-289 Flooring Adhesive Full Spread Releasable Adhesive method: S-289 Releasable Adhesive S-580 Flash Cove Adhesive (when using the S-288 Flooring Adhesive only)	Seams: Double-cut Seam treatment: Apply S-500 Seam Coating or S-761 Seam Adhesive
AVANTRA Premium 2	0.083" (2.1 mm)		
Duality Premium Plus	0.085" (2.16 mm)		
AVANTRA	0.090" (2.28 mm)		

Installation:

- Location: All grade levels
 Pattern Match: Yes; do not reverse pieces
 Seam Method: Double-cut
 Seam Treatment: Apply S-500 Seam Coating or S-761 Seam Adhesive
 Fitting: All methods

General Information:

Fiberglass flooring in residential applications, can be installed by three installation methods. The flooring can be installed by the modified loose lay installation method using acrylic double-faced tape under seams, or it can be installed by two full spread options using either S-288 Flooring Adhesive or S-289 Releasable Adhesive. Depending on the type of subfloor, size and complexity of the room, and the type of traffic expected in the room, one of the full spread options may be recommended. Fiberglass-reinforced flooring should not be installed by perimeter fastening methods.

In certain areas of the country, where seasonal moisture and humidity changes are severe, the movement in wood subfloors can cause a raised area or a buckle in the flooring near a perimeter pinch point. Typically, if this happens, it will occur during prolonged periods of cold weather when interior conditions become very dry and the wood subfloor/underlayment components dry out and shrink. Should this happen and a buckle occurs, the flooring should be gently lifted or pulled back from the pinch point and re-trimmed.

Summary of Residential Fiberglass-Reinforced Installation Options

	Modified Loose Lay	S-289 Releasable Adhesive	S-288 & S-289 Flooring Adhesive
Spacing (gap) at vertical surfaces (walls, pipes, etc)	1/4"	1/8"	None
Base cabinets on top of flooring	No	No	Yes
Island cabinets on flooring	No	Yes	Yes
Bathrooms	Yes	Yes	Yes
Stairs, landings or rooms with floor drains	No	No	Yes
Seams on suspended wood underlayments	Only 1	Multiple OK	Multiple OK

Suitable Substrates (for all installation options):

All substrates listed below must be properly prepared and meet certain requirements. There may be certain exceptions and special conditions for these substrates to be suitable for the flooring installation.

- Concrete (on all grade levels)
- Approved Suspended Wood Underlayments
- Single-layer, Fully Adhered, Existing Resilient Floors
- Ceramic Tile, Terrazzo, Marble
- Polymeric Poured (seamless) Floors
- Existing resilient tile floors that are on grade or suspended

NOTE: For wood subfloors and underlayments, the moisture content must be 13% or less.

Do not install over:

- Particleboard, waferboard, OSB, or single-layer Sturd-I-Floor panels
- Existing cushion-backed vinyl flooring
- Carpet
- Hardwood flooring that has been installed directly over concrete

Job Conditions/Preparation (for all installation options):

- 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.
- All substrates must be sound, dry, clean, smooth, and free from excessive moisture or alkali. Remove dirt, paint, varnish, wax, oils, solvents, other foreign matter, and contaminants that could cause staining or interfere with a good bond.
- Do not use products containing petroleum solvents or citrus oils to prepare substrates as they can cause staining and expansion of the new flooring.
- In renovation or remodel work, remove any existing adhesive residue* so that 100% of the overall area of the original substrate is exposed.
- When installing over an existing resilient floor, use S-194 Patch, Underlayment & Embossing Leveler/S-195 Underlayment Additive to fill and smooth any embossing in the old floor.
- The area to receive resilient flooring and the flooring materials and adhesives should be maintained at a minimum of 65°F (18°C) and a maximum of 100°F (38°C) for 48 hours before installation, during installation, and for 48 hours after completion. Maintain a minimum temperature of 55°F (13°C) thereafter.
- For concrete substrates, conduct moisture testing (moisture vapor emission rate [MVER]) and/or percent relative humidity (in-situ probe). Bond tests

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

must also be conducted for compatibility with the substrate. Please refer to Chapter III Subfloors and Underlayments document.

Precautions (for all installation options):

- Do not wash or scrub the new flooring for at least 5 days after the installation. This will help prevent excess moisture and cleaning agents from interfering with the bond of the fresh adhesive or vinyl flooring tape.
- When moving appliances or heavy furniture, lay a plywood panel on the floor and “walk” the item across it. This protects the floor from scuffing and tears.
- Use floor protectors, such as Armstrong Floor Protectors, on furniture to reduce indentation. The heavier the item, the wider the floor protector needed.

Keys to Successful Installation:

- Proper conditioning of both the job site and the flooring is necessary. Do not expose the installation to wide ranges in temperature and moisture/humidity levels in the home.
- Store, transport and handle the flooring so as to prevent creases or other distortions in the sheet. Always roll face-out on a cardboard tube. Distortions will generally not disappear or shrink on their own. Sheet must be lying flat at time of installation.
- Just prior to installation, unroll flooring so it can acclimate to the job site conditions. Allow the roll-up stresses to relax and the flooring material to flatten out.
- Undercut door trim to allow for free movement of the flooring there as well.
- Island cabinets are permissible on top of the flooring but perimeter base cabinets should be cut around as noted above.
- Seams must be double-cut, net, with no fullness. Do not straight edge and butt seams. Do not stretch or compress at seams as this will lead to small buckles.
- Do not compress the edges of the sheet in any way when installing adjacent flooring materials. Installation of carpet, metal strips and other transition moldings should not push fullness into the flooring.
- Always protect flooring from rolling loads from other trades and replacement and/or movement of appliances.
- Radiant heated substrates must not exceed a maximum surface temperature of 85°F (29°C).
- As with many flooring products, the full spread adhesive methods generally require somewhat more attention to the condition of the substrate so that it will not telegraph irregularities through the finished floor.

Fitting:

- Unroll material and lay flat to allow roll curl to relax before fitting.
- Recommended Fitting procedures include pattern scribing, straight scribing or freehand knifing.
- Do not cut full or compression fit.

Planning and Layout:

- Plan the layout so seams in the new flooring fall at least 6" (15.2 cm) away from seams and joints in existing flooring and underlayments.
- Remove wall base and quarter-round moldings.
- The decorative trim and jamb moldings at doorways should be under-cut to allow flooring to slip under trim and jambs because you can't hide the perimeter gap with wall base in these areas.
- After preparation work is completed, be sure to sweep and vacuum the entire work area, taking extra care to remove all dirt and debris.
- Do not install over expansion joints.

Use of S-135 Armstrong VapArrest Professional Moisture Retardant System:

If the concrete slab does not meet the moisture vapor emission rate, fiberglass reinforced sheet flooring can be installed by the modified loose lay method over the S-135 Armstrong VapArrest Professional Moisture Retardant System. The VapArrest must be allowed to cure for a minimum of 3 days until it is tack-free. Use double-faced acrylic tape for the modified installation method. See requirement for S-135.

For concrete subfloors, the percent relative humidity must be 80% or less as determined by the ASTM F2170 test method. If subfloor internal relative humidity levels exceed the recommended limit, the concrete must be allowed to dry prior to installing the floor.

Modified Loose Lay Method

Keys to Successful Modified Loose Lay Installation:

- Tape may be used at doorways if needed, but the preferred method is to use transition strips, similar to a "T" molding, that cover the edge of the flooring while at the same time allowing for some movement of the flooring beneath the molding. **Do not use the tape around the entire perimeter of the room and do not install base cabinets on top of the flooring.**
- Multiple seams are allowed when this method is used over concrete subfloors.
- Tape may also be needed under relief cuts that were made to slip around pipes and other objects. and at some doorways where transition moldings cannot be used. Do not overuse tape and do not tape around the entire perimeter of the room.

CAUTION:

Do not stand or walk on the release liner, as it is extremely slippery. Place it in a wastebasket immediately upon removal from the tape.

Adhesive Open Times and Trowel Notchings

Adhesive (Modified Loose Lay Installation)	Set-in-Wet for Porous Substrates	Dry-to-Touch for Existing Resilient Flooring and Other Nonporous Substrates
S-288 Adhesive 2" (5.08 cm) to 3" (7.62 cm) wide band under the seams	Open Time: Minimum of 10-20 minutes Fine Notch: 1/32" (0.8mm) deep, 1/16" (1.6mm) wide, 5/64" (2mm) apart	Open Time: 30 minutes or more Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart
	Set-in-Wet	Dry-to-Touch for all Substrates
S-289 Releasable Adhesive 2" (5.08 cm) to 3" (7.62 cm) wide band under the seams	Not Recommended	Allow the adhesive to set open until dry-to-touch, approximately 45 to 60 minutes. The adhesive should be tacky with no transfer to fingers. Use a short nap paint roller.

Procedure:

- If more than one piece of flooring is used, the pieces should be pattern matched and double-cut prior to placing the acrylic double-faced tape, S-288 Adhesive or the S-289 Releasable Adhesive under the seam.
- When installing with S-289 Releasable Adhesive, apply adhesive at the seam and let dry to the touch prior to cutting seam.
- When installing with the S-288 Adhesive, cut seams dry then apply adhesive.
- The edges where the seam will be cut should be overlapped with a piece of scrap material under the seam to protect the substrate while cutting through both pieces of flooring. It is important that the seam be cut in a straight line using a straight edge as a guide. The knife should be held completely vertical to put a clean 90° edge at the seam. Seams should be cut net, not full or snug, which can result in buckles.

S-500 Seam Coater (Seam Treatment)

- After the flooring has been properly fit and positioned in the room, gently fold back the seam edges and apply the acrylic double-faced tape, S-288 Adhesive or the S-289 Releasable Adhesive centered under the seam. When installing with the tape method, before removing the release liner from the top of the tape, use a clean cloth and hand pressure to thoroughly bond the tape to the subfloor.
- Then, remove the release liner from the tape and carefully reposition the seam for a net fit. Thoroughly roll the seam with a hand roller to complete the bond.
- S-500 Seam Coating Kit may be used to coat the seams at the completion of the installation.
- The freshly applied seam coating must be protected for several hours from dirt, dust, and traffic. Follow the instructions on the package.

S-761 Seam Adhesive (Seam Treatment)

- Acrylic Double-faced Tape: Double cut the seam before applying the tape.
- S-289 Releasable Adhesive: Apply S-289 Releasable Adhesive at the seam and let dry to the touch prior to cutting the seam.
- S-288 Adhesive: Cut seams dry and then apply the adhesive, allowing proper open time before setting material into the adhesive.
- After applying the tape or after proper open time for the adhesive, place one side of the material back down.
- Using the S-761 applicator bottle, apply a 1/8" bead of S-761 Seam Adhesive along the seam edge.
- Tuck the seam edge into place, forcing the S-761 Seam Adhesive up through the seam.
- Clean adhesive residue from the surface of the flooring using a clean, white cloth dampened with neutral detergent and water.
- Roll the seam using a hand roller.

NOTE: S-761 Seam Adhesive is highly recommended for patterns that do not contain grout lines.

Replace or install wall base and quarter-round moldings to cover the gap around the perimeter of the room. Do not pinch the molding down on top of the flooring. Leave a slight clearance between the molding and flooring so any effects of seasonal movement in the home due to temperature or humidity changes will be minimized.

Full Spread Method with S-288 & S-289 Flooring Adhesive

Procedure:

If seams are involved, they should be double-cut dry prior to spreading adhesive in the seam area. Use a piece of scrap material under the seam when cutting.

Adhesive Open Times and Trowel Notchings

Adhesive	Set-in-Wet for Porous Substrates	Dry-to-Touch for Existing Resilient Flooring and Other Nonporous Substrates
S-288	Open Time: Minimum of 10-20 minutes Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 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 mm) apart
S-289	Open Time: Minimum of 10-20 minutes Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart	Not Recommended

NOTE: Allowing proper open time will help to minimize knee marks, roller marks and trapped blisters. The amount of open time will vary according to job conditions — temperature, humidity, air flow and type of substrate.

S-761 Seam Adhesive (Seam Treatment)

- Double-cut the seam before applying adhesive to the seam area. Leave 1-2' back from the edge of the seam area after full spreading adhesive on floor.
- Place one side back down.
- Using the applicator bottle, apply a 1/8" bead of the S-761 Seam Adhesive along the seam edge.
- Tuck the seam edge into place, forcing the S-761 Seam Adhesive up through the seam.
- Clean adhesive residue from the surface of the flooring using a clean, white cloth dampened with neutral detergent and water.
- Roll the seam using a hand roller.
- Then starting at the center and working toward the edges, roll the flooring in two directions using a 100-lb. roller.

S-500 Seam Coating Kit (Seam Treatment)

- Starting at the center and working toward the edges, roll in two directions using a 100-lb. roller. Seams must be hand rolled, then rolled again with a 100-lb. roller. Give special attention to cleaning adhesive residue from the seam areas as they must be clean and dry in order to proceed with the application of S-500 Seam Coating. Clean excess adhesive from the surface of the flooring using a clean, white cloth dampened with detergent and water. Mineral spirits will remove dried adhesive residue.
- The freshly applied seam coating must be protected for several hours from dirt, dust and traffic. Follow the instructions on the package.

Replace or install wall base and quarter-round moldings as needed. Fasten molding to the vertical surface. Do not nail through the new floor.

Full Spread Method with S-289 Releasable Adhesive – Residential Installations Only

Adhesive	Open Time	Comments
S-289 Releasable Sheet Flooring Adhesive	Allow the adhesive to set open until dry-to-touch, approximately 45 to 60 minutes. The adhesive should be tacky with no transfer to fingers.	Use a short nap paint roller to apply S-289 Adhesive.

General Information:

S-289 Releasable Sheet Flooring Adhesive is a pressure sensitive adhesive with releasable bonding properties. It improves performance of vinyl-backed sheet flooring that is typically loose laid or modified loose laid, but still allows easy removal of the flooring at any time, without tearing the backing or damaging the substrate. The releasable installation system is ideal for reducing the remodel workload in rental units, condominiums, or other spaces that undergo frequent replacement of the flooring.

The releasable adhesive system can be used over recommended substrates in areas not always suitable for loose lay applications. Examples include installations that have multiple seams over wood underlayments, in

bathrooms, and in areas of the home that have small rolling appliances such as portable dishwashers or microwave carts. Flash coving with S-289 Releasable Adhesive is not recommended. In certain areas of the country where seasonal moisture and humidity changes are severe, the movement in wood subfloors can cause a raised area or a buckle in the flooring near a perimeter pinch point. Typically, if this happens, it will occur during prolonged periods of cold weather when interior conditions become very dry and the wood subfloor/underlayment components dry out and shrink. Or, it can occur in new construction when job site and product conditioning recommendations are not followed. Should this happen and a buckle occurs, the flooring should be gently lifted and pulled back from the pinch point and re-trimmed.

NOTE: The full spread method using S-288 Flooring Adhesive is required in rooms with floor drains, where flooring is installed on stair treads or landings, and where net fitting is required around the perimeter of the room.

Procedure:

Seams are to be double-cut after the S-289 Releasable Adhesive is spread and dry to the touch. Scrap material is not recommended under the seam when double cutting to prevent excess fullness with the releasable system.

Tube or lap back the sheet flooring to expose approximately half of the substrate and use a short nap (1/4" to 3/16") roller to apply the S-289 Releasable Adhesive. Follow adhesive open time and working time recommendations on the adhesive label. In order to ensure releasability, the adhesive must be allowed to dry completely to a tacky state where there is no transfer to your fingers or the back of the flooring when placed into the dried film. This can take 45 minutes or more. The amount of open time will vary according to job conditions – temperature, humidity, air flow, and type of substrate.

S-761 Seam Adhesive (Seam Treatment)

- Place one side of material back down.
- Using the applicator bottle, apply a 1/8" bead of S-761 Seam Adhesive along the seam edge.
- Tuck the seam edge into place, forcing the S-761 Seam Adhesive up through the seam.
- Clean adhesive residue from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water.
- Roll the seam using a hand roller.
- Starting at the center and working toward the edges, roll in two directions using a 100-lb. roller. Seams must be hand rolled, then rolled again with 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-564 Seam Coater (Seam Treatment)

- After both pieces of material have been placed into the adhesive, roll the seams with a hand roller and then, starting at the center and working toward the edges, roll in two directions using a 100-lb. roller. Seams must be hand rolled, then rolled again with 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.
- Apply S-564 Seam Coating Low Gloss Seam Coating at the seams at the completion of the installation. The freshly applied seam coating must be protected for several hours from dirt, dust, and traffic. Follow the instructions on the package. S-761 Seam Adhesive is highly recommended for patterns that do not contain grout lines.

Replace or install wall base and quarter-round moldings as needed to cover the 1/8" perimeter gap. Fasten molding to the vertical surface. Do not pinch the flooring and do not nail through the new floor

Residential LVT Planks

Installation System

Product	Gauge	Size	Adhesive	Comments
NATURAL LIVING (residential light commercial) NATURAL PERSONALITY (residential only)	0.080" (2.0 mm)	Various	S-288, S-289, or S-543	Proper conditioning of the job site and product is extremely important for LVT planks Roll with a 100-lb. roller

Installation:

- Location: All grade levels
- Layout: End joints should be staggered a minimum of 6" (15 cm) apart

Suitable Substrates:

All substrates listed below must be properly prepared and meet the requirements discussed in Chapter III Subfloors & Underlayments Section. 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)
- Approved Suspended Wood Underlayments
- Single-layer, Fully Adhered, Existing Resilient Floors
- Ceramic Tile, Terrazzo, Marble
- Polymeric Poured (seamless) Floors

Do not install over:

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

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.
- Substrates must be sound, dry, clean, smooth, and free from excessive moisture or alkali. Remove dirt, paint, varnish, wax, oils, solvents, and other foreign matter that would interfere with a good bond such as curing agents and sealers.

- 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 for 48 hours after installation.
- 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 III Subfloors and Underlayments section E.
- Radiant heated substrates must not exceed a maximum surface temperature of 85°F (29°C).

Precautions:

- Proper conditioning of both job site 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 (see fig. 1) 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” 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. 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.

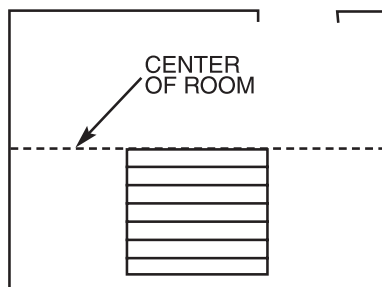


Fig. 1 Dry layout to determine width of border plank

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

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" (15.2 cm) wide planks. If you find the border planks will be less than half the width of the plank, the center starting line should be shifted a distance equal to half 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) NATURAL PERSONALITY (residential only)	S-288, S-543 Use S-891 Fine Notch Trowel (1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide and 5/64" (2 mm) apart.) NOTE: S-543 Must be back rolled with a medium nap (3/8" to 1/2") paint roller.	Dry to Touch - Approximately 30 minutes (tacky to touch with no transfer to fingers).
	S-289 Short nap paint roller (3/16" to 1/4")	Dry to Touch - Approximately 45 minutes (tacky to touch with no transfer to fingers).

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

Procedure:

Armstrong NATURAL LIVING and NATURAL PERSONALITY with S-288 Flooring Adhesive

- Apply S-288 Adhesive to half of the area at a time so that 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 half of the installation is complete. Stagger the end joints by at least 6" (15.2 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.

Armstrong NATURAL LIVING and NATURAL PERSONALITY with S-289 Releasable Adhesive.

- Apply S-289 Adhesive to half 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 neutral detergent and water to remove it. Mineral spirits will remove dried adhesive residue.

Armstrong NATURAL LIVING and NATURAL PERSONALITY
with S-543 Adhesive

Apply S-289 Releasable Adhesive and allow the adhesive to set until dry to the 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 half of the installation is complete. Stagger the end joints by at least 6" (15.2 cm). Apply adhesive to the remaining portion of the room. Allow to dry to the touch and complete the installation of planks in a 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.

Luxe Plank and the Lynx

Installation System

Patent pending.

Product	Gauge	Size	Adhesive
LUXE PLANK Value	0.110" (2.79 mm)	6" x 36" (15.2 cm x 91.44 cm) 12" x 36" (30.4 cm x 91.44 cm)	Lynx technology with overlapping pressure sensitive adhesive
LUXE PLANK Good	0.110" (2.79 mm)	6" x 36" (15.2 cm x 91.44 cm)	
LUXE PLANK Better	0.135" (3.43 mm)	6" x 48" (15.2 cm x 121.9 cm)	
LUXE PLANK Best	0.160" (4.06 mm)	4.5" x 48" (11.4 cm x 121.9 cm) 6" x 48" (15.2 cm x 121.9 cm)	

Installation:

Location: All grade levels

Fitting: All methods

General Information:

The Lynx installation system allows flooring planks to be bonded together by an overlapped edge method. The planks are not bonded directly to the subfloor, helping to hide some minor substrate irregularities without allowing the irregularities to telegraph through to the face of the planks. The planks should be cut 1/8" away from all vertical surfaces such as walls, cabinets, pipes and other objects (a larger gap could cause excessive floor movement). When installed in bathrooms, the gap should be filled and sealed with a good quality siliconized or acrylic caulk. The gap will then be covered with molding or wall base. Base cabinets should not be installed on top of the planks.

Included in each carton are two LUXE PLANK transition strips. These can be used to change direction during the installation process or to make repairs as discussed in the Repair Procedure instructions (Chapter X, section C).

Keys to Successful LUXE PLANK Installation:

- LUXE PLANK should not be exposed to direct sunlight for prolonged periods, which can result in discoloration and excessive temperatures that may cause expansion. The use of drapes or blinds is recommended during peak sunlight exposure. If drapes or blinds are not going to be used and expansion occurs in this area, we recommend adhering this area with S-288 Adhesive using a fine notch trowel.
- Most installations will need approximately 10% cutting allowance added to the square footage of the room.
- Proper conditioning of both the job site and the flooring is necessary. LUXE PLANK should not be exposed to sudden changes in temperature or moisture/humidity.
- Store, transport, and handle LUXE PLANK so as to prevent any distortions. Store cartons flat, never on edge. Distortions will not disappear over time. Insure that the planks are lying flat at time of installation.

- Do not compress the edges of the floating installation in any way when installing other flooring materials next to LUXE PLANK. Installations of carpet, metal, strips and other transition moldings should not push fullness into the flooring and should allow for some slight movement wherever practical.
- Protect the floor from heavy rolling loads, other trades, and replacement and/or movement of appliances by using sheets of plywood or similar.

Suitable Substrates:

All substrates listed must be properly prepared and meet certain requirements. There may be other exceptions and special conditions for these substrates to be suitable for the Lynx Installation System as noted below. (Refer to Chapter III, Subfloors and Underlayments, for more details, or visit www.floorexpert.com.)

- Concrete: dry and smooth on all grade levels
- Single-layer, fully adhered, existing resilient floors: must not be foam-backed or cushion-backed
- Suspended wood subfloors with approved wood underlayments: must have minimum of 18" well ventilated crawl space underneath
- Ceramic tile, terrazzo, marble
- Suspended hardwood flooring that is fully adhered, smooth, and with a square edge without texture
- Polymeric poured (seamless) floors

Do not install over:

- Particleboard or waferboard
- Existing cushion-backed vinyl flooring
- Single-layer wood subfloors*
- Carpet
- Existing resilient tile floors that are below grade
- Hardwood flooring that has been installed directly over concrete

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.

* Installation directly over single-layer wood subfloors in new construction is not recommended. New construction should have additional underlayment on top of the subflooring and be installed as late in the building schedule as possible: after permanent or temporary HVAC is running, the home is properly conditioned, and other trades have completed their work.

If it is unavoidable to install over single-layer wood subfloors, it should only happen in remodel work where the home has been occupied and conditioned for a minimum of 1 year, having gone through the initial winter season and dry-out of the new home. The subflooring must meet all the substrate requirements.

- All substrates must be structurally sound, dry, clean, flat, and smooth with minimal deflection. Substrates must be free from excessive moisture or alkali. Remove dirt, paint, varnish, wax, oils, solvents, other foreign matter, and contaminants that could cause staining or interfere with the bond of the adhesive.
- High spots on the substrate should be leveled and low areas filled with appropriate underlayments.
- Do not use products containing petroleum, solvents, or citrus oils to prepare substrates as they can cause staining and expansion of the new flooring.
- In renovation or remodel work, remove any existing adhesive residue* so that 100% of the overall area of the original substrate is exposed.
- When installing over an existing resilient floor, use S-194 Patch, Underlayment & Embossing Leveler/S-195 Underlayment Additive to fill and smooth any embossing in the old floor.
- Embossed ceramic tile floors, ceramic and marble grout joints, and irregularities in concrete should be filled and leveled using S-194 Patch, Underlayment & Embossing Leveler to fill and smooth any embossing in the old floor.
- The area to receive the resilient flooring materials and adhesives should be maintained between 65°F (18°C) and 85°F (29°C) for 48 hours before installation, during installation, and for 48 hours after installation. Maintain temperatures between 55°F (13°C) and 85°F (29°C) thereafter.
- For concrete substrates, conduct moisture testing (moisture vapor emission rate [MVER]) and/or percent relative humidity (in-situ probe). Bond tests must 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).
- LUXE PLANK should not be exposed to direct sunlight for prolonged periods, which can result in discoloration and excessive temperatures that may cause expansion. The use of drapes or blinds is recommended during peak sunlight exposure.

Procedure:

Remove baseboard, quarter-round moldings, wall base, appliances, and furniture from room. For best results, door trim should be under-cut to allow flooring to move freely without being pinched. After preparation work, sweep and vacuum the entire work area to remove all dust and debris.

NOTE: Planks are easily cut with a tile cutter or by using a straight edge and utility knife. Score the face of the plank several times and snap it. If it doesn't separate, lightly cut through the back on the fold mark.

* Some previously manufactured asphaltic "cutback" adhesives contained asbestos (see warning statement on page x). 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" 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. Do a dry layout of the 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.

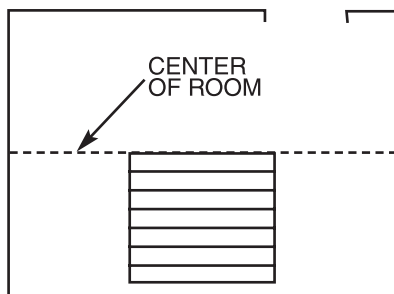


Fig. 1 Dry layout to determine width of border plank

Avoid having border pieces less than 2-1/4" (5.7 cm) wide for the 4-1/2" (11.4 cm) wide planks and less than 3" (7.6 cm) wide for the 6" (15.2 cm) wide planks. If you find the border planks will be less than half the width of the plank, the center starting line should be shifted a distance equal to half the plank width. This will "balance" the room and provide for a larger cut piece at the wall.

Installation:

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). The bottom overlap film should be exposed on the side and end of the plank facing away from the left corner of the starting wall (Figure 2). Remove the paper release liner exposing the adhesive on the bottom overlay film.

NOTE: The pressure sensitive adhesive has a long working time after the release film has been removed. It must, however, be protected from dust and debris after the release paper is removed and until it is covered with another plank. If the job is stopped prior to completion, leave the release paper intact on the long edge of only the last row of planks. This will prevent dust or traffic from other trades from interfering with the adhesive's performance.

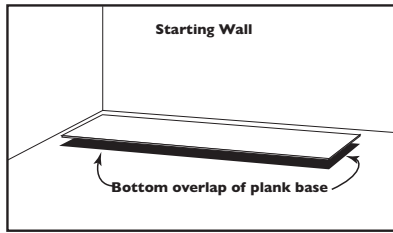


Fig. 2 Left corner of starting wall

CAUTION: Do not stand or walk on release liner, as it is extremely slippery. Place it in a wastebasket immediately upon removal from the plank.

Begin laying the first row of planks. Place the top overlap on the exposed bottom overlap film (with adhesive) of the preceding plank. Press into place to obtain adhesive. Use a hand roller if available or rub the seam with moderate hand pressure using a clean dry cloth. Neatly butt the plank face edges together. 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 8" 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 8" in length. Remember to leave a gap of 1/8" from the end wall and cut the last piece in that row to fit.

Start the second row on the left side with a piece cut to about two-thirds the length of the starting plank in the first row. It is important to keep the end joints staggered a minimum of 6" in adjacent rows (Figure 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 or use a hand roller to obtain adhesion. If the joints are not tight, pull up the plank and reposition it immediately.

NOTE: LUXE PLANK is precisely made to size and squareness. After the first three rows of planks are installed, they should be checked with a string line to insure that rows are still running straight. If they are not, it could be that the starting wall has some irregularities that has 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. This can be done without having to disassemble the beginning rows.

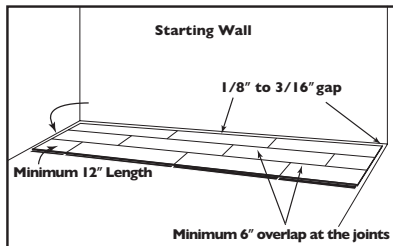


Fig. 3 Stagger end joints by 6", cut pieces at ends of row should be 8" or greater.

Continue installing the remaining rows in similar fashion. Maintain the 6" minimum staggered end joints between rows and maintain the gap at perimeter and vertical surfaces. 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.

LUXE PLANK transition strips included in each carton can be used when changing direction of the installation to return into a closet or alcove area of the room. LUXE PLANK transition strips are also recommended in the repair procedures for damaged planks (see Chapter X, Repairs).

After the installation is completed, roll the entire floor, in both directions, with a 100-lb. roller. Use a hand-roller in confined areas where a large roller will not reach, such as under toe kicks.

Finishing the Installation:

Replace molding or wall base, allowing slight clearance between the molding and the planks. Nail the molding to the wall surface, not to the flooring. At doorways and at other areas where LUXE PLANK may meet other flooring surfaces, it is preferable to use a "T" molding or similar to cover the exposed edge and not pinch the planks. Leave a small gap between the planks and the adjoining surface.

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.

ALTERNA

Installation System

Product	Gauge	Size	Adhesive	Comments
ALTERNA ALTERNA RESERVE	0.160" (4.1 mm)	16" x 16" (40.6 cm x 40.6 cm)	S-288	For grouted installation use Armstrong S-693 Premixed Sanded Acrylic Grout

Installation:

Location: All grade levels

Layout: Butt fit or groutable

General Information:

ALTERNA tile can be installed by two installation methods. It can be installed with a standard butt fit as in traditional resilient tile installations or spaced and grouted with S-693 Premixed Sanded Acrylic Grout. Both methods require the use of S-288 Flooring Adhesive.

For a grouted installation, the tiles should be laid with a grout joint spacing of 1/16" (1.6 mm) to 1/4" (6.4 mm), utilizing tile spacers designed for this purpose. Because of the rounded edges, the appearance of the finished grout joint will be approximately 1/16" (1.6 mm) wider than the actual tile spacing.

Due to ALTERNA's large format and increased thickness, extra care is required in handling and storage to keep the product from becoming damaged or distorted. Always store the product on a flat surface. Temperature control and subfloor flatness are important in the prevention of raised or curled edges, and performance of the grouted joints. Maintain the temperature of the room, subfloor, tile, and adhesive at a minimum of 65°F (18°C) and a maximum of 85°F (29°C) for 48 hours prior to installation, during installation, and for 48 hours after installation. Maintain a minimum room temperature of 55°F (13°C) thereafter.

CAUTION: Do not use high temperature heat sources to aid in cutting or making the tile conform to irregularities in the substrate. Multi-layered engineered tile structures such as ALTERNA can warp or curl after significant heating from sources such as hot plates and heat guns. Condition the room and all flooring materials to the temperature guidelines stated above. If you must warm the tile, always heat from the back and limit the temperature of the tile to warm conditions of less than 110°F (43°C).

When using tile from two or more cartons, check to be sure all pattern and lot numbers are the same to ensure proper color match. On larger installations, open several cartons and mix them as they are installed to help blend any slight shade differences from one carton to the next. **For best appearance, the directional arrows on the back of ALTERNA must be randomized when laying the tile (rather than aligned in one direction or in a forced turnblock layout).**

Suitable Substrates:

All substrates listed below must be properly prepared and meet the requirements discussed in Chapter III, Subfloors and Underlayments. There may be certain exceptions and special conditions for these substrates to be suitable for ALTERNA flooring installation.

- Concrete (on all grade levels)
- Approved Suspended Wood Underlayments
- Most Single-layer, Fully Adhered, Existing Resilient Floors (on approved subfloors and underlayments)
- Ceramic Tile, Terrazzo, Marble
- Polymeric Poured (seamless) Floors

Do not install over:

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

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.
- Substrates must be sound, dry, clean, smooth, and free from excessive moisture or alkali. Remove dirt, paint, varnish, wax, oils, solvents, and other foreign matter that would interfere with a good bond such as curing agents and sealers.
- All substrates must be flat. Variations in flatness must not exceed 1/16" (1.6 mm) in 1' (30.5 cm) or 3/16" (4.8 mm) in 10' (3.05 m). Fill low areas in the substrate with S 194 Patch, Underlayment & Embossing Leveler/S-195 Underlayment Additive.
- Because of ALTERNA's size and stiffness, when using the grouted installation method, suspended wood subfloors and underlayments must have a total thickness of 1" (2.5 cm) and a minimum 18" (45.7 cm) of well-ventilated air space below. Joist spacing should be on 16" (40.6 cm) centers to minimize subfloor deflection.
- 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.
- Allow all flooring materials and adhesives to condition to the room temperature for a minimum of 48 hours before starting the installation.

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

- The area to receive the resilient flooring and the flooring materials and adhesives should be maintained at a minimum of 65°F (18°C) and maximum of 85°F (29°C) for 48 hours prior to installation, during installation, and for 48 hours after installation. Maintain a minimum temperature of 55°F (13°C) thereafter.
- For concrete substrates, conduct moisture testing (moisture vapor emission rate [MVER]) and/or percent relative humidity (in-situ probe). Bond tests must also be conducted for compatibility with the substrate. Please refer to Chapter III, Subfloors and Underlayments.
- Radiant heated substrates must not exceed a maximum surface temperature of 85°F (29°C).

Precautions:

- Do not wash or scrub the new ALTERNA flooring for at least 5 days after the installation. This will prevent excess moisture and cleaning agents from interfering with the adhesive bond and hardening of the grout.
- **Do not use Armstrong New Beginning or other floor strippers for cleaning the grout or maintaining the ALTERNA installation as they are too harsh and will degrade premixed acrylic grout.**

Instructions:

ALTERNA tile flooring can be installed as a traditional butt fit resilient tile installation using S-288 Flooring Adhesive. The S-288 Flooring Adhesive must be applied with the recommended trowel notching and allowed enough open time until it becomes “dry-to-touch” before installing the tile. Standard room balancing and layout procedures should be followed. As the tiles are installed in quadrants within the room, the direction of the arrows on the back of the tile must be randomized for best appearance. Tile must be thoroughly rolled with a 100-lb. roller to complete the installation process.

The installation instructions that follow focus on the grouted installation method. The tile spacing must be between 1/16" (1.6 mm) and 1/4" (6.4 mm). The appearance of the finished grout joint will be approximately 1/16" (1.6 mm) wider than the actual tile spacing.

Layout:

Before installing, plan the layout so the tile joints fall at least 6" (15.2 cm) away from subfloor/underlayment joints. Do not install over expansion joints. When installing over an existing resilient floor, plan the layout so the new tile joints are a minimum of 6" (15.2 cm) away from the original seams. When installing over tile floors, avoid having the tile joints in the same area as the joints in the existing flooring.

Taking the most prominent walls in the room into consideration, find the center point in the room. Divide the room into equal quadrants by making two perpendicular lines on the subfloor intersecting at the center point. Starting from the center point, and either by measurements or by doing a dry layout of the tiles (with proper grout joint spacing), determine the distance between the last full tile and the perimeter walls and cabinets. A balanced layout will result in border tiles being 8" (20.3 cm) or greater for the 16" x 16" (40.6 cm x 40.6 cm) tiles.

If the border pieces are less than 8" (20.3 cm) wide, particularly at the prominent walls, you will need to shift the starting point in the middle of the room half the dimension of the tile [8" (20.3 cm) for a 16" x 16" (40.6 cm x 40.6 cm) tile] to balance the layout. After you have balanced the room to achieve larger pieces at the borders, make two new perpendicular lines on the subfloor intersecting at the new starting point near the center of the room.

Procedure:

Adhesive	Trowel	Porous and Non-Porous
S-288	Use S-891 Fine Notch Trowel (1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide and 5/64" (2 mm) apart)	Dry to Touch - 30 minutes or more

Normally you will apply adhesive to a quarter or half of the room area at a time so that you can start the installation where the guidelines intersect. Apply adhesive and allow the adhesive to set until dry-to-touch, as per the recommended open time on the adhesive label. The adhesive must be tacky without transfer to fingers when ready for bonding. This takes 30 minutes or more depending on the temperature, humidity, and air flow in the room. Do not use fans directly on the adhesive/substrate to accelerate drying.

Begin at the starting point and install the tile along the chalk lines, laying the field area first in step fashion. Complete installation of full tile in all quadrants of the room. Do not slide the tile into place. Press tile firmly into the adhesive.

NOTE: Tile spacers do a very good job of maintaining tile alignment; however, the installer must also re-check for proper alignment by using measurements or creating additional lines on the subfloor about every 4' (every 3 rows of tile) to ensure straight lines and rows of tile. This is very important on larger installations.

Next, cut and fit the border tile at the perimeter. Mechanical tile cutters are available for cutting larger format tile. The score and snap method of using a utility knife to score through the wear surface also works well. Be sure to allow for the grout joint and a 1/8" (3.2 mm) gap at perimeter walls when cutting the border pieces.

For irregular cuts, make a pattern out of kraft paper or cardboard and transfer it to the tile. Score along the markings and snap off small pieces. Ceramic tile nippers or a coping saw are useful in making more intricate cutouts for complicated fittings.

After the ALTERNA is installed, **remove all tile spacers** and immediately roll the entire floor with a 100-lb. roller. Roll the floor diagonally across the tile joints in both directions. Use a hand roller in confined areas where a large floor roller will not reach, such as under toe kicks.

Grouting:

Grouting may be done immediately or the following day. Verify that all tile edges are firmly seated in the adhesive before beginning the grouting process. The open joints must be clean and dry.

Use S-693 Premixed Sanded Acrylic Grout. Traditional cement grouts are not recommended with ALTERNA tile and should not be used. Follow the application instructions as specified on the premixed grout container, working

small sections of the floor at a time. Use a “hard” epoxy grout float to apply the grout. Do not spread the grout over the entire surface of the tile as is customary with some ceramic tiles. Instead, try to apply the grout and pack it down only in the immediate area of the open joints to minimize cleanup. Then, hold the float almost vertical to the surface and strike off the excess grout, pulling the float diagonally across the joints.

Do not allow the grout to dry hard on the face of the flooring before beginning the cleanup procedure. It is best to use two buckets of clear, cool water with sponges during the first cleanup. Firm, square-edged cellulose sponges typically work best for cleaning grout residue from the tile without pulling excessive grout from the joints. Use the first bucket and sponge to loosen the grout on the face of the tile and pick up most of the residue. Use the second bucket and sponge for final removal of the residue and for smoothing the joints. Always hold the sponge flat and wipe diagonally across the joints. Do not allow the rinse water to accumulate in the adjacent ungrouted joints.

If grout sponges alone are not sufficient to clean the face of the tile, a white 3M pad with light pressure may be used. Do not overwork the grout during the cleanup or it will result in shallow joints. It is normal to have a slight grout haze remaining after the initial cleanup. It will be removed in the final cleanup after the grout joint has completely dried.

Traffic should be kept off the installation until the grout has completely dried, usually a minimum of 24 hours. Joints that are wider may take longer to dry than more narrow joints of 1/16” (1.6 mm) to 1/8” (3.2 mm).

After the grout joints have dried and hardened, a very light application of properly diluted Armstrong Once’n Done Resilient & Ceramic Floor Cleaner and a white 3M pad may be used to remove the slight haze of grout residue that remains. Again, two buckets of clear, cool water should be used. Pick up residue with a clean, damp sponge. Use the second bucket and sponge for a final rinse and cleanup. Buff dry with a soft cloth.

Do not use solvents or grout haze removers. Do not use Armstrong New Beginning or other floor strippers for cleaning the grout or maintaining the ALTERNA installation as they are too harsh and will degrade premixed acrylic grout. Grout sealers are not recommended for Armstrong Premixed Sanded Acrylic Grout.

Replace wall base and trim moldings.

The installation can support light traffic as soon as the grout has hardened (minimum 24 hours); however, the floor should not be exposed to heavy or rolling load traffic for an additional 72 hours after the installation. Always use pieces of hardboard or underlayment panels to protect the floor when moving heavy furniture and appliances back into the room.

Commercial/Residential Linoleum Sheet Installation System

COMMERCIAL USE ONLY

Product	Gauge	ADHESIVE AND SEAMING OPTIONS			
		Full Spread with S-780 and Heat Welded Seams	S-240 in Static and Dynamic Load Areas and Heat Welded Seams*	Full Spread with S-780 with S-761 at Seams	May Flash Cove
MARMORETTE GRANETTE COLORETTE LINORETTE RYHTNMICS	0.100" (2.5 mm)	Highly Recommended	Highly Recommended	Optional	Yes

RESIDENTIAL USE ONLY

Product	Gauge	ADHESIVE AND SEAMING OPTIONS			
		Full Spread with S-780 and Heat Welded Seams	S-240 in Static and Dynamic Load Areas and Heat Welded Seams*	Full Spread with S-780 with S-761 at Seams	May Flash Cove
MARMORETTE GRANETTE COLORETTE LINORETTE RYHTNMICS	0.100" (2.5 mm)	Optional	Optional	Highly Recommended	Yes

* It is necessary to smooth out the adhesive trowel ridges of the S-240 Epoxy Adhesive using a 3/16" (4.8 mm) nap paint roller. The purpose of this is to create a uniform application of the S-240 Epoxy Adhesive.

Installation:

- Location: All grade levels
- Pattern Match: No; do not reverse pieces
- Seam Method: Recess scribe
- Seam Treatment: Heat weld or S-761 Seam Adhesive
- Fitting: All methods

Suitable Substrates:

All suitable substrates listed below must be properly prepared and meet the requirements discussed in Chapter III, Subfloors and Underlayments. There may be other exceptions and special conditions for these substrates to be suitable for the Linoleum Sheet Flooring Installation Systems.

- Concrete (on all grade levels)
- Steel, Stainless Steel, Aluminum, Lead, Copper, Brass
- Approved Suspended Wood
- Ceramic Tile, Terrazzo, Marble
- Existing Resilient Floors
- Polymeric Poured (seamless) Floors

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.
- Substrates must be dry, clean, smooth, and free from paint, varnish, wax, oils, solvents, and other foreign matter.
- 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. Do not place in direct sunlight
- 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.
- For concrete substrates, conduct moisture testing (moisture vapor emission rate [MVER]) and/or percent relative humidity (in-situ probe). Bond tests must also be conducted for compatibility with the substrate. Please refer to Chapter III, 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.

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

Precautions:

- Linoleum will grow slightly in the width and shrink slightly in the length of the material when placed into the wet adhesive. Following the recommended installation procedures will help compensate for this movement.
- Do not install over existing on-grade or below-grade tile.
- Heat welding is optional, but required in areas exposed to direct sunlight, topical moisture and/or temperature fluctuations and when installed over radiant heated subfloors.
- Heat Welding: see Chapter VII, Seams.
- Flash Coving: see Chapter VIII, Flash Coving.

Fitting:

When installing several rolls in one area, make certain the batch numbers are the same. Read the sequence numbers and install rolls that are within 20 numbers of each other. Install the rolls in sequential order.

Keep all material rolled face-out until ready to begin the installation. Pieces that are cut and fit in the morning should be adhered that morning. Pieces that are cut and fit in the afternoon should be adhered that afternoon.

Before installing the material, plan the layout so seams fall at least 6" (15.2 cm) away from subfloor/underlayment joints and saw cuts/construction joints in concrete. Do not install over expansion joints. When installing over an existing resilient floor, plan the layout so the new seams are a minimum of 6" (15.2 cm) away from the original seams. When installing over tile, seams should fall in the center of the tile.

Recommended fitting procedures include straight scribing, pattern scribing, and freehand knifing. The lines on the back of the linoleum represent trademark edges.

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 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.

Adhesive Open Times and Trowel Notchings

Adhesive	Porous	Nonporous
S-780	Open Time: Set in wet, no open time Regular Notch: 1/16" (1.6 mm) deep, 1/16" (1.6 mm) wide, 3/32" (2.4 mm) apart	Open Time: 5-10 minutes Regular Notch: 1/16" (1.6 mm) deep, 1/16" (1.6 mm) wide, 3/32" (2.4 mm) apart
S-580 Brush-On or Roll-On*	Open Time: Minimum of 20–30 minutes Brush-On or Roll-On	Open Time: Minimum of 20–30 minutes Brush-On or Roll-On
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 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 mm) apart

* Apply two coats of S-580 Flash Cove Adhesive with a brush or roller 4" (10.2 cm) onto the floor as well as up the entire cove area. Allow adhesive to dry to a pressure-sensitive state between applications. The S-580 has unlimited working time.

NOTE: Over porous substrates, install the material into the adhesive immediately after spreading. Over nonporous substrates, allowing the proper open time will help to minimize knee marks, roller marks, and trapped air blisters. The amount of open time will vary according to job conditions, temperature, humidity, air flow, and type of substrate. **Initial blisters are caused by inadequate open time and will begin to show within 1 hour after rolling.**

Procedure:

See Chapter V, Adhesives, Seam Treatments and Grout.

• Full Spread S-780:

1. Before installing the material, plan the layout so seams fall at least 6" (15.2 cm) away from underlayment joints, seams in existing resilient flooring, and/or saw cuts in concrete. Do not install over expansion joints.
2. Cut pieces from the roll to the specified length, allowing enough material at each end to flash 1-1/2" (31.8 mm) up the wall for fitting.
3. Recommended fitting procedures include freehand knifing, pattern scribing and straight scribing methods.
4. Fit piece #1 and position in the room.
5. Prepare the seam edge by trimming the factory seam edge using an edge trimmer.
6. Draw a pencil line on the subfloor along the length of the trimmed factory edge.
7. Carefully lap the material back halfway to expose the subfloor.
8. Starting at the lap point and working toward the end wall, apply S-780 Adhesive up to the pencil line using the regular notching of the Armstrong S-891 Trowel.
9. Allow the recommended open time before placing the material into the adhesive. Use extreme care when positioning the flooring over the S-780 Adhesive, which has a firm grab and does not allow repositioning.

10. Starting at the center and working toward the edges, roll the material in two directions using a 100-lb. roller, staying 2" (5.1 cm) away from the seam. Clean adhesive residue from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water.
11. Repeat Steps 7 through 10 for the remaining half of piece #1.
12. Cut piece #2, allowing enough material at each end to flash 1-1/2" (31.8 mm) up the wall for fitting.
13. **Install pieces as recommended, TM edge to TM edge or TM edge to non-TM edge.**
14. Overlap piece #2 onto piece #1 approximately 1/2" (12.7 mm). Prepare the seam edge on the opposite side of the sheet by trimming the factory seam edge using an edge trimmer.
15. Draw a pencil line on the subfloor along the length of the trimmed factory edge.
16. Carefully lap the material back halfway to expose the subfloor.
17. Starting at the lap point and working toward the end wall, apply the S-780 Adhesive up to the pencil line using the regular notching of the S-891 Trowel.
18. Allow the recommended open time before placing the material into the adhesive. Use extreme care when positioning the flooring over S-780 Adhesive, which has a firm grab and does not allow repositioning.
19. Starting at the center and working toward the edges, roll the material in two directions using a 100-lb. roller, staying 2" (5.1 cm) away from the seam. Clean adhesive residue from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water.
20. Repeat Steps 16 through 19 for the remaining half of piece #2.
21. Recess scribe the seam using a recess scribe. When heat welding, seams may be recess scribed slightly open [1/64" (0.4 mm)] to make guiding the router easier. When using S-761 Seam Adhesive, cut the seams net.
22. Before cutting the seam, protect the floor by inserting a piece of scrap material beneath the scribe mark. With the scrap on the same side as the cutting hand, cut the seam holding a straight blade knife straight up and down.
23. When using S-761 Seam Adhesive, option cut seams net.
 - a. Cut the tip of the S-761 Seam Adhesive applicator bottle and apply a continuous 1/8" (3.2 mm) bead of S-761 Seam Adhesive along the seam edge of piece #1.
 - b. Tuck the seam edge into place, forcing the S-761 Seam Adhesive up through the seam.
 - c. Clean adhesive residue from the surface of the flooring using a clean white cloth dampened with a neutral detergent and water.
 - d. Refer to Chapter VII, Seams, S-761 Seam Adhesive Procedure for more detail.

24. Roll the seam into place using a hand roller and roll again with a 100-lb. roller.
25. Follow the same procedures for the remaining pieces, completing one piece at a time until the job is finished.
26. When heat welding seams, heat weld seams as recommended. Refer to Chapter VII, Seams, Heat Welded Seams for more detail.
27. Do not allow traffic on the flooring for 24 hours after installation.
28. 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.

- **Concentrated Static and Dynamic Loads with Linoleum and S-240 Epoxy Adhesive:**

Product Performance under Concentrated Static and Dynamic Loads

Armstrong Commercial Sheet Flooring is used in many applications where it is subjected to heavy static and dynamic loads. Some furnishings, appliances, and equipment in certain environments may be equipped with wheels, casters, rests, or other floor contact devices, which concentrate rather than distribute the load over the surface of the flooring. Hospital patient beds and operating room tables are typical examples. With respect to portable furnishings and equipment, while concentrated wheel/caster loadings provide for easier mobility, they can be particularly damaging to resilient flooring installations. Armstrong recommends that any furnishings or equipment be fitted with floor contact devices, which avoid concentrating weight loads.

Our experience has shown that the use of hard-setting reactive adhesives, like our S-240 Epoxy Adhesive, offer advantages that may help protect against damage (such as delamination) when used to install flooring under such furnishings and equipment. Depending on the application, the epoxy may only be necessary in limited areas of any particular installation, such as an area immediately under and adjacent to the primary areas of contact with the flooring. In the case of certain heavy hospital beds, the application of the epoxy adhesive in an area that extends a minimum of 1' beyond the wheel base or footprint of the four casters [approximately 4' x 8' (1.2 m x 2.4 m)] may be sufficient.

1. Plan layout of the S-240 Epoxy Adhesive so it extends approximately 1' beyond the load area. Use the S-780 Linoleum Adhesive in all other areas.
2. Mix the entire contents of Part A and Part B together with a stirring motion while at the same time lifting from the bottom. Mix thoroughly for 3 to 5 minutes to a uniform color. **Do not over mix.** Never mix S-240 Epoxy Adhesive on the subfloor surface.
3. **Immediately pour the entire unit of mixed adhesive onto the substrate. Do not leave mixed adhesive in cans, as this shortens the pot life and working time and may generate excessive heat.** Maximum pot life of S-240 Epoxy Adhesive is approximately 15 minutes, depending on temperature and humidity.

4. Apply S-240 Epoxy Adhesive with the recommended trowel notching.
5. After troweling of the S-240 Epoxy Adhesive, allow 10 to 20 minutes open time before placing the flooring into the adhesive. **Do not allow the S-240 Epoxy Adhesive to dry completely.**
6. Using a 3/16" (4.8 mm) nap paint roller, wet out the 3/16" (4.8 mm) nap paint roller by rolling it on a piece of scrap material that contains the S-240 Epoxy Adhesive. This will prevent the removal of already applied S-240 Epoxy Adhesive when rolling.
7. Carefully roll out the S-240 Epoxy Adhesive trowel ridges using the 3/16" (4.8 mm) nap paint roller, creating a uniform application of the S-240 Epoxy Adhesive.
8. When using S-240 Epoxy Adhesive in conjunction with the recommended Armstrong Full Spread Adhesive, plan out the open times so that the flooring may be placed into both adhesives at the same time. Working time of S-240 Epoxy Adhesive is 60 minutes.
9. After allowing the proper open time, carefully place the flooring into the S-240 Epoxy Adhesive to ensure that air bubbles are not trapped beneath the flooring.
10. Within 30 minutes of the S-240 application, roll the material using a 100-lb. roller. Starting at the center and working toward the edges, roll the material in the direction of the trowel notches and then again in the opposite direction [staying 2" (5.1 cm) away from any seams]. Do not work on newly adhered flooring except to roll; if necessary, use a kneeling board.
11. Clean any adhesive residue from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water. **Dried S-240 Epoxy Adhesive cannot be removed.**
12. Repeat rolling procedure at 1 hour and 2 hours after the initial application of S-240 Epoxy Adhesive.
13. **Seams must be heat-welded. Wait a minimum of 10 hours before heat welding.**
14. Do not allow traffic on the flooring 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.

• **Decorative Borders and Insets:**

1. Accurately measure and mark the position of the border on the subfloor. Using a pencil, trace around the borders and/or insets.
2. Apply the S-780 Adhesive up to the pencil line. Allow the proper open time before placing the material into the adhesive. If necessary, weigh down the border or inset.
3. Carefully roll using a hand roller and a 100-lb. roller.
4. Install the field material in the normal manner.

5. Carefully cut the field material so it overlaps the border and/or inset. Recess scribe the seam between the field and the border and/or inset using a recess scribe.
6. Insert a piece of scrap material beneath the scribe mark. With the scrap on the same side as the cutting hand, cut the seam holding a straight blade knife straight up and down. Roll the seam into place before the adhesive dries using a hand roller and then roll again using a 100-lb. roller.
7. If heat welding the seams, follow the recommendations for heat welding linoleum seams (Chapter VII).

Linoleum Color Change:

“Drying room yellowing” sometimes referred to as “seasoning bloom,” “drying room film,” or “stove yellowing” is a natural phenomenon that occurs during the manufacturing process of all linoleum. As linoleum cures in the drying room, a yellowish cast may develop on the surface due to the oxidation of the linseed oil. This is not a product defect. Any change in the product’s appearance because of this yellow cast is temporary and disappears after exposure to either natural or artificial light. The time required for the yellow cast to disappear ranges from a few hours to several weeks depending on the type and intensity of the light source. Typically, the yellow cast disappears more quickly with exposure to natural light. The application of floor finishes will not interfere with the dissipation of the yellow cast. Disappearance of the yellow cast will not occur on areas not exposed to light.

LinoArt Linoleum Granette Tile

Installation System

Product	Gauge	Size	Adhesive	Comments
Granette Linoleum Tile	2.0 mm	12" x 12" (304.8 mm x 304.8 mm) 12" x 24" (304.8 mm x 609.6 mm) 12" x 12" (609.6 mm x 609.6 mm)	S-780 Set In Wet Only	Roll with 100-lb. roller

Suitable Substrates:

All substrates listed below must be properly prepared and meet the requirements discussed in Chapter IV, Subfloors and Underlayments. There may be certain exceptions and special conditions for these substrates to be suitable for the Linoleum Tile Flooring Installation System.

- Concrete (on all grade levels)
- Steel, Stainless Steel, Aluminum, Lead, Copper, Brass
- Approved Suspended Wood
- Ceramic Tile, Terrazzo, Marble
- Existing Resilient Floors
- Polymeric Poured (seamless) Floors

Job Conditions/Preparation:

- Substrates must be dry, clean, smooth, and free from paint, varnish, wax, oils, solvents, permanent / indelible markers, etc and other foreign matter.
- 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 a minimum of 48 hours before starting the installation.
- LinoArt Linoleum Tile must be kept in the sealed packaging until immediately before installation.
- The area to receive 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 fall below 55°F (13°C). The performance of the flooring material and adhesives can be adversely affected below this minimum temperature.
- Conduct calcium chloride tests and/or percent relative humidity tests. Bond tests should also be conducted for compatibility with the substrate. Please refer to Chapter IV, 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 11 on the pH scale when installed with S-780.

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

Fitting:

Before installing the material, plan the layout so tile joints fall at least 6" (15.2 cm) away from subfloor/underlayment joints. Do not install over expansion joints.

When installing Armstrong Linoleum Tile, tiles may be quarter turned or installed linear.

Recommended fitting procedures include straight scribing, or pattern scribing.

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 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 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 Open Times and Trowel Notchings

Adhesive	Set-in-Wet for Porous Subfloors	Set-in-Wet for Nonporous Subfloors
S-780	<p>Open Time: Set in wet (no open time)</p> <p>V Notch Trowel: 1/16" (1.6 mm) deep, 1/16" (1.6 mm) wide, 1/16" (1.6 mm) apart</p>	<p>Open Time: Up to 5 minutes. Set in wet.</p> <p>V Notch Trowel: 1/16" (1.6 mm) deep, 1/16" (1.6 mm) wide, 1/16" (1.6 mm) apart</p>

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 Notching above.

- **Armstrong S-780 – Porous Substrates:**

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. 1).

1. The linoleum tile is to be kept in the factory sealed packaging until the time of installation. Carefully open the packaging as to not damage the tile.
2. Apply the S-780 Adhesive in two- or three-foot bands (Fig. 2) using a 1/16" x 1/16" x 1/16" V notch trowel. Do not apply more adhesive than you can cover within 20 minutes. Allowing no open time and fitting the border tile tightly will reduce tile shifting and adhesive oozing. Border tiles should be at least 6 inches or larger. **DO NOT** allow the adhesive to dry completely. (Fig. 2).

3. Install tile by quarter turning every other tile or install linear.
4. Roll the tile in both directions within 20 minutes after spreading using a 100-lb. roller. Immediately remove any adhesive from the surface of the flooring using a clean white cloth dampened with a neutral detergent and water.
5. Do not work on newly installed tile except to roll tile. Use a kneeling board if necessary.
6. Repeat Steps 1 through 4 until the installation is completed.
7. 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 S-780 – Non-Porous Substrates:**

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. 1).

1. The linoleum tile is to be kept in the factory sealed packaging until the time of installation. Carefully open the packaging as to not damage the tile.
2. Apply the S-780 Adhesive in two- or three-foot bands (Fig. 2) using a 1/16" x 1/16" x 1/16" V notch trowel. Do not apply more adhesive than you can cover within 20 minutes. Allowing no open time and fitting the border tile tightly will reduce tile shifting and adhesive oozing. Border tiles should be at least 6 inches or larger. **DO NOT** allow the adhesive to dry completely. (Fig. 2).
3. Install tile by quarter turning every other tile or install linear.
4. Roll the tile in both directions within 20 minutes after spreading using a 100-lb. roller. Immediately remove any adhesive from the surface of the flooring using a clean white cloth dampened with a neutral detergent and water.
5. Do not work on newly installed tile except to roll tile. Use a kneeling board if necessary.
6. Repeat Steps 1 through 4 until the installation is completed.
7. 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.

NOTE: When storing opened tile cartons overnight, reseal the tile in the shrink wrapping using plastic packaging tape. This will reduce the possibility of humidity affecting the tile.

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.

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

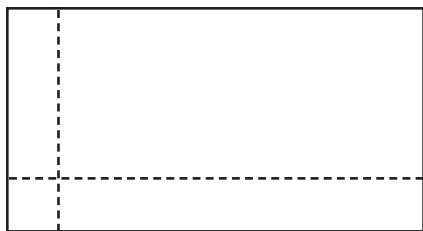


Fig. 1

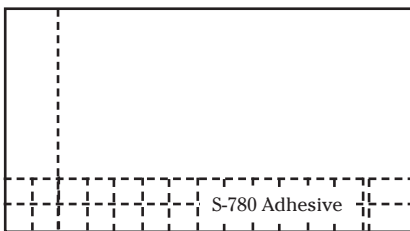


Fig. 2

Linoleum Sheet and Tile Color Change:

“Drying room yellowing” sometimes referred to as “seasoning bloom,” “drying room film” or “stove yellowing” is a natural phenomenon that occurs during the manufacturing process of all linoleum. As linoleum cures in the drying room, a yellowish cast may develop on the surface due to the oxidation of the linseed oil. This is not a product defect. Any change in the product’s appearance because of this yellow cast is temporary and disappears after exposure to either natural or artificial light. The time required for the yellow cast to disappear ranges from a few hours to several weeks depending on the type and intensity of the light source. Typically, the yellow cast disappears more quickly with exposure to natural light. The application of floor finishes will not interfere with the dissipation of the yellow cast. Disappearance of the yellow cast will not occur on areas not exposed to light.

Commercial Vinyl-Backed Installation System

Product	Gauge	ADHESIVE AND SEAMING OPTIONS						
		Full Spread			Perimeter Plus	Concentrated Static & Dynamic Load Areas	Heat Weld	S-761
		Porous (Optional) S-599 or S-543* Set-in-Wet	Porous and Nonporous S-599 or S-543* Dry-to-Touch	S-240**	S-599/ S-240 Or S-543*/ S-240**	S-240*		
MEDINTECH MEDINTONE MEDLEY ROYAL SOLID	0.080" (2.0 mm)	X	X			X	X	X

* 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.

Installation:

- Location: All grade levels
- Pattern Match: No: Reverse pieces (TM edge to TM edge)
Note: ROYAL do not reverse (TM edge to non-TM edge)
- Seam Method: Recess scribe
- Seam Treatment: Heat weld or S-761 Seam Adhesive
- Fitting: All methods

Suitable Substrates:

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

- Concrete (on all grade levels)
- Approved Suspended Wood
- Existing Resilient Floors
- Steel, Stainless Steel, Aluminum
- Ceramic Tile, Terrazzo, Marble
- Polymeric Poured (seamless) Floors

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.
- Substrates must be dry, clean, smooth, and free from paint, varnish, wax, oils, solvents, and other foreign matter.
- 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. **NOTE: When using S-240 Epoxy Adhesives, 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.
- For concrete substrates, conduct moisture testing (moisture vapor emission rate [MVER]) and/or percent relative humidity (in-situ probe). Bond tests must also be conducted for compatibility with the substrate. Please refer to Chapter III, 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.

Fitting:

Unroll material and lay flat to allow the roll curl to relax before fitting.

Material must be adhered within 4 hours of cutting and fitting.

Before installing the material, plan the layout so seams fall at least 6" (15.2 cm) away from subfloor/underlayment joints. Do not install over expansion joints.

When installing over an existing resilient floor, plan the layout so the new seams do not coincide with seams or joints of the existing installation.

Recommended fitting procedures include freehand knifing, straight scribing and pattern scribing.

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

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 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.

Procedure:

See Chapter V, Adhesives, Seam Treatments and Grout.

Clean adhesive residue from the surface of the flooring using a clean white cloth dampened with a neutral detergent and water. Give special attention to seam areas as they must be clean and dry before proceeding with heat welding or sealing.

Cut pieces to the proper length, allowing enough material at each end to flash 1-1/2" (31.8 mm) up the walls for fitting.

Adhesive Open Times and Trowel Notchings

Product and Adhesive	Open Time POROUS Subfloors	Open Time NONPOROUS Subfloors
MEDINTECH, MEDINTONE, MEDLEY, ROYAL and SOLID with S-599 or S-543*	<p>Set-in-Wet: (Optional) Approximately 10–20 minutes (paste-like consistency)</p> <p>Dry-to-Touch: Approximately 30 minutes (no transfer of adhesive to finger)</p> <p>Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart</p>	<p>Dry-to-Touch: Approximately 30 minutes (no transfer of adhesive to finger)</p> <p>Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart</p>
MEDINTECH, MEDINTONE, MEDLEY, ROYAL and SOLID, with S-240** ; ridges back rolled with 3/16" (4.8 mm) nap roller	<p>Set-in-Wet: Approximately 10–20 minutes (do not allow to dry-to-touch)</p> <p>Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart</p>	<p>Set-in-Wet: Approximately 10–20 minutes (do not allow to dry-to-touch)</p> <p>Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart</p>
MEDINTECH, MEDINTONE, MEDLEY, ROYAL and SOLID with S-580 (Flash cove areas only)***	<p>Dry-to-Touch: Approximately 30 minutes (no transfer of adhesive to finger)</p> <p>Trowel Notching: Brush-On or Roll-On</p>	<p>Dry-to-Touch: Approximately 30 minutes (no transfer of adhesive to finger)</p> <p>Trowel Notching: Brush-On or Roll-On</p>

* 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.

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

*** Apply two coats of S-580 Flash Cove Adhesive with a brush or roller 4" (10.2 cm) onto the floor as well as up the entire cove area. Allow adhesive to dry to a pressure-sensitive state between applications. The S-580 has unlimited working time.

NOTE: If you cover wet areas or cover the adhesive too soon, blisters will form after rolling. Blisters caused by inadequate drying time will begin to show within one hour after rolling. The amount of open time will vary according to job conditions, temperature, humidity, air flow and type of substrate. All adhesives are applied with fine notching [$1/32$ " (0.8 mm) deep, $1/6$ " (1.6 mm) wide, $5/64$ " (2 mm) apart].

Sheet Installation:

• Full Spread with S-599 or S-543:

1. Apply adhesive with the fine notching of the S-891 Trowel. When installing over nonporous substrates such as existing resilient flooring, allow enough open time for adhesive to dry until tacky with no transfer to the finger (dry-to-touch) before placing the material into the adhesive. When installing over porous subfloors such as concrete and wood, allow the adhesive to thicken to a paste-like consistency (set-in-wet) before placing the material into the adhesive. The adhesive should show good transfer to the finger before placement of the floor. Recess scribe seams. Use S-580 Adhesive in flash cove areas. Before installing the material, plan the layout so seams fall at least 6" (15.2 cm) away from underlayment joints, seams in existing resilient flooring and/or saw cuts in concrete. Do not install over expansion joints.
2. Cut pieces from the roll to the specified length, allowing enough material at each end to flash 1-1/2" (31.8 mm) up the wall for fitting.
3. Recommended fitting procedures include freehand knifing, pattern scribing, and straight scribing methods.
4. Fit piece #1 and position in the room.
5. Prepare the seam edge by trimming the factory seam edge using an edge trimmer.
6. Draw a pencil line on the subfloor along the length of the trimmed factory edge.
7. Carefully lap the material back halfway to expose the subfloor.
8. Starting at the lap point and working toward the end wall, apply S-599 Adhesive up to the pencil line using the fine notching of the S-891 Trowel.
9. Allow the recommended open time before placing the material into the adhesive. Use extreme care when positioning the flooring over the S-599 Adhesive, which has a firm grab and does not allow repositioning.
10. Starting at the center and working toward the edges, roll the material in two directions using a 100-lb. roller, staying 2" (5.1 cm) away from the seam. Clean adhesive residue from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water.
11. Repeat Steps 7 through 10 for the remaining half of piece #1.
12. Cut piece #2 allowing enough material at each end to flash 1-1/2" (31.8 mm) up the wall for fitting.
13. **Install pieces as recommended, TM edge to TM edge or TM edge to non-TM edge.**

14. Overlap piece #2 onto piece #1 approximately 1/2" (12.7 mm). Prepare the seam edge on the opposite side of the sheet by trimming the factory seam edge using an edge trimmer.
15. Draw a pencil line on the subfloor along the length of the trimmed factory edge.
16. Carefully lap the material back halfway to expose the subfloor.
17. Starting at the lap point and working toward the end wall, apply S-599 or S-543 Adhesive up to the pencil line using the fine notching of the S-891 Trowel.
18. Allow the recommended open time before placing the material into the adhesive. Use extreme care when positioning the flooring over the S-599 Adhesive, which has a firm grab and does not allow repositioning.
19. Starting at the center and working toward the edges, roll the material in two directions using a 100-lb. roller, staying 2" (5.1 cm) away from the seam. Clean adhesive residue from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water.
20. Repeat Steps 16 through 19 for the remaining half of piece #2.
21. Recess scribe the seam using a recess scribe. When heat welding, seams may be recess scribed slightly open [1/64" (0.4 mm)] to make guiding the router easier. When using S-761 Seam Adhesive, cut the seams net.
22. Before cutting the seam, protect the floor by inserting a piece of scrap material beneath the scribe mark. With the scrap on the same side as the cutting hand, cut the seam holding a straight blade knife straight up and down.
23. When using S-761 Seam Adhesive option cut seams net.
 - a. Cut the tip of the S-761 Seam Adhesive applicator bottle and apply a continuous 1/8" (3.2 mm) bead of S-761 Seam Adhesive along the seam edge of piece #1.
 - b. Tuck the seam edge into place, forcing the S-761 Seam Adhesive up through the seam.
 - c. Clean adhesive residue from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water.
 - d. Refer to Chapter VII, Seams, S-761 Seam Adhesive Procedure for more detail.
24. Roll the seam into place using a hand roller and roll again with a 100-lb. roller.
25. Follow the same procedures for the remaining pieces, completing one piece at a time until the job is finished.
26. When heat welding seams, heat weld seams as recommended. Refer to Chapter VII, Seams, Heat Welded Seams for more detail.
27. Do not allow traffic on the flooring for 24 hours after installation.
28. 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.

- **Installing MEDINTECH, MEDINTONE, MEDLEY, ROYAL, or SOLID in Concentrated Static and Dynamic Load Areas with S-240 Epoxy Adhesive:**

Armstrong Commercial Sheet Flooring is used in many applications in which it is subjected to heavy static and dynamic loads. Some furnishings, appliances, and equipment in certain environments may be equipped with wheels, casters, rests or other floor contact devices, which concentrate rather than distribute the load over the surface of the flooring. Hospital patient beds and operating room tables are typical examples. With respect to portable furnishings and equipment, while concentrated wheel/caster loadings provide for easier mobility, they can be particularly damaging to resilient flooring installations. Armstrong recommends that any furnishings or equipment be fitted with floor contact devices, which avoid concentrating weight loads.

Our experience has shown that the use of hard-setting reactive adhesives like S-240 Epoxy Adhesive offer advantages and may help protect against damage (such as delamination) when used to install flooring under such furnishings and equipment. Depending on the application, the epoxy may only be necessary in limited areas of any particular installation such as an area immediately beneath and adjacent to the primary areas of contact with the flooring. In the case of certain heavy hospital beds, the application of the epoxy adhesive in an area that extends a minimum of 1' beyond the wheel base or footprint of the four casters [approximately 4' x 8' (1.2 m x 2.4 m)] may be sufficient.

NOTE: When installing Armstrong Commercial Vinyl-Backed Sheet flooring, it will be necessary to smooth out the adhesive trowel ridges of the S-240 Epoxy Adhesive using the supplied 3/16" (4.8 mm) nap paint roller. The purpose of this is to create a uniform application of the S-240 Epoxy Adhesive. Please refer to Steps #5 and #6 that follow.

1. Plan layout of the S-240 Epoxy Adhesive so it extends approximately 1' beyond the load area. Use the recommended Armstrong Full Spread Adhesive in all other areas.
2. Mix the entire contents of Part A and Part B together with a stirring motion while at the same time lifting from the bottom. Mix thoroughly for 3 to 5 minutes to a uniform color. **Do not over mix.** Never mix S-240 Epoxy Adhesive on the subfloor surface.
3. **Immediately pour the entire unit of mixed adhesive onto the substrate. Do not leave mixed adhesive in cans as this shortens pot life and working time and may generate excessive heat.** Maximum pot life of S-240 Epoxy Adhesive is approximately 15 minutes, depending on temperature and humidity.
4. Apply S-240 Epoxy Adhesive with the recommended trowel notching.
5. **Using a 3/16" (4.8 mm) nap paint roller, wet out the 3/16" (4.8 mm) nap paint roller by rolling it on a piece of scrap material that contains the S-240 Epoxy Adhesive. This will prevent removal of already applied S-240 Epoxy Adhesive when rolling.**

6. **Carefully roll out the S-240 Epoxy Adhesive trowel ridges using a 3/16" (4.8 mm) nap paint roller, creating a uniform application of the S-240 Epoxy Adhesive.**
 7. After troweling and rolling of the S-240 Epoxy Adhesive, allow 10-20 minutes open time before placing the flooring into the adhesive. **Do not allow the S-240 Epoxy adhesive to dry completely.**
 8. When using S-240 Epoxy Adhesive in conjunction with the recommended Armstrong Full Spread Adhesive, plan out the open times so that the flooring may be placed into both adhesives at the same time. Working time of S-240 Epoxy Adhesive is 60 minutes.
 9. After allowing the proper open time, carefully place the flooring into the S-240 Epoxy Adhesive to ensure that air bubbles are not trapped beneath the flooring.
 10. Within 30 minutes of the S-240 Epoxy Adhesive application, roll the material using a 100-lb. roller. Starting at the center and working toward the edges, roll the material in the direction of the trowel notches and then again in the opposite direction [staying 2" (5.1 cm) away from any seams]. Do not work on newly adhered flooring except to roll; if necessary use a kneeling board.
 11. Clean any adhesive residue from the surface of the flooring using a clean white cloth dampened with a neutral detergent and water. **Dried S-240 Epoxy Adhesive cannot be removed.**
 12. Repeat rolling procedure at 1 hour and 2 hours after the initial application of S-240 Epoxy Adhesive.
 13. **Seams must be heat-welded. Wait a minimum of 10 hours before heat welding.**
 14. Do not allow traffic on the flooring for 24 hours after installation.
 15. 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.
- **Concentrated Static and Dynamic Loads with SAFEGUARD and S-240 Epoxy Adhesive:**

Product Performance under Concentrated Static and Dynamic Loads

Armstrong Commercial SAFEGUARD Flooring is used in many applications where it is subjected to heavy static and dynamic loads. Some furnishings, appliances, and equipment in certain environments may be equipped with wheels, casters, rests, or other floor contact devices, which concentrate rather than distribute the load over the surface of the flooring. Hospital patient beds and operating room tables are typical examples. With respect to portable furnishings and equipment, while concentrated wheel/caster loadings provide for easier mobility, they can be particularly damaging to resilient flooring installations. Armstrong recommends that any furnishings or equipment be fitted with floor contact devices, which avoid concentrating weight loads.

Our experience has shown that the use of hard setting reactive adhesives like our S-240 Epoxy Adhesive, offers advantages and may help protect

against damage, such as delamination, when used to install flooring under such furnishings and equipment. Depending on the application, the epoxy may only be necessary in limited areas of any particular installation such as an area immediately beneath and adjacent to the primary areas of contact with the flooring. In the case of certain heavy hospital beds, the application of the epoxy adhesive in an area that extends a minimum of one foot beyond the wheel base or footprint of the four casters [approximately 4' x 8' (1.2 m x 2.4 m)] may be sufficient.

1. Recommended for areas subject to concentrated static and dynamic loads. S-240 Epoxy Adhesive should only be applied to the area that will be subject to the static/dynamic load. Use S-599 or S-543 Adhesive in all other areas.
2. Plan layout of the S-240 Epoxy Adhesive so it extends approximately 1' beyond the load area. Use S-599 Adhesive in all other areas.
3. Mix the entire contents of S-240 Part A and Part B together with a stirring motion while at the same time lifting from the bottom. Mix thoroughly for 3 to 5 minutes to a uniform color. **Do not over mix.** Never mix S-240 Epoxy Adhesive on the subfloor surface.
4. **Immediately pour the entire unit of mixed adhesive onto the substrate. Do not leave mixed adhesive in cans as it shortens pot life and working time and may generate excessive heat.** Maximum pot life of S-240 Epoxy Adhesive is approximately 15 minutes, depending on temperature and humidity.
5. Apply S-240 Epoxy Adhesive by troweling the adhesive in straight lines with the S-891 Trowel using the fine notching [1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart]. This will give any trapped air a way to escape when rolling.
6. After spreading the S-240 Epoxy Adhesive, allow 10 to 20 minutes open time before placing the flooring into the adhesive. **Do not allow the S-240 Epoxy Adhesive to dry completely.**
7. When using S-240 Epoxy Adhesive in conjunction with S-599 or S-543 Adhesive, plan out the open times so that the flooring may be placed into both adhesives at the same time without jeopardizing the working times of both adhesives.
8. After allowing the proper open time, carefully place the flooring into the S-240 Adhesive to ensure that air is not trapped beneath the flooring.
9. Within 30 minutes of the S-240 Epoxy Adhesive application, roll the material using a 100-lb. roller. Starting at the center and working toward the edges, roll the material in the direction of the trowel notches and then again in the opposite direction [staying 2" (5.1 cm) away from any seams]. Do not work on newly adhered flooring except to roll. Use a kneeling board if necessary.
10. Clean any adhesive residue from the surface of the flooring using a clean white cloth dampened with a neutral detergent and water. **Dried S-240 Epoxy Adhesive cannot be removed.**

11. If any bubbles appear, remove the flooring from the S-240 Adhesive to remove any trapped air pockets. Reposition the flooring and roll the material as outlined in Step 9.
12. Repeat rolling procedure at 1 hour, 2 hours, and 3 hours after the initial application of S-240 Epoxy Adhesive.
13. Continue looking for any bubbles or hollow spots by holding a floor lamp at a low angle to scan the flooring.
14. If any bubbles are noticed, lightly heat the bubbled flooring using a heat gun and roll into place using a hand roller. It may be necessary to heat and weigh down areas until the S-240 Epoxy Adhesive has cured.
15. After the 3-hour rolling, make a final inspection of the flooring for any bubbles or hollow spots.
16. **Seams must be heat-welded. Wait a minimum of 10 hours before heat welding.**
17. Do not allow traffic on the flooring for 24 hours after installation.
18. 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.

• **Perimeter Plus with S-599 or S-543/S-240 adhesives:**

Use a full spread of S-599 or S-543 Adhesive in field areas with a 3" (7.6 cm) band of S-240 Epoxy Adhesive at the perimeter of the room. These include entryways, areas around freezers/refrigerator cases, and produce areas. Apply S-240 Epoxy Adhesive with a fine notch S-891 Trowel. Recess scribe seams slightly open [1/64" (0.4 mm)] to make guiding the router easier. Use S-580 in flash cove areas.

1. Follow installation and seaming details for Full Spread with S-599 or S-543 Adhesive except for the S-240 Epoxy Adhesive at the perimeter of the room and at floor drains.
2. Mix the entire contents of S-240 Part A and Part B together with a stirring motion while at the same time lifting from the bottom. Mix thoroughly for 3 to 5 minutes to a uniform color. **Do not over mix.** Never mix S-240 Epoxy Adhesive on the subfloor surface.
3. **Immediately pour the entire unit of mixed adhesive onto the substrate. Do not leave mixed adhesive in cans as this shortens pot life and working time and may generate excessive heat.** Maximum pot life of S-240 Epoxy Adhesive is approximately 10 minutes, depending on temperature and humidity.
4. Apply a 3" (7.6 cm) band of S-240 Epoxy Adhesive around the perimeter of the room and at all floor drains. Full spread the remaining area using S-599 or S-543 Adhesive. Allow the recommended open time before placing the material into the adhesive. Working time of the S-240 Epoxy Adhesive is approximately 1 hour. Do **not** allow the S-240 Epoxy Adhesive to dry completely.

5. Starting at the center and working toward the edges, roll the material in two directions [staying 2" (5.1 cm) away from any seams] using a 100-lb. roller. Roll within 30 minutes of adhesive application and re-roll again 1 hour later. Clean adhesive residue from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water. **Dried S-240 Epoxy Adhesive cannot be removed.**
6. Follow the same procedures for the remaining pieces, completing one piece at a time until the job is finished.
7. Do not work on newly adhered flooring except to roll. Use a kneeling board if necessary.
8. Do not allow traffic on the flooring for 24 hours after installation.
9. 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.

• **MEDINTECH, MEDINTONE, MEDLEY, and ROYAL in Environmental Conditioning Units:**

1. Maintain temperature of the room to receive the MEDINTECH, MEDINTONE, MEDLEY, and ROYAL at a minimum of 65°F (18°C) for 48 hours before installation, during installation, and for 72 hours after installation. Maximum temperature for installing MEDINTECH, MEDINTONE, MEDLEY, and ROYAL is 100°F (38°C). If these temperatures are not maintained **for the recommended period of time**, the flooring material and adhesives may not perform as they should.
2. Follow installation and seaming details for Full Spread S-599 Adhesive or S-240 Epoxy Adhesive. Seams must be heat-welded.
3. Use S-240 Epoxy Adhesive at all floor drains.
4. Mix the entire contents of S-240 Part A and Part B together with a stirring motion while at the same time lifting from the bottom. Mix thoroughly for 3 to 5 minutes to a uniform color. **Do not over mix.** Never mix S-240 Epoxy Adhesive on the subfloor surface.
5. **Immediately pour the entire unit of mixed adhesive onto the substrate. Do not leave mixed adhesive in cans as this shortens pot life and working time and may generate excessive heat.** Maximum pot life of S-240 Epoxy Adhesive is approximately 15 minutes, depending on temperature and humidity.
6. Apply a 3" (7.6 cm) band of S-240 Epoxy Adhesive around any floor drains in area of installation.
7. Roll the material in two directions using a 100-lb. roller. Roll immediately after placement of flooring and re-roll again 1 hour later. Clean adhesive residue from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water. **Dried S-240 Epoxy Adhesive cannot be removed.**
8. Immediately after installation is complete, apply a bead of silicone caulk along the top of the cap strip and onto the wall.

9. After the MEDINTECH, MEDINTONE, MEDLEY or ROYAL has been installed and allowed to condition for 72 hours as outlined in Step 1, gradually lower the temperature of the room over a period of three days. The temperature of the room should never go below 34°F (1°C).
10. Do not allow traffic on the flooring for 24 hours after installation.
11. 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.

Commercial Heterogeneous and Inlaid Installation System

Product	Gauge	Full Spread S-599 or S-543* with Heat Welded Seams	Full Spread S-599 or S-543* with S-761 at Seams	Concentrated Static & Dynamic Load Areas with S-240**
REJUVENATIONS TIMBERLINE Ambigu StoneRun	0.080" (2.0 mm)	X	X	X
POSSIBILITIES Petit Point		X	X	X
Connection CORLON		X	X	X

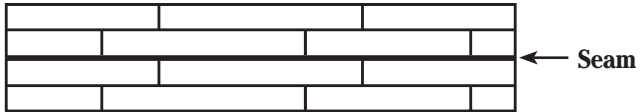
* It is necessary to smooth out the adhesive trowel ridges using a medium nap paint roller.

** 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.

Installation:

Location: All grade levels

Pattern Match: **TIMBERLINE** - No; do not reverse pieces (TM edge to non-TM edge). Pieces should be a random match so that the ends of the planks are offset at least 3" to 6".



Ambigu and StoneRun - No; do not reverse pieces (TM edge to non-TM edge).

POSSIBILITIES Petit Point and Connection CORLON - No; reverse pieces (TM edge to TM edge)

Seam Method: Recess scribe

Seam Treatment: Heat weld or S-761 Seam Adhesive

Fitting: All methods

Suitable Substrates:

All substrates listed below must be properly prepared and meet the requirements discussed in Chapter III, Subfloors and Underlayments. There may be other exceptions and special conditions for these substrates to be suitable for the Commercial Heterogeneous and Inlaid Installation System.

- Concrete (on all grade levels)
- Steel, Stainless Steel, Aluminum
- Approved Suspended Wood
- Ceramic Tile, Terrazzo, Marble
- Existing Resilient Floors
- Polymeric Poured (seamless) Floors

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.
- Substrates must be dry, clean, smooth, and free from paint, varnish, wax, oils, solvents, and other foreign matter.
- 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. **NOTE: 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.
- For concrete substrates, conduct moisture testing (moisture vapor emission rate [MVER]) and/or percent relative humidity (in-situ probe). Bond tests must also be conducted for compatibility with the substrate. Please refer to Chapter III, 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.

Precautions:

- Do not install any polyester-backed flooring over existing asphalt tile or any adhesive residue.

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

- Do not install any polyester-backed products over existing on-grade or below-grade tile.
- Lead or brass surfaces must be abraded and then leveled with a 1/8" (3.2 mm) thickness of S-194 Patch Underlayment and Embossing Leveler mixed with the S-195 Underlayment Additive. When this has dried, prime with the S-185 Latex Primer and Additive then install the fiberglass-backed floor using the recommended adhesive.

Seams: Refer to Chapter VII, Seams.

Heat Welding: Refer to Chapter VII, Seams.

Flash Coving: See Chapter VIII, Flash Coving.

Fitting:

Unroll material and lay flat to allow the roll curl to relax before fitting. The lines and Armstrong logo on the back of the flooring represent trademark edges. Material must be adhered within 4 hours of cutting and fitting. Before installing the material, plan the layout so seams fall at least 6" (15.2 cm) away from subfloor/underlayment joints. Do not install over expansion joints. When installing over an existing resilient floor, plan the layout so the new seams do not coincide with seams or joints of the existing installation. Recommended fitting procedures include freehand knifing, straight scribing and pattern scribing.

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 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.

Adhesive Open Times and Trowel Notchings

Product and Adhesive	Open Time POROUS Subfloors	Open Time NONPOROUS Subfloors
REJUVENATIONS POSSIBILITIES Petit Point Connection CORLON with S-599	<p>Set-in-Wet: Approximately 10–20 minutes (paste-like consistency)</p> <p>Dry-to-Touch: Approximately 30 minutes (no transfer of adhesive to finger)</p> <p>Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart</p>	<p>Dry-to-Touch: Approximately 30 minutes (no transfer of adhesive to finger)</p> <p>Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart</p>
REJUVENATIONS POSSIBILITIES Petit Point Connection CORLON with S-543*	<p>Set-in-Wet: Approximately 10–20 minutes (paste-like consistency)</p> <p>Dry-to-Touch: Approximately 30 minutes (no transfer of adhesive to finger)</p> <p>Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart</p>	<p>Dry-to-Touch: Approximately 30 minutes (no transfer of adhesive to finger)</p> <p>Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart, must be paint rolled with medium nap paint roller</p>
REJUVENATIONS POSSIBILITIES Petit Point Connection CORLON with S-240**	<p>Set-in-Wet: Approximately 10–20 minutes (do not allow to dry-to-touch)</p> <p>Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart</p>	<p>Set-in-Wet: Approximately 10–20 minutes (do not allow to dry-to-touch)</p> <p>Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart</p>
REJUVENATIONS POSSIBILITIES Petit Point Connection CORLON with S-580*** (Flash cove areas only)	<p>Dry-to-Touch: Approximately 30 minutes (no transfer of adhesive to finger)</p> <p>Trowel Notching: Brush-On or Roll-On</p>	<p>Dry-to-Touch: Approximately 30 minutes (no transfer of adhesive to finger)</p> <p>Trowel Notching: Brush-On or Roll-On</p>

* 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.

*** Apply two coats of S-580 Flash Cove Adhesive with a brush or roller 4" (10.2 cm) onto the floor as well as up the entire cove area. Allow adhesive to dry to a pressure-sensitive state between applications. The S-580 has unlimited working time.

NOTE: If you cover wet areas or cover the adhesive too soon, blisters will form soon after rolling. Blisters caused by inadequate drying time will begin to show within 1 hour after rolling. The amount of open time will vary according to job conditions, temperature, humidity, air flow, and type of substrate. S-599, S-543, and S-240 adhesives are applied with fine notching [1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart]. Allowing the proper open time will help to minimize knee marks, roller marks, and trapped air blisters.

• Full Spread with S-599 or S-543 Adhesive:

Apply adhesive with fine notching of the S-891 Trowel. When installing over nonporous substrates, such as existing resilient flooring, allow enough open time for adhesive to dry until tacky with no transfer to the finger (dry-to-touch) before placing the material into the adhesive. When installing over porous subfloors such as concrete and wood, allow the adhesive to thicken to a paste-like consistency (set-in-wet) before placing the material into the adhesive. The adhesive should show good transfer to the finger before placement of the floor. Recess scribe seams. Use S-580 Adhesive in flash cover areas.

1. Before installing the material, plan the layout so seams fall at least 6" (15.2 cm) away from underlayment joints, seams in existing resilient flooring and/or saw cuts in concrete. Do not install over expansion joints.
2. Cut pieces from the roll to the specified length, allowing enough material at each end to flash 1-1/2" (31.8 mm) up the wall for fitting.
3. Recommended fitting procedures include freehand knifing, pattern scribing and straight scribing methods.
4. Fit piece #1 and position in the room.
5. Prepare the seam edge by trimming the factory seam edge using an edge trimmer.
6. Draw a pencil line on the subfloor along the length of the trimmed factory edge.
7. Carefully lap the material back halfway to expose the subfloor.
8. Starting at the lap point and working toward the end wall, apply the S-599 Adhesive up to the pencil line using the fine notching of the S-891 Trowel.
9. Allow the recommended open time before placing the material into the adhesive. Use extreme care when positioning the flooring over the S-599 Adhesive, which has a firm grab and does not allow repositioning.
10. Starting at the center and working toward the edges, roll the material in two directions using a 100-lb. roller and staying 2" (5.1 cm) away from the seam. Clean adhesive residue from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water.
11. Repeat Steps 7 through 10 for the remaining half of piece #1.
12. Cut piece #2, allowing enough material at each end to flash 1-1/2" (31.8 mm) up the wall for fitting.
13. **Install pieces as recommended, TM edge to TM edge or TM edge to non-TM edge.**
14. Overlap piece #2 onto piece #1 approximately 1/2" (12.7 mm). Prepare the seam edge on the opposite side of the sheet by trimming the factory seam edge using an edge trimmer.
15. Draw a pencil line on the subfloor along the length of the trimmed factory edge.
16. Carefully lap the material back halfway to expose the subfloor.

17. Starting at the lap point and working toward the end wall, apply the S-599 or S-543 Adhesive up to the pencil line using the fine notching of the S-891 Trowel.
18. Allow the recommended open time before placing the material into the adhesive. Use extreme care when positioning the flooring over the S-599 Adhesive, which has a firm grab and does not allow repositioning.
19. Starting at the center and working toward the edges, roll the material in two directions using a 100-lb. roller and staying 2" (5.1 cm) away from the seam. Clean adhesive residue from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water.
20. Repeat Steps 16 through 19 for the remaining half of piece #2.
21. Recess scribe the seam using a recess scribe. When heat welding, seams may be recess scribed slightly open [1/64" (0.4 mm)] to make guiding the router easier. When using S-761 Seam Adhesive, cut the seams net.
22. Before cutting the seam, protect the floor by inserting a piece of scrap material beneath the scribe mark. With the scrap on the same side as the cutting hand, cut the seam holding a straight blade knife straight up and down.
23. When using S-761 Seam Adhesive option, cut seams net.
 - a. Cut the tip of the S-761 Seam Adhesive applicator bottle and apply a continuous 1/8" (3.2 mm) bead of S-761 Seam Adhesive along the seam edge of piece #1.
 - b. Tuck the seam edge into place, forcing the S-761 Seam Adhesive up through the seam.
 - c. Clean adhesive residue from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water.
 - d. Refer to Chapter VII, Seams, S-761 Seam Adhesive Procedure for more detail.
24. Roll the seam into place using a hand roller and roll again with a 100-lb. roller.
25. Follow the same procedures for the remaining pieces, completing one piece at a time until the job is finished.
26. When heat welding seams, heat weld seams as recommended. Refer to Chapter VII, Seams, Heat Welded Seams for more detail.
27. Do not allow traffic on the flooring 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.

• **Installing REJUVENATIONS, POSSIBILITIES Petit Point and Connection CORLON in Concentrated Static and Dynamic Load Areas With S-240 Epoxy Adhesive:**

Armstrong Commercial Sheet Flooring is used in many applications where it is subjected to heavy static and dynamic loads. Some furnishings, appliances, and equipment in certain environments may be equipped with wheels, casters, rests, or other floor contact devices, which concentrate rather than

distribute the load over the surface of the flooring. Hospital patient beds and operating room tables are typical examples. With respect to portable furnishings and equipment, while concentrated wheel/caster loadings provide for easier mobility, they can be particularly damaging to resilient flooring installations. Armstrong recommends that any furnishings or equipment be fitted with floor contact devices, which avoid concentrating weight loads.

Our experience has shown that the use of hard setting reactive adhesives, like our S-240 Epoxy Adhesive, offer advantages and may help protect against damage, such as delamination, when used to install flooring under such furnishings and equipment. Depending on the application, the epoxy may only be necessary in limited areas of any particular installation such as an area immediately beneath and adjacent to the primary areas of contact with the flooring. In the case of certain heavy hospital beds, the application of the epoxy adhesive in an area that extends a minimum of 1' beyond the wheel base or footprint of the four casters [approximately 4' x 8' (1.2 m x 2.4 m)] may be sufficient.

1. Plan the layout of the S-240 Epoxy Adhesive so it extends approximately 1' beyond the load area. Use the recommended Armstrong Full Spread Adhesive in all other areas.
2. Mix the entire contents of Part A and Part B together with a stirring motion while at the same time lifting from the bottom. Mix thoroughly for 3 to 5 minutes to a uniform color. **Do not over mix.** Never mix S-240 Epoxy Adhesive on the subfloor surface.
3. **Immediately pour the entire unit of mixed adhesive onto the substrate. Do not leave mixed adhesive in cans as it shortens pot life and working time and may generate excessive heat.** Maximum pot life of S-240 Epoxy Adhesive is approximately 15 minutes, depending on temperature and humidity.
4. Apply S-240 Epoxy Adhesive with the recommended trowel notching.
5. Using a 3/16" (4.8 mm) nap paint roller, wet out the 3/16" (4.8 mm) nap paint roller by rolling it on a piece of scrap material that contains the S-240 Epoxy Adhesive. This will prevent removal of already applied S-240 Epoxy Adhesive when rolling.
6. Carefully roll out the S-240 Epoxy Adhesive trowel ridges using a 3/16" (4.8 mm) nap paint roller, creating a uniform application of the S-240 Epoxy Adhesive.
7. After troweling and rolling of the S-240 Epoxy Adhesive, allow 10 to 20 minutes open time before placing the flooring into the adhesive. **Do not allow the S-240 Epoxy Adhesive to dry completely.**
8. When using S-240 Epoxy Adhesive in conjunction with the recommended Armstrong Full Spread Adhesive, plan out the open times so that the flooring may be placed into both adhesives at the same time. Working time of S-240 Epoxy Adhesive is 60 minutes.
9. After allowing the proper open time, carefully place the flooring into the S-240 Epoxy Adhesive to ensure that air bubbles are not trapped beneath the flooring.

10. Within 30 minutes of the S-240 Epoxy Adhesive application, roll the material using a 100-lb. roller. Starting at the center and working toward the edges, roll the material in one direction and then again in the opposite direction [staying 2" (5.1 cm) away from any seams]. Do not work on newly adhered flooring except to roll; if necessary use a kneeling board.
11. Clean any adhesive residue from the surface of the flooring using a clean white cloth dampened with a neutral detergent and water. **Dried S-240 Epoxy Adhesive cannot be removed.**
12. Repeat rolling procedure at 1 hour and 2 hours after the initial application of S-240 Epoxy Adhesive.
13. **Seams must be heat-welded. Wait a minimum of 10 hours before heat welding.**
14. Do not allow traffic on the flooring 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.

Flash Coving: All normal fitting methods can be used to flash cove. Apply two coats of S-580 Flash Cove Adhesive with a brush 4" (10.2 cm) on the floor as well as up the entire cove area. Allow adhesive to dry to a pressure sensitive state between applications. S-580 Flash Cove Adhesive has unlimited working time. Roll the flooring into the adhesive with a hand roller.

Commercial Luxury Vinyl Tile Installation System

Product	Gauge	Size	Adhesive
NATURAL CREATIONS	0.125" (3.2 mm)	Various Sizes and Shapes	S-288, S-543*, Flip or S-240**
PARALLEL LVT	0.080" (2.0 mm) 0.100" (2.5 mm)	Various Sizes and Shapes	S-288, S-543*, Flip or S-240**

* 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: When installing Natural Creations/Parallel LVT in areas subject to direct sunlight, topical moisture, temperature fluctuations, Armstrong S-240 Epoxy Adhesive must be used.

Installation:

Location: All grade levels

Fitting: End Joints should be staggered a minimum of 6" (15 cm) apart

Suitable Substrates:

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

- Concrete (all grade levels)
- Approved Suspended Wood
- Polymeric Poured (seamless) Floors
- Steel, Stainless Steel, Aluminum
- Ceramic Tile, Terrazzo, Marble
- Existing Resilient Sheet Flooring
- Existing Vinyl Composition Tile (VCT) 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.
- Substrates must be dry, clean, smooth and free from paint, varnish, wax, oils, solvents and other foreign matter.
- 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.

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

- 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 III, 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.

Fitting:

Before installing the material, plan the layout so tile joints fall at least 6" (15.2 cm) away from subfloor/underlayment joints. Do not install over expansion joints.

The end joints should be staggered a minimum of 6" (15.2 cm) apart.

Recommended fitting procedures include straight scribing, pattern scribing, or cutting with a tile cutter.

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.

Adhesive Open Times and Trowel Notchings

Adhesive	Set-in-Wet for POROUS Subfloors	Dry-to-Touch for NONPOROUS Subfloors
S-288 or S-543*	<p>Open Time: Approximately 10 minutes</p> <p>Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart</p>	<p>Open Time: 30 minutes or more</p> <p>Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart</p>
S-240**	<p>Open Time: Approximately 10-20 minutes</p> <p>Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart</p>	<p>Open Time: Approximately 10-20 minutes</p> <p>Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart</p>

* 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 above.

• 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. 4).

1. Apply the S-288 or S-543 Adhesive in 2' or 3' bands (Fig. 5), 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.

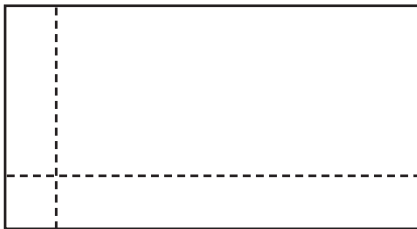


Fig. 4

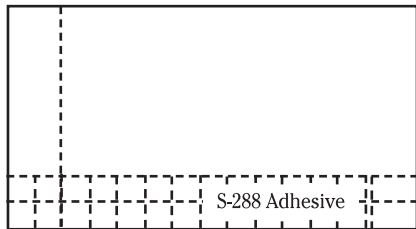


Fig. 5

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.

• **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 VI, 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. 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.
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.

• **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 for a minimum of 48 hours before starting the installation.
7. Line off the 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. 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.
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.

• **Concentrated Static and Dynamic Loads with NATURAL CREATIONS/
PARALLEL LVT Luxury Solid Vinyl Flooring using S-240 Epoxy Adhesive:**

Product Performance under Concentrated Static and Dynamic Loads

Armstrong Luxury Solid Vinyl Flooring is used in many applications where it is subjected to heavy static and dynamic loads. Some furnishings, appliances, and equipment in certain environments may be equipped with wheels, casters, rests, or other floor contact devices, which concentrate rather than distribute the load over the surface of the flooring. Hospital patient beds and operating room tables are typical examples. With respect to portable furnishings and equipment, while concentrated wheel/caster loadings provide for easier mobility, they can be particularly damaging to resilient flooring installations. Armstrong recommends that any furnishings or equipment be fitted with floor contact devices, which avoid concentrating weight loads.

Our experience has shown that the use of hard-setting reactive adhesives, like our S-240 Epoxy Adhesive, offer advantages and may help protect against damage (such as delamination) when used to install flooring under such furnishings and equipment. Depending on the application, the epoxy may only be necessary in limited areas of any particular installation such as an area immediately beneath and adjacent to the primary areas of contact with the flooring. In the case of certain heavy hospital beds, the application of the epoxy adhesive in an area that extends a minimum of 1' beyond the wheel base or footprint of the four casters [approximately 4' x 8' (1.2 m x 2.4 m)] may be sufficient.

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. 4).

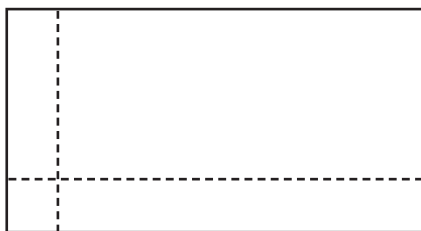


Fig. 4

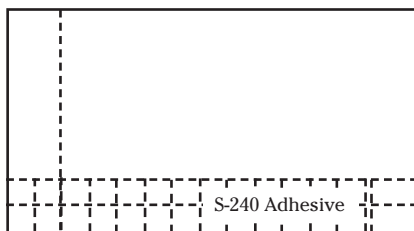


Fig. 5

1. Mix the entire contents of Part A and Part B together with a stirring motion while at the same time lifting from the bottom. Mix thoroughly for 3 to 5 minutes to a uniform color. **Do not over mix.** Never mix S-240 Epoxy Adhesive on the subfloor surface.
2. **Immediately pour the entire unit of mixed adhesive onto the substrate. Do not leave mixed adhesive in cans as it shortens pot life and working time, and may generate excessive heat.** Maximum pot life of S-240 Epoxy Adhesive is approximately 15 minutes, depending on temperature and humidity.

3. Apply the S-240 Epoxy Adhesive in 2' or 3' bands (Fig. 5), being careful not to cover the chalk lines. Do not apply more adhesive than you can cover within 20 minutes. Immediately back roll the S-240 Epoxy Adhesive with the supplied paint roller. 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.
4. When using S-240 Epoxy Adhesive in conjunction with the recommended Armstrong Full Spread Adhesive, plan out the open times so that the flooring may be placed into both adhesives at the same time. Working time of S-240 Epoxy Adhesive is 60 minutes.
5. After allowing the proper open time, carefully place the tile flooring into the S-240 Epoxy Adhesive to ensure that air is not trapped beneath the flooring.
6. 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.
7. Clean any adhesive residue from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water. **Dried S-240 Epoxy Adhesive cannot be removed.**
8. Within 30 minutes of the S-240 Epoxy Adhesive application, roll the material using a 100-lb. roller. Starting at the center and working toward the edges, roll the material in the direction of the trowel notches and then again in the opposite direction. Do not work on newly adhered flooring except to roll. If unavoidable, use a kneeling board.
9. Repeat rolling procedure at 1 hour and 2 hours after the initial application of S-240 Epoxy Adhesive.
10. Do not allow traffic on the flooring for 24 hours after installation.
11. 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.

Natural Creations with I-Set Installation System

Patent Pending

Product	Gauge	Size	Adhesive
Natural Creations with I-Set Tiles	0.160 (4.0 mm)	12" x 24" (305 mm x 610 mm) 18" x 18" (457 mm x 457 mm) 18" x 36" (457 mm x 914 mm)	Natural Creations technology with I-Set
Natural Creations with I-Set Planks	0.160 (4.0 mm)	4" x 3" (102 mm x 914 mm) 6" x 36" (152 mm x 914 mm) 8" x 36" (203 mm x 914 mm) 9" x 48" (229 mm x 1219 mm)	

Installation:

Location: All grade levels

Fitting: End joint should be staggered a minimum of 6" (15cm) apart

General Information:

The Natural Creations with I-Set installation system allows the planks/tiles to be installed without additional adhesive. The planks/tiles bond directly to the subfloor. The planks/tiles should be cut 1/8" away from all vertical surfaces such as walls, cabinets, pipes, etc. (a larger gap could cause excessive floor movement). When installed in wet areas, the gap should be filled and sealed with a good quality siliconized or acrylic caulk. The gap will then be covered with molding or wall base. Base cabinets should not be installed on top of the planks.

Keys to Successful Natural Creations with I-Set Installation:

- Natural Creations with I-Set should not be exposed to direct sunlight for prolonged periods. It can result in discoloration and excessive temperatures that may cause expansion. The use of drapes or blinds is recommended during peak sunlight exposure. If drapes or blinds are not going to be used and expansion occurs in this area, we recommend adhering this area with S-288 or S-240 Adhesive using the fine notch trowel.
- Most installations will need approximately 10% cutting allowance added to the square footage of the room.
- Proper conditioning of both the jobsite and the flooring is necessary. Natural Creations with I-Set should not be exposed to sudden changes in temperature or moisture/humidity.
- Store, transport and handle Natural Creations with I-Set so as to prevent any distortions. Store cartons flat, never on edge. Distortions will not disappear over time. Ensure that the planks are lying flat at time of installation.
- Do not compress the edges of the floating installation in any way when installing other flooring materials next to Natural Creations with I-Set. Installations of carpet, metal strips and other transition moldings should not pinch flooring and should allow for some slight movement wherever practical.

- Protect the floor from heavy rolling loads, other trades and appliances by using sheets of plywood or similar.

Suitable Substrates:

All substrates listed must be properly prepared and meet certain requirements. There may be other exceptions and special conditions for these substrates to be suitable for the Natural Creations with I-Set Installation System as noted below. (Refer to the Subfloors and Underlayments section of the Armstrong Guaranteed Installation System Manual, F-5061, for more details, or visit www.floorexpert.com.)

- Concrete: dry and smooth on all grade levels
- Suspended wood subfloors with approved wood underlayments must have minimum of 18" well ventilated crawl space underneath
- Suspended hardwood flooring that is fully adhered, smooth and square edge without texture
- Single-layer, fully adhered, existing resilient floors – must not be foam-backed or cushion-backed
- Ceramic tile, terrazzo, marble
- Polymeric poured (seamless) floors
- Existing Resilient Sheet Flooring
- Existing Vinyl Composition Tile (VCT) On-grade or Suspended only

Do not install over:

- Particleboard or waferboard
- Any existing adhesive residue
- Oriented Strand Board (OSB)
- Gypsum based patches or underlayments
- Single-layer wood subfloors*
- Existing resilient tile floors that are below grade
- Existing cushion-backed vinyl flooring
- Carpet

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.
- All substrates must be structurally sound, dry, clean, flat and smooth with minimal deflection. Substrates must be free from excessive moisture or alkali. Remove dirt, paint, varnish, wax, oils, solvents, other foreign matter and contaminants that could cause staining or interfere with the bond of the adhesive.

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

- High spots on the substrate should be leveled and low areas filled with appropriate underlayments.
- Do not use products containing petroleum, solvents or citrus oils to prepare substrates as they can cause staining and expansion of the new flooring.
- In renovation or remodel work, remove any existing adhesive residue so that 100% of the overall area of the original substrate is exposed.
- Embossed ceramic tile floors, ceramic and marble grout joints, and irregularities in concrete should be filled and leveled using S-194 Patch, Underlayment & Embossing Leveler to fill and smooth any embossing in the old floor.
- The area to receive the resilient flooring materials and adhesives should be maintained between 65°F (18°C) and 85°F (29°C) for 48 hours before installation, during installation, and for 48 hours after completion. Maintain temperatures between 55°F (13°C) and 85°F (29°C) thereafter.
- For concrete substrates, conduct moisture testing (moisture vapor emission rate [MVER]) and/or percent relative humidity (in-situ probe). Bond tests must 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).
- Natural Creations with I-Set should not be exposed to direct sunlight for prolonged periods, as this can result in discoloration and excessive temperatures that may cause expansion. The use of drapes or blinds is recommended during peak sunlight exposure.
- After preparation work, sweep and vacuum the entire work area to remove all dust and debris.

NOTE: Planks/Tiles are easily cut with a tile cutter or by using a straight edge and utility knife. Score the face of the plank/tile several times and snap it.

Fitting:

- Before installing the material, plan the layout so tile joints fall at least 6" (15.2 cm) away from subfloor/underlayment joints. Do not install over expansion joints.
- The end joints should be staggered a minimum of 6" (15.2 cm) apart.
- Recommended fitting procedures include straight scribing, pattern scribing or cutting with a tile cutter.

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 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.

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" 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. 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.

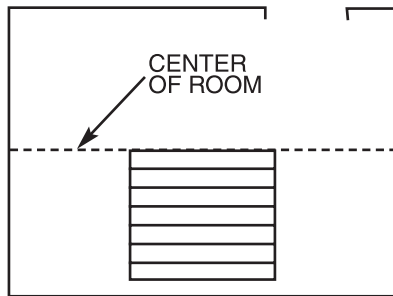


Fig. 1 Dry layout to determine width of border plank

Avoid having border pieces less than 2-1/4" (5.7 cm) wide for all plank sizes. 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.

Plank Installation:

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). Remove the paper release liner exposing the adhesive on the bottom.

NOTE: The releasable adhesive must be protected from dust and debris after the release paper is removed and until it is installed. If the job is stopped prior to completion, leave the release paper intact. This will prevent dust or traffic from other trades from interfering with the adhesive's performance.

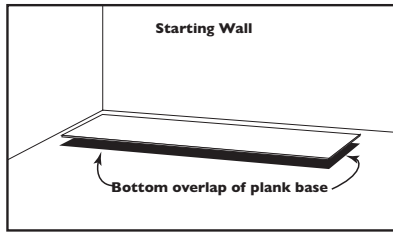


Fig. 2 Left corner of starting wall

CAUTION: Do not stand or walk on release liner, as it is extremely slippery. Place it in a wastebasket immediately upon removal from the plank.

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" 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 length. Remember to leave a gap of 1/8" from the end wall and cut the last piece in that row to fit.

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 adjacent rows (Figure 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: Natural Creations with I-Set is precisely made to size and squareness. 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.

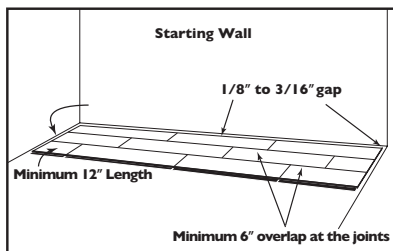


Fig. 3 Stagger end joints by 6", cut pieces at ends of row should be 8" or greater.

Continue installing the remaining rows in similar fashion. Maintain the 6" minimum staggered end joints between rows and maintain the gap at perimeter and vertical surfaces. 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.

After the installation is completed, roll the entire floor, in both directions, with a 100-pound roller. Use a hand-roller in confined areas where the large roller will not reach, such as under toe kicks.

Tile Installation:

Taking the most prominent walls in the room into consideration, find the center point in the room. Divide the room into equal quadrants by making two perpendicular lines on the subfloor intersecting at the center point. Starting from the center point, and either by measurements, or by doing a dry layout of the tiles, determine the distance between the last full tile and the perimeter walls and cabinets. A balanced layout will result in border tiles being 8" (20.3 cm) or greater for the 18" x 18" (45.7 cm x 45.7 cm) tiles.

If the border pieces are less than 8" (20.3 cm) wide, particularly at the prominent walls, you will need to shift the starting point in the middle of the room 1/2 the dimension of the tile [8" (20.3 cm) for a 18" x 18" (45.7 cm x 45.7cm) tile] to balance the layout. After you have balanced the room to achieve larger pieces at the borders, make two new perpendicular lines on the subfloor intersecting at the new starting point near the center of the room.

Begin at the starting point and install the tile along the chalk lines, laying the field area first in step fashion. Complete installation of full tile in all quadrants of the room. Do not slide the tile into place. Press tile firmly into place. After the installation is completed, roll the entire floor, in both directions, with a 100-pound roller. Use a hand-roller in confined areas where the large roller will not reach, such as under toe kicks.

Finishing the Installation:

Replace molding or wall base, allowing slight clearance between the molding and the planks. Nail the molding to the wall surface, not to the flooring. At doorways and at other areas where Natural Creations with I-Set may meet other flooring surfaces, it is preferable to use a "T" molding or similar to cover the exposed edge but not pinch the planks or tiles. Leave a small gap between the planks and the adjoining surface.

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.

BioBased Tile Installation System

Product	Gauge	Size	Subfloor Adhesive Recommendations		
			Wood, Concrete, Ceramic, Terrazzo or Marble	Metal	Existing Resilient Flooring
MIGRATIONS	0.125" (3.2 mm)	12" x 12" (30.5 cm x 30.5 cm)	S-525 or S-700	S-700	S-525 Tile-On System
STRIATIONS		12" x 24" (30.5 cm x 61 cm)			

Installation:

Location: All grade levels

Suitable Substrates:

All substrates listed below must be properly prepared and meet the requirements discussed in Chapter III, Subfloors and Underlayments. There may be certain exceptions and special conditions for these substrates to be suitable for the BioBased Tile Installation System. Review substrate recommendations for the adhesives.

Full Spread:

- Concrete (on all grade levels)
- Approved Suspended Wood Underlayments
- Steel, Stainless Steel, Aluminum, Lead, Copper, Brass, Bronze
- Ceramic Tile, Terrazzo, Marble
- Polymeric Poured (seamless) Floors

Tile-On:

- Existing Resilient Sheet Floors
- Vinyl Composition, Vinyl Asbestos, Asphalt, Rubber and Vinyl Tile (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.
- Substrates must be dry, clean, smooth, and free from paint, varnish, wax, oils, solvents, and other foreign matter. In renovation or remodel work, remove any existing adhesive residue* so that no ridges or puddles are evident and a thin, smooth film remains.

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

Installation:

Location: All grade levels

Suitable Substrates:

All substrates listed below must be properly prepared and meet the requirements discussed in Chapter III, Subfloors and Underlayments. There may be certain exceptions and special conditions for these substrates to be suitable for the BioBased Tile Installation System. Review substrate recommendations for the adhesives.

Full Spread:

- Concrete (on all grade levels)
- Approved Suspended Wood Underlayments
- Steel, Stainless Steel, Aluminum, Lead, Copper, Brass, Bronze
- Ceramic Tile, Terrazzo, Marble
- Polymeric Poured (seamless) Floors

Tile-On:

- Existing Resilient Sheet Floors
- Vinyl Composition, Vinyl Asbestos, Asphalt, Rubber and Vinyl Tile (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.
- Substrates must be dry, clean, smooth, and free from paint, varnish, wax, oils, solvents, and other foreign matter. In renovation or remodel work, remove any existing adhesive residue* so that no ridges or puddles are evident and a thin, smooth film remains.
- 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.
- For concrete substrates, conduct moisture testing (moisture vapor emission rate [MVER]) and/or percent relative humidity (in-situ probe). Bond tests must also be conducted for compatibility with the substrate. Please refer to Chapter III, 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.

Precautions:

- Tiles are to be heated from the back only, never the face.
- Do not wash tile for at least 4 days after installation. This will allow the tile to become well seated in the adhesive and prevent excess moisture and cleaning agents from interfering with the adhesive bond.
- Products installed using the Tile-On System may have less resistance to indentation. We strongly recommended the use of Armstrong Floor Protectors.
- Install one quarter of the room at a time for all 12" x 12" (30.5 cm x 30.5 cm) tiles.

Fitting:

See Chapter VI, Layout and Fitting for room layout. Before installing the material, plan the layout so tile joints fall at least 6" (15.2 cm) away from subfloor/underlayment joints. Do not install over expansion joints.

When installing over an existing resilient floor, plan the layout so the new joints are a minimum of 6" (15.2 cm) away from the original seams. When installing over tile floors, joints should fall in the center of the tile.

When installing 12" x 12" (30.5 cm x 30.5 cm) tiles, avoid having border pieces less than 6" (15.2 cm) wide.

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 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.

Adhesive Open Times and Trowel Notchings

Adhesive	Open Time	Working Time
S-525	Approximately 20 minutes or more	24 hours
S-700	Approximately 30 minutes or more	18 hours

NOTE: All adhesives should be dry-to-touch before installing tile. The amount of open time will vary according to job conditions, temperature, humidity, air flow and type of substrate. All adhesives are applied with fine notching [$1/32$ " (0.8 mm) deep, $1/16$ " (1.6 mm) wide, $5/64$ " (2 mm) apart].

Procedure:

See Chapter V, Adhesives, Seam Treatments and Grout.

When using tile from two or more cartons, check to be sure all pattern and lot numbers are the same to ensure proper color match. On larger installations, open several cartons and mix them as they are installed to help blend any slight shade differences from one carton to the next.

1. Line off entire area to be installed.
2. Apply the adhesive over the area, being careful not to cover the chalk lines and using the fine notching of the S-891 Trowel. You may prefer to spread and install one quarter of the room at a time.
3. 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 the installation.
4. Install the tile along the chalk lines, laying the field area first and then fitting in the border tile.
5. Clean adhesive from the surface of the tile following removal methods on the adhesive label.
6. 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: When installing tile be sure that all tile is firmly seated into the adhesive. Rolling with a 100-lb. roller will achieve the same result and is highly recommended.

Vinyl Composition Tile Installation System

Product	Gauge	Size	Adhesive/ Full Spread	Adhesive/ Tile-On	
Vinyl No-Wax (Dry Back)	0.045" (1.1 mm)	Feature Strips: 1" (2.5 cm), 2" (5.0 cm) or 6" x 24" (15.2 cm x 61 cm) all others 12" x 12" (30.5 cm x 30.5 cm)	S-515, S-525, S-700, or S-750	S-515, S-525, or S-750	
Urethane No-Wax (Dry Back)	0.080" (2.0 mm)				
IMPERIAL TEXTURE	0.094" (2.4 mm)				
STONETEX ChromaSpin COMPANION SQUARE Feature Tile/Strips IMPERIAL TEXTURE RAVE MULTICOLOR	0.125" (3.2 mm)				
ARTEFFECTS	0.125" (3.2 mm)				
RAFFIA	0.125" (3.2 mm)				12" x 24" (30.5 cm x 61 cm)
SAFETY ZONE	0.125" (3.2 mm)				12" x 12" (30.5 cm x 30.5 cm)

Installation:

Location: All grade levels

Suitable Substrates:

All substrates listed below must be properly prepared and meet the requirements discussed in Chapter III, Subfloors and Underlayments. There may be certain exceptions and special conditions for these substrates to be suitable for the Vinyl Composition Tile Installation System.

Full Spread:

- Concrete
- Approved Suspended Wood
- Steel, Stainless Steel, Aluminum, Lead, Copper, Brass, Bronze
- Ceramic Tile, Terrazzo, Marble
- Polymeric Poured (seamless) Floors

Tile-On:

- Existing Resilient Sheet Floors
- Vinyl Composition, Vinyl Asbestos, Asphalt, Rubber and Vinyl Tile-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.
- Substrates must be dry, clean, smooth, and free from paint, varnish, wax, oils, solvents and other foreign matter. In renovation or remodel work, remove any existing adhesive residue* so that no ridges or puddles are evident and a thin, smooth film remains.
- When using S-240 Epoxy Adhesive, remove any existing adhesive residue* so that 80% of the overall area of the original substrate is exposed. If these requirements are not followed, curled and/or loose tile could result. For Tile-On, remove wax or other finishes with a commercially available liquid wax stripper. Replace or repair indented or otherwise damaged areas.
- 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).**
- 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.
- For concrete substrates, conduct moisture testing (moisture vapor emission rate [MVER]) and/or percent relative humidity (in-situ probe). Bond tests must also be conducted for compatibility with the substrate. Please refer to Chapter III, 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.

Precautions:

- S-240 Epoxy Adhesive is recommended for SAFETY ZONE in areas that may be exposed to frequent surface moisture and/or cooler temperatures.
- S-240 Epoxy Adhesive may also be used to install the first 3 to 5 rows of SAFETY ZONE when used in areas that will be affected by surface moisture and/or cooler temperatures.
- Tiles are to be heated from the back only, never the face.

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

- Do not wash tile for at least 4 days after installation. This will allow the tile to become well seated in the adhesive and prevent excess moisture and cleaning agents from interfering with the adhesive bond.
- Products installed using the Tile-On System may have less resistance to indentation. We strongly recommend the use of Armstrong Floor Protectors.

Fitting:

See Chapter VI, Layout and Fitting, for room layout.

Before installing the material, plan the layout so tile joints fall at least 6" (15.2 cm) away from subfloor/underlayment joints. Do not install over expansion joints.

When installing over an existing resilient floor, plan the layout so the new joints are a minimum of 6" (15.2 cm) away from the original seams. When installing over tile floors, joints should fall in the center of the tile.

When installing 12" x 12" (30.5 cm x 30.5 cm) tiles, avoid having border pieces less than 6" (15.2 cm) wide.

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 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.

Adhesive Open Times and Trowel Notchings

Adhesive	Open Time	Working Time
S-515	Approximately 30 minutes or more	24 hours
S-525	Approximately 20 minutes or more	24 hours
S-700	Approximately 30 minutes or more	18 hours
S-750	Approximately 30 minutes or more	6 hours
S-240	Minimum 20 minutes	1 hours

NOTE: All adhesives except S-240 Epoxy Adhesive should be dry-to-touch before installing tile. The amount of open time will vary according to job conditions, temperature, humidity, air flow and type of substrate. All adhesives are applied with fine notching [1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart].

Procedure:

See Chapter V, Adhesives, Seam Treatments and Grout.

When using tile from two or more cartons, check to be sure all pattern and lot numbers are the same to ensure proper color match. On larger installations,

open several cartons and mix them as they are installed to help blend any slight shade differences from one carton to the next.

Tile products with directional arrows on the back should be installed with the arrows all pointing in the same direction.

• **Tile Installed Using S-515, S-525, S-700 or S-750:**

1. Line off entire area to be installed.
2. Apply the adhesive over the area not covering the chalk lines and using the fine notching of the S-891 Trowel. You may prefer to spread and install one quarter of the room at a time.
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 the installation.
4. Install the tile along the chalk lines, laying the field area first and then fitting in the border tile.
5. Roll all residential tile and SAFETY ZONE in both directions within the adhesive working time using a 100-lb. roller.
6. Clean adhesive from the surface of the tile using a clean white cloth dampened with a neutral detergent and water.
7. Tile should not be exposed to rolling load traffic for at least 72 hours after installation to allow setting and drying of the adhesive.

• **SAFETY ZONE in Specialty Areas:**

1. Line off entire area to be installed (Fig. 4).
2. Move chalk lines to one corner or end of the area farthest from the doorway. These lines should be 2' or 3' from the wall depending on your reach (Fig. 5).

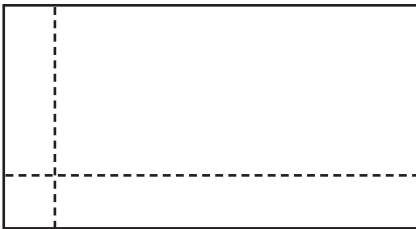


Fig. 4

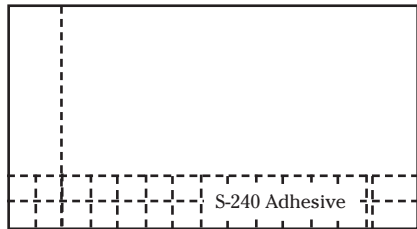


Fig. 5

3. Mix the entire contents of Part A and Part B together with a stirring motion while at the same time lifting from the bottom. Mix thoroughly for 3 to 5 minutes to a uniform color. **Do not over mix.** Never mix S-240 Epoxy Adhesive on the subfloor surface.
4. **Immediately pour the entire unit of mixed adhesive onto the subfloor. Do not leave mixed adhesive in cans because it shortens pot life and**

working time, and may generate excessive heat. Maximum pot life of the S-240 Epoxy Adhesive is approximately 10 minutes depending on temperature and atmospheric conditions.

5. Apply S-240 Epoxy Adhesive for only 2 or 3 rows of tile. Working time of S-240 Epoxy Adhesive is approximately 1 hour.
6. Tile may be placed into the adhesive immediately, but allowing 15 to 20 minutes of open time and fitting border tile tightly will reduce tile shifting and adhesive oozing. Do not allow the adhesive to dry completely.
7. Install tile with the arrows on the back of the tile pointing in the same direction.
8. Roll tile in both directions within 1 hour of spreading S-240 Epoxy Adhesive using a 100-lb. roller. Re-roll 1 hour later in both directions. Remove adhesive residue from the surface of all the tile immediately using a clean, white cloth dampened with neutral detergent and water. Dried S-240 Epoxy Adhesive cannot be removed.
9. Do not work on newly adhered tile except to roll tile. Use a kneeling board if necessary.
10. Repeat Steps 4 through 9 until the entire area is completed.
11. Do not allow traffic on tile for 24 hours after installation.
12. Flooring should not be exposed to rolling load traffic for at least 72 hours after installation to allow setting and drying of the adhesive.

Static Dissipative Tile (SDT) Installation System

Product	Gauge	Size	Adhesive	Comment
EXCELON SDT	0.125" (3.2 mm)	12" x 12" (30.5 cm x 30.5 cm)	S-202	Copper grounding strips provided with adhesive

Installation:

Location: All grade levels

Suitable Substrates:

All substrates listed below must be properly prepared and meet the requirements discussed in Chapter III, Subfloors and Underlayments. There may be certain exceptions and special conditions for these substrates to be suitable for the SDT Installation System.

- Concrete
- Approved Suspended Wood
- Ceramic, Terrazzo, Marble, Polymeric Poured (seamless) Floors or Metal – when properly prepared with S-194

⚠ CAUTION Both the SDT and the S-202 Adhesive contains a small amount of **quaternary ammonium compound**. For some people, this material may irritate both skin and eyes. Avoid direct contact with the adhesive if at all possible. The adhesive is water based. Wash hands thoroughly with soap and water after handling either the tile or the adhesive.

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.
- Substrates must be dry, clean, smooth, and free from paint, varnish, existing adhesive residue*, wax, concrete curing agents, sealers, and hardeners.
- In renovation or remodel work, remove any existing adhesive residue* so that 80% of the overall area of the original substrate is exposed. Subfloor must be porous when installing SDT.
- SDT is not recommended over existing resilient floors. The surface of ceramic, terrazzo, marble, polymeric poured (seamless) floor, or metal would need to be roughened and then a Portland Cement type underlayment (such as S-194 Patch, Underlayment and Embossing Leveler) applied at least 1/4" (6.4 mm) thick.

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

- Do not install SDT in areas subject to excessive surface water or frequent spills.
- 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 85°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.
- For concrete substrates, conduct moisture testing (moisture vapor emission rate [MVER]) and/or percent relative humidity (in-situ probe). Bond tests must also be conducted for compatibility with the substrate. Please refer to Chapter III, 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.

Precautions:

- **Use Only S-392 Static Dissipative Tile Polish on SDT.**

Adhesive	Open Time	Working Time
S-202	60 minutes or more Fine Notch: 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 5/64" (2 mm) apart	6 hours

NOTE: Adhesive should be dry-to-touch before installing tile. The amount of open time will vary according to job conditions, temperature, humidity, air flow, and type of substrate.

Fitting:

See Chapter VI, Layout and Fitting, for room layout.

Before installing the material, plan the layout so tile joints fall at least 6" (15.2 cm) away from subfloor/underlayment joints. Do not install over expansion joints.

Avoid having border pieces less than 6" (15.2 cm) wide.

Procedure:

When using tile from two or more cartons, check to be sure all pattern and lot numbers are the same to ensure proper color match. On larger installations, open several cartons and mix them as they are installed to help blend any slight shade differences from one carton to the next.

1. Line off the entire area to be installed.
2. Apply the S-202 Adhesive over the area, being careful not to cover the chalk lines. Allow the adhesive to set until dry-to-touch (approximately

60 minutes, depending on atmospheric conditions). 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 the installation.

3. Cut copper strips (0.003" thick), which are supplied with the S-202 Adhesive, into 2' strips. Generally, one grounding strip (2' length) is recommended for every 1000 sq. ft. of SDT installed over on-grade concrete. For suspended subfloors, one grounding strip is recommended for every 500 sq. ft. of tile. Additional strips may be requested by the end-user. The installer should receive some guidance from the general contractor or end-user as to the desired location of the copper strips to make subsequent grounding more convenient.
4. Install the tile along the chalk lines, laying the field area first and then fitting in the border tile.
5. In the copper grounding strip locations, place 18" (45.7 cm) of the copper grounding strip over the dry-to-touch S-202 Adhesive on the subfloor. The remaining 6" (15.2 cm) of the strip should continue up the wall. Apply additional S-202 Adhesive over the 18" (45.7 cm) section of the copper grounding strip on the floor. Allow this adhesive to dry to the touch and install the tile over the strip.
6. Roll in both directions within the adhesive's 6-hour working time using a 100-lb. roller. Clean adhesive residue from the surface of the flooring using a clean, white cloth dampened with mineral spirits.
7. Flooring should not be exposed to rolling load traffic for at least 72 hours after installation to allow setting and drying of the adhesive.
8. Follow Initial Maintenance Procedures in Chapter XIII, Commercial Maintenance Procedures.

Grounding of EXCELON SDT:

STOP: If electrical certification of an installation is required, do not perform any maintenance procedures or connect the grounding strips until after certification has been completed.

It is NOT the responsibility of the flooring contractor to actually ground the strips. Grounding is normally done by an electrician. It is important to note that it is the responsibility of the end-user and/or electrician to make certain that the grounding method employed meets applicable code requirements. The ground connection may be made to either an earth ground or an electrical ground. Two methods of grounding normally used are as follows:

1. Ground to steel support columns: Drill and tap holes in the steel column and fasten the copper strip using a machine screw.
2. Connect to ground bus: Solder a wire (#12 or #14) to the copper strip and connect this wire to a ground bus in accordance with applicable building or electrical codes. Once the connection is made, the copper strip and wire may be hidden or covered as desired.

Commercial STAIR TREADS & RUBBER TILES

Installation System

Product	Gauge	Size	Adhesive	Comment
RUBBER TILES	0.125" (3.2 mm)	18-1/8" x 18-1/8" (46.04 cm x 46.04 cm)	S-240	<p>Set-in-Wet (all substrates): Approximately 10–20 minutes (do not allow to dry-to-touch)</p> <p>Regular Notch: 1/16" (1.6 mm) deep, 1/16" (1.6 mm) wide, 3/32" (2.4 mm) apart. Roll with 150-lb. roller.</p>
STAIR TREADS	0.130" (3.3 mm)	13" x 48" (33.02 cm x 121.92 cm) or 13" x 72" (33.02 cm x 182.88 cm)	Solvent-Based Contact Adhesive	Follow adhesive manufacturer's recommendations for installation

Installation:

- Location: All grade levels
- Pattern match: Rubber Tiles - Yes; for best overall result install with the directional arrows laid in the same direction.
- Fitting: Freehand knifing, pattern scribing and straight scribing.

Suitable Substrates:

All suitable substrates listed below must be properly prepared and meet the requirements discussed in Chapter III, Subfloors and Underlayments. There may be other exceptions and special conditions for these substrates to be suitable for the Commercial Stair Treads and Rubber Tiles Installation System.

- Concrete (all grade levels)
- Ceramic Tile, Terrazzo, Marble
- Polymeric Poured (seamless) Floors
- Approved Suspended Wood [minimum 1" (2.5 cm) thickness]
- 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.
- Substrates must be dry, clean, smooth, and free from paint, varnish, wax, oils, solvents, and other foreign matter.

- In renovation or remodel work, remove any existing adhesive residue* so that 80% of the overall area of the original substrate is exposed.
- Allow all 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 85°F (29°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. The performance of the RUBBER TILES, STAIR TREADS and Adhesives can be adversely affected below the minimum temperature.
- For concrete substrates, conduct moisture testing (moisture vapor emission rate [MVER]) and/or percent relative humidity (in-situ probe). Bond tests must also be conducted for compatibility with the substrate. Please refer to Chapter III, 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.

Fitting RUBBER TILES and STAIR TREADS:

Before installing the material, plan the layout so seams fall at least 6" (15.2 cm) away from subfloor/underlayment joints. Do not install over expansion joints.

Avoid pieces smaller than 8" (20.3 cm) in length.

Fitting should be completed for each piece before applying adhesive.

Recommended fitting procedures include freehand knifing, pattern scribing, and straight scribing.

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.

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

Adhesive Open Times and Trowel Notchings

PRODUCT and ADHESIVE	POROUS and NONPOUROUS SUBFLOORS
Armstrong RUBBER TILE with S-240 Epoxy Adhesive	<p>Set-in-Wet: Approximately 10–20 minutes (do not allow to dry-to-touch)</p> <p>Regular Notch: 1/16" (1.6 mm) deep, 1/16" (1.6 mm) wide, 3/32" (2.4 mm) apart</p>
Armstrong Stair Treads with a Solvent-Based Contact Adhesive	Follow adhesive manufacturer's recommendations for installation

Rubber Tile Procedure:

1. Before installing the material, plan the layout so seams fall at least 6" (15.2 cm) away from underlayment joints and/or saw cuts in concrete. Do not install over expansion joints.
2. Lighting conditions must be bright enough to observe color consistency, registration, thickness differences, and jointing quality. **Permanent lighting is essential.**
3. Line off entire area to be installed, remembering tile size is 18-1/8" (46 cm) x 18-1/8" (46 cm).
4. Keep border tile size half the tile size or more whenever possible. Fit tile tightly at walls to help prevent tile shifting and adhesive oozing during bonding.
5. Carefully line up tile on the chalk line and install tile dry (no adhesive spread), placing the "Armstrong" name in the same corner throughout the entire installation. Position the tile point to point.
6. After the first row of tile is installed, continue one row at a time, point to point, until the entire area is dry fit.
7. Align tiles carefully.
8. Do not pressure fit the tile joints. A very small amount of expansion may occur with use.
9. When tile has been dry fit, check entire installation for shade and manufacturing defects, including jointing and thickness. Replace any off-shade, damaged, or defective tile.
10. After entire area has been dry fit, remove the last two rows of tile.
11. Mix the entire contents of the S-240 Epoxy Adhesive, Part A and Part B, with a stirring motion while at the same time lifting from the bottom. Mix thoroughly for 3 to 5 minutes to a uniform color. **Do not over mix.** Never mix S-240 Epoxy Adhesive on the subfloor surface.
12. **Immediately pour the entire unit of mixed adhesive onto the substrate. Do not leave mixed adhesive in containers, as it shortens pot life and working time and may generate excessive heat.** Maximum pot life of S-240 Epoxy Adhesive is approximately 15 minutes, depending on temperature and humidity.
13. Apply the S-240 Epoxy Adhesive using the regular notching of the S-891 Trowel. See Chapter V, Adhesives, Seam Treatments and Grout.

14. Using the chalk line as a guide, place the rubber tiles that were removed into the adhesive, working off the dry-fit tile and not kneeling on the installed tile. Use a kneeling board if you cannot avoid kneeling on installed tile.
15. Roll tile diagonally and slowly in both directions with a 150-lb. roller. Roll again in 1 hour.
16. Roll any loose corners or edges of tile with a hand roller. If necessary, re-roll the entire installation with a 150-lb. roller.
17. Continue installing the remaining tile following Steps 10 through 16.
18. Do not allow traffic for 24 hours after installation and for a longer period of time if room temperature is below 72°F (22°C).
19. Construction foot traffic is permissible only after plywood is placed over the rubber tile 5 hours after the second rolling.
20. Rolling loads are not recommended for at least 72 hours.

Stair Tread Procedure:

1. Start at the bottom of the stairway, dry fitting the first RISER. Leave a gap of 1/32" (0.8 mm) on each side for expansion.
2. Dry fit the first TREAD, making certain that the TREAD fits tightly against the nose of the step. Leave a gap of 1/32" (0.8 mm) at each side and at the rear of the TREAD for expansion.
3. Continue dry fitting the TREADS and RISERS until the entire flight of stairs is completed.
4. Rubber STAIR TREADS are pre-sanded on the back to ensure good adhesion. If you detect a void in sanding on the back of the TREAD or RISER, roughen it with coarse sandpaper or a wire brush. When bonding the nosing of a tread to the face of a riser, roughen the riser at the overlapped area with coarse sandpaper to ensure a good bond.
5. Remove the dry-fit lower six or seven STAIR TREADS and RISERS.
6. Clean off the back of the STAIR TREAD using a clean, white cloth dampened with denatured alcohol. This will remove any mold release that may be on the back of the tread.
7. Carefully follow warnings on the container of the Solvent-Based Contact Adhesive. Follow adhesive manufacturer's recommendations for the installation of rubber STAIR TREADS.
8. Set the bottom STAIR TREAD in place, beginning at the nosing. Push back as firmly and as tightly as possible while holding up the rear portion of the tread. After the nosing is completely fit into place, push the rest of the tread down firmly onto the step. Roll with a hand roller.
9. Continue removing dry-fit STAIR TREADS, applying solvent-based contact adhesive, setting the TREADS into the solvent-based contact adhesive and RISERS (using S-725 Adhesive) in place and rolling. Work from the bottom RISER and TREAD combination to the top until the entire flight of stairs is complete.
10. Pedestrian and construction traffic is not recommended for at least 12 hours after installation.

WALL BASE, RISERS, and Vinyl TRANSITION STRIPS

Installation System

Product	Gauge	Size	Adhesive
WALL BASE - Vinyl	0.080" (2.0 mm)	2.5" x 4" (6.35 cm x 10.16 cm) 4" x 4" (10.16 cm x 10.16 cm) 4" x 160' (10.16 cm x 48.77 m) 6" x 4' (15.24 cm x 1.22 m)	S-725 Set-in-Wet
WALL BASE - Vinyl	1/8" (3.2 mm)	2.5" x 4" (6.35 cm x 10.16 cm) 2.5" x 120' (6.35 cm x 36.58 m) 4" x 4" (10.16 cm x 10.16 cm) 4" x 120' (10.16 cm x 36.58 m) 4" coved external corners (10.16 cm) 6" x 4' (15.24 cm x 1.22 m) 6" x 96' (15.24 cm x 29.26 m)	
WALL BASE - Rubber	1/8" (3.2 mm)	2.5" x 4" (6.35 cm x 10.16 cm) 4" x 4" (10.16 cm x 10.16 cm) 4" x 120' (10.16 cm x 36.58 m) 4" coved external corners (10.16 cm) 6" x 4' (15.24 cm x 1.22 m)	
RISERS	1/8" (3.2 mm)	7" x 48' (17.78 cm x 1.22 m) 7" x 72' (17.78 cm x 1.83 m)	
TRANSITION STRIPS	Various Sizes and Shapes		Solvent-Based Contact Adhesive

Installation:

Location: All grade levels

Suitable Substrates:

All clean, dry, smooth, and structurally sound surfaces, including gypsum drywall, plaster, concrete, plywood, paneling, masonry, steel, stainless steel, and aluminum.

NOTE: WALL BASE should not be installed on below-grade outside walls if moisture or alkali is present. Do not install over nonporous surfaces such as vinyl wall coverings and nonporous paints. If in doubt of porosity, abrade the paint or run a bond test. Wall coverings and nonporous paints should not extend more than 1/2" (12.7 mm) below the top of the base. Exterior use is not recommended.

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.

- Surfaces must be dry, clean, smooth, structurally sound, and free from moisture, alkali, dust, dirt, wax, oils, grease, loose paint or plaster, wall coverings, or any other foreign matter.
- 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. Rough or uneven wall surfaces may telegraph through the WALL BASE.
- Allow all materials and adhesives to condition to the room temperature for a minimum of 48 hours before starting the installation.
- The area 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 and WALL BASE, 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.

Precautions:

- Do not install WALL BASE on below-grade outside walls if moisture or alkali is present.
- Do not install WALL BASE over vinyl wall coverings and nonporous paints.

Fitting for WALL BASE and RISERS:

Avoid small pieces at inside and outside corners. Pieces should be no less than 4" (10.2 cm) in length on both sides of the corners.

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 the WALL BASE 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.

WALL BASE Procedure:

1. For straight wall sections, apply the S-725 Adhesive to the back of the WALL BASE or directly to the substrate using a WALL BASE notched spreader. Stay 1/8" (3.2 mm) away from the top of the WALL BASE to prevent adhesive oozing.
2. Apply a solvent-based contact adhesive to outside corners using a 2" (5.1 cm) brush or a very fine notched trowel. Apply a minimum of 4" (10.2 cm) from the outside corner, on both sides of the corner and to the back of the WALL BASE. When using contact adhesive, always follow the cautions and warnings on the can.

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

3. If using a cartridge, apply two 1/8" (3.2 mm) beads to the back of 2-1/2" (6.4 cm) base, three beads to 4" (10.2 cm) base, and five beads to 6" (15.2 cm) base and 7" (17.8 cm).
4. Heating the WALL BASE from the back will help it conform at outside corners.
5. After applying S-725 Adhesive, place WALL BASES into position on the wall.
6. Butt joints neatly and roll with a hand roller toward the previously installed section for a tight fit.
7. Follow the above steps until the installation is completed.

RISER Procedure:

1. For straight wall sections, apply the S-725 Adhesive to the back of the RISER or directly to the substrate using a WALL BASE notch spreader. Stay 1/8" (3.2 mm) away from the top of the RISER to prevent adhesive oozing.
2. After applying S-725 Adhesive, place RISER into position.
3. Butt joints neatly and roll with a hand roller toward the previously installed section for a tight fit.
4. Follow above steps until the installation is completed.

TRANSITION STRIP Procedure:

1. Subfloor must be smooth, sound, dry, clean, and free of dirt, wax, polish, paint, and all other foreign matter which may interfere in a good bond, including curing agents and sealers.
2. Carefully follow warnings on container of the Solvent-Based Contact Adhesive. Follow adhesive manufacturer's recommendations for the installation of TRANSITION STRIPS.
3. Roll TRANSITION STRIP with a hand roller.