



Installation Systems

V. Installation Systems

RECOMMENDED SHEET FLOORING ADHESIVES AND INSTALLATION SYSTEMS

| Sheet Flooring | Installation System | Adhesive | Comments |
|--|--|--|---|
| Natural Fusion Highland Park Rhythms Urban Setting Starstep Candide II Memories Destinations Station Square Frontgate Progressions | Residential Felt-Backed Full Spread or Perimeter Bond (Armafelt Options) | S-235, S-254 or S-224 | Seams—Double cut Seam Treatment—Prepare with S-585 and apply S-570 DO NOT use S-585 seam cleaner on Natural Fusion |
| Initiator Canyon Creek | Residential Felt-Backed Full Spread | S-235, S-254 or S-224 | Seams—Double cut Seam Treatment—Prepare with S-585 and apply S-570 |
| COMMISSION Plus | Residential Felt-Backed Full Spread | S-235 or S-254; optional S-580 in flash cove areas only | Seams—Double cut Seam Treatment—Prepare with S-585 and apply S-570 using S-564 Seam Coating Kit |
| Traditions Successor | Interflex | S-665—Existing resilient floors and embossing levelers, other nonporous substrates and concrete S-670—Wood underlayment and concrete Staples—Wood underlayment | Seams—Straightedge and butt Seam Treatment—Prepare with S-585 and apply S-570 |
| StrataMax Better Best | StrataMax (Modified Loose Lay and Full Spread methods) | S-288 for Full Spread or Acrylic Double-faced Tape for Modified Loose Lay | Seams—Double cut Seam Treatment—Prepare with S-585 and apply S-570 using S-564 Seam Coating Kit |
| CushionStep Good Better Best | CushionStep (Modified Loose Lay and Full Spread methods) | S-288 for Full Spread or Acrylic Double-faced Tape for Modified Loose Lay | Seams—Double cut Seam Treatment— DO NOT use S-585 Seam Cleaner; apply S-570 using S-564 Seam Coating Kit |
| MARMORETTE | Residential Linoleum Sheet Full Spread | S-760 | Seams—Recess scribe Seam Treatment—S-761 Seam Adhesive |

ARMSTRONG STRATEGIC ACCOUNTS RECOMMENDED SHEET FLOORING ADHESIVES AND INSTALLATION SYSTEM

| Product | Installation System | Adhesive | Comments |
|---|---|-----------------------|--|
| Avantra Cambray Chelsea Corner Concerto Deco Collection Designate Epiq Landmark Medley Metro Millcreek Park West Renaissance Royelle Signia Themes | Residential Felt-Backed Full Spread | S-235, S-254 or S-224 | Seams—Double cut Seam Treatment— Prepare seams with S-585 and apply S-570 |
| Caspian II Chamblis Sentinel Sundial | Modified Loose Lay method | Glass-tac Tape | Seams—Double cut Seam Treatment— Prepare seams with S-585 and apply S-570 |
| Ashton Kempton Premier | Modified Loose Lay method | Vinyl Flooring Tape | Seams—Double cut Seam Treatment— Prepare seams with S-585 and apply S-570 |

RECOMMENDED TILE FLOORING ADHESIVES AND INSTALLATION SYSTEMS

| Tile | Installation System | Adhesive | Comments |
|---------------------------------------|--|--|--|
| Urethane No-Wax (Dry Back) | Vinyl Composition Tile Full Spread | S-89, S-515, S-700 or S-750 | Roll with 100-lb. roller |
| | ----- Tile-On | S-515, S-750 or S-230 | |
| Vinyl No-Wax (Dry Back) | Vinyl Composition Tile | S-515 or S-750 | Roll with 100-lb. roller |
| NATURAL LIVING NATURAL PERSONALITY | Residential LVT Planks | S-288 | Roll with 100-lb. roller |
| Alterna | Alterna (Traditional and Grouted tile installation methods) Full Spread | S-288 | Roll with 100-lb. roller For grouted installations, use S-693 Premixed Sanded Acrylic Grout |
| PERSPECTIVES | Commercial Vinyl-Backed | S-599 Set-in-Wet S-240 in concentrated static and dynamic load areas | Porous substrates only. Set-in-Wet and roll with 100-lb. roller |

Residential Felt-Backed Installation System

| Product | Adhesive | Comment |
|---|---|--|
| Natural Fusion Highland Park Rhythms Urban Settings Starstep Candide II Memories Destinations Station Square Frontgate Progressions | Full Spread or Perimeter Bond (Armafelt Options): S-235, S-254 or S-224 | Seams—Double cut; prepare seams with S-585 Seam Cleaner* and apply S-570 Seam Coating using S-595 Seam Coating Kit for high-gloss patterns and S-564 Low-Gloss Seam Coating Kit for semi-gloss and low-gloss patterns. DO NOT use S-585 seam cleaner on Natural Fusion. |
| Initiator Enhancements Canyon Creek | Full Spread S-235, S-254 or S-224 | Seams—Double cut; prepare seams with S-585 Seam Cleaner and apply S-570 Seam Coating using S-595 Seam Coating Kit for high-gloss patterns and S-564 Low-Gloss Seam Coating Kit for semi-gloss and low-gloss patterns. |
| COMMISSION Plus | Full Spread S-235 or S-254 | Seams—Double cut; prepare seams with S-585 Seam Cleaner and apply S-570 Seam Coating using S-564 Low-Gloss Seam Coating Kit |

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 Residential Felt-Backed Installation System.

- Concrete
- Existing Resilient Floors
- Approved Suspended Wood
- Ceramic Tile, Terrazzo, Marble
- Polymeric Poured
(seamless) Floors
- 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 a minimum of 48 hours before starting the installation.

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

- 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 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 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. Bond tests must 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 9 on the pH scale.

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.

Adhesive Open Times and Trowel Notchings

| Adhesive | Porous | Nonporous |
|-------------------------|---|--|
| S-235 S-254 S-224 | Open Time: 0–20 minutes over wood or concrete Regular Notch: 1/16 (1.6 mm) deep, 1/16 (1.6 mm) wide, 3/32 (2.4 mm) apart | Open Time: 10–20 minutes over existing resilient flooring or other nonporous substrates Fine Notch: 1/32 (0.8 mm) deep, 1/16 (1.6 mm) wide, 5/64 (2 mm) apart |

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.

Procedure:

See Chapter VI, Adhesives, Trowel Notchings and Seam Treatments. See Adhesive Open Times and Trowel Notchings Chart above.

The sequence of when to cut seams and when to spread the adhesive will vary depending on the recommended seam-cutting method. See chart at the beginning of this Chapter and Chapter VIII, Seams. Generally, the seams of roto vinyl floors are double cut before the adhesive is applied under the seam area. Keep in mind the seam must be cut and rolled in place with a hand roller before the adhesive sets up.

Use S-235, S-254 or S-224 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.

Seams: Seams must be hand rolled and then rolled again with a 100-lb. roller. Give special attention to cleaning adhesive residue from seam areas as they must be clean and dry in order to proceed with seam treatments. When using S-570 Seam Coating, protect the seam from dust, debris and foot traffic. For seam coating, see Chapter VIII.

Seams of residential rotovinyls should be double-cut.

Flash Coving: See Chapter IX.

Perimeter Bond (Armafelt Options) Additional Procedures:

- Temperature recommendations are extremely important to the perimeter bond method.
- 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.
- 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.
- All fitting should be complete before spreading adhesive.
- Cut material slightly loose and away from walls wherever moulding or wall base will be used to cover the edge of the vinyl.

- Install material with a net fit against walls when not using moulding or against other stationary objects. Tight or compression fitting can cause buckles in unadhered areas.
- 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.**
- 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.
- All bonded areas should be thoroughly rolled with a hand roller.
- Staples may be used to fasten the material at the perimeter of the room over wood underlayments where a moulding 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).
- 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.
- 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.



VII

Layout and Fitting

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A. RESILIENT SHEET FLOORING

There are three general methods of fitting resilient sheet flooring into a room: freehand knifing, direct or straight scribing and pattern scribing.

1. Freehand Knifing

a. Precutting and Positioning

In freehand knifing, an oversized piece of material is taken into the room and fit while it is in place. This is the oldest type of fitting and is learned mostly by experience. Safety cuts keep the material from tearing.

Precut the pieces accurately. It is much easier to cut the pieces close to size in an area where you can lay them out flat. Generally, allow 1-1/2" for each end wall.

Move the material into the room. Use special care when handling material wider than 6'. It is easier to unroll rotovinyl flooring if it has first been rolled face in outside the room. Rolling or tubing material can make it easier to get into the room. If tubed, material should be face in.

You can often align the factory edge of the material with a straight wall. This saves fitting one wall and can also align the pattern of the material in the room.

b. Safety Cuts

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. There are four basic safety cuts: the curved or irregular-shaped wall, the inside corner, the outside corner and cutting completely around or on three sides of an object such as a toilet bowl or door trim.

The safety cut for an irregular wall is a vertical cut in the part of the material that flashes up the wall (Fig. 1). These cuts allow the material to be pushed down to the juncture of the wall and the floor and take the shape of the wall. They should not go so deep into the material that they show in the finished job. The excess material can then be trimmed away. Place the side of the knife against the wall to guide the cut and to prevent marking the wall.



Fig. 1

The inside corner safety cut is a diagonal cut across the material (Fig. 2) that allows it to be pushed down into the corner (Fig. 3). Do this in steps, checking the fit after each cut so you do not cut too much from the corner. Start the outside corner safety cut by pushing the material down to the juncture of the floor and the wall. Cut down along the corner to the floor (Fig. 4). Trim the material flat to the floor at the corner before the ends are pushed down (Fig. 5). Otherwise, a tear may occur at the corner.



Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6

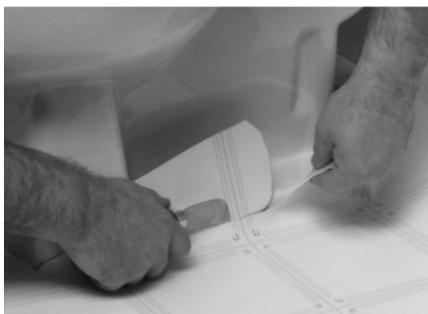


Fig. 7

To cut completely around or on three sides of an object, flash the material up the front of the object and push it in against the juncture of the floor and the object. Slit the material almost to the floor (Fig. 6). You can use a small crosscut at the bottom to keep this cut from tearing into the material. Work the material down to the floor, relieving any strain at pressure points by cutting the material flat to the floor at every place where pressure occurs (Fig. 7).

c. Door Trims

Door trims can be fit by slitting the material down the center of the door trim (Fig. 8), slitting the material to the floor at the pressure points (Fig. 9) and trimming the material to the door casing (Fig. 10). The side of the blade and not the point should ride against the trim.



Fig. 8



Fig. 9



Fig. 10

Freehand knifing is especially dependent on a sharp knife, such as the S-92 Knife, which is also ideal for finished cuts. The blade is rigid and hard enough to hold a good edge, yet flexible enough to bend against the wall when fitting. For sharpening, we recommend a Carborundum stone that does not need oil or water. Sharpen by pulling the knife onto the stone (Fig. 11). Here are a few points to keep in mind as you sharpen your knife:

1. Sharpen completely around the radius of the blade. This keeps the blade the same shape and does not wear off the point.
2. Keep the angle of the blade to the stone the same on both sides of the knife. This will keep the bevels the same on both sides of the blade.
3. Try to use a smooth motion as you sharpen.
4. When the point of the knife is broken, it is sometimes easier to use a three-cornered file to reshape the knife and a stone to put an edge on it.

d. Finish Fitting

After you have made all the safety cuts, pull back the material and spread the adhesive in one half of the room at a time. The adhesive should be under the material and rolled before the final cuts are made. Press the material down into place at the juncture of the objects and the floor. Make small cuts, working the material down to the floor. The spring in the knife blade will help you follow the contour of the object you are fitting (Fig. 12). With the side of the knife placed along the wall, use pressure to bend the blade of the knife so that it follows the object you are fitting. Do not try to cut off too much at one time. Do not exert too much pressure on the point of the knife down into the subfloor.



Fig. 11



Fig. 12

e. Strip Measuring

This method of fitting is very effective if the wall is straight or if trim or moulding is being used. Flash the material up the wall to be fit and pull the material back from the wall. Place a piece of scrap material of the same gauge with a squared end against the wall and under the material (Fig. 13). Then pull the scrap piece back against the material to be fit (Fig. 14). Place a mark at the end of the scrap piece. Remove the scrap and fold the piece back to the point where a straightedge can be laid on the marks (Fig. 15). There should be some additional allowance at the straightedge for the curvature of the material when the marks were made. Mark the material and cut. Be careful not to cut through the material into the flooring beneath.

The S-66 Wall Trimmer can be used for finish fitting of straight walls (Fig. 16). The wall trimmer is a quick and accurate way of fitting straight walls with one pass.



Fig. 13



Fig. 14



Fig. 15



Fig. 16



Fig. 17

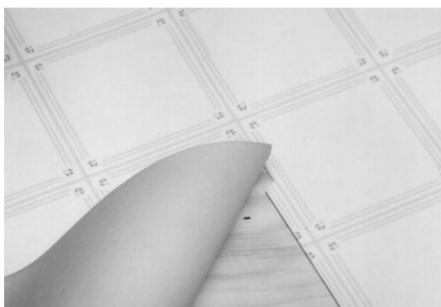


Fig. 18

f. Pattern Matching when Freehand Knifing

After the first piece of material has been fit, spread the adhesive to within 12 of the seam. After deciding the position of the seam in the pattern, cut small key marks using a straightedge (Fig. 17).

Along the proper edge of the second piece, cut small key marks at corresponding places in the pattern. Butt the key marks in the second piece to the key marks in the first piece, leaving the balance of the seam overlapped to be double cut later (Fig. 18). With the pattern matched, fit and spread adhesive on the second piece to within 12 of the seam. Double cut the seam (see VIII. C., Seam Cutting), spread adhesive on the area beneath and roll the seam into place.

Many materials that are fit by the freehand knifing method are also seam coated. Check individual product instructions for information concerning this procedure.

2. Direct or Straight Scribing

This type of fitting is used in areas where more than one piece of material is to be installed. With the material moved close to the wall to be fit, use dividers or a scribing bar to move the outline of the wall or object out onto the material. The legs of the dividers or the scribing bar must be held at a right angle to the edge of the material.

a. Three-Wall Scribe

In straight scribing, the usual procedure is to scribe three sides of the sheet, sliding the piece back and forth until it lies flat. This is called a three-wall scribe.



Fig. 19



Fig. 20



Fig. 21

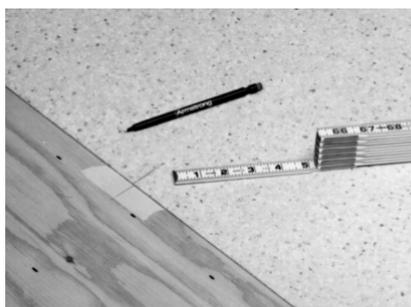


Fig. 22

Place the material in the room with both ends flashed up the wall and the length of the piece as close to the wall as possible. Place a pencil line on the wall and the material. Use these lines for proper placement of the cut material (Fig 19).

Using either dividers or the scribing bar, scribe the outline of the main wall onto the material (Fig. 20). The main wall is the one running the length of the piece of the material and is always scribed first. After scribing, move the material away from the wall and cut with a notched knife. This knife will cut cleaner when it is held at a slight angle. Always cut with the scrap piece on the same side as the hand you use to cut the material. This will slightly overcut the wear layer and produce a better fit at the wall.

After the piece is cut, move it into place against the main wall with the ends flashed up. Line up the pencil lines made in Fig. 19. Draw a line along the factory edge of the material when it is in place against the main wall (Fig. 21). This will keep the factory edge parallel to the wall when it is pulled back to scribe the end wall. Without this line, the material could become turned, causing an inaccurate scribe on the end wall. If you keep the factory edge on this line when it is pulled back from the end walls, the pieces will always be straight in the room. Draw a crossline on the material and on the subfloor at the factory edge (Fig. 22). These two lines should line up when the piece is in place. Now pull the piece of material away from the end wall until it lies flat.



Fig. 23



Fig. 24

With the factory edge on the line drawn along it, set the dividers to the difference between the two crosslines (Fig. 23). Scribe this amount from the end wall. Reverse the procedure for the other end wall using the same set of lines as those used for the first wall.

b. Pipes

When scribing a wall and a pipe at the same time, use offset lines for the sides of the pipe (Fig. 24). Extend these lines straight out from the sides of the pipe and squared to the edge of the material. Use the same scribe setting as the one for the wall and mark the front of the pipe between the offset lines. Swing a circle with the dividers, touching both offset lines and the scribe mark (Fig. 25). Cut a seam into the circle, and cut out the scribe line for the wall and a circle for the pipe (Fig. 26).



Fig. 25



Fig. 26



Fig. 27



Fig. 28



Fig. 29

c. Door Trims

Offset lines are also drawn on the material when scribing door trims (Fig. 27). A rough scribe can be used where the scribe is too long to be accurate (Fig. 28). After the rough scribe with the scribing bar, move the material closer and rescribe using the dividers for a more accurate fit (Fig. 29).

d. Pattern Matching when Direct or Straight Scribing

To install the second piece of a two-piece installation to be pattern matched, use the direct scribing method described under the three-wall scribe. The difference is you must make an allowance to get the proper match. After the first piece of the patterned material is fit into the room, straightedge the factory edge for the seam (Fig. 30). If there is a mortar



Fig. 30



Fig. 31



Fig. 32

line along the edge, trim the excess away to leave the mortar line on the edge slightly smaller than those in the field. Bring the second piece of material into the room. Put it in place with the edge overlapping the straight edge of the first piece and the other edge against the main wall. The overlap must be equal the entire length of the seam.

For instance, if the overlap is $2\frac{1}{8}$, move the material back until the overlap from the factory edge of the second piece to the straight edge of the first piece is a whole number—in this case, 3 (Fig. 31). This will be referred to as the equal overlap. With the second piece on match and equally overlapping the first piece and the ends of the second piece flashed up the end wall, you are ready to scribe the main wall (the one running the length of the material). To find the scribe setting for the main wall, subtract the amount of the selvage to be cut from the second piece at the seam from the equal overlap. Example: The equal overlap is 3 and the selvage as measured is $\frac{1}{4}$. The scribe setting should be $2\frac{3}{4}$. Scribing this amount from the main wall will allow a $\frac{1}{4}$ overlap (Fig. 32) at the seam when the second piece is scribed, cut and put in place. To scribe end walls, follow the steps under the Three-Wall Scribe Section.

3. Pattern Scribing

Pattern scribing is a method of fitting material in small or complicated areas. Using scribing felt or some other paper, the outlines of the room and the objects in it are moved a certain distance onto the felt paper. When this pattern is placed over the material to be installed, the lines are moved back the same distance.

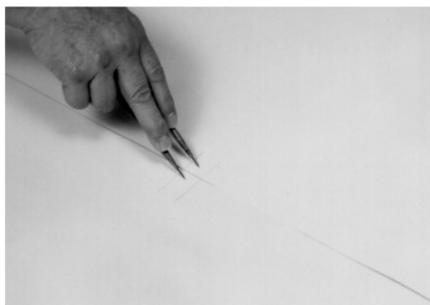


Fig. 33



Fig. 34

a. Knifing in the Felt

Cut the felt paper into the room using a straight-blade knife. It is not necessary to cut the paper very close to all the objects, but it should be within $1/4$. If more than one piece is used, butt the edges together. If the felt is bowed so that a butt seam cannot be achieved, overlap the two pieces and double cut a seam. After all the pieces are cut into place, cut triangular windows and secure with tape. Crosslines should also be scribed across the seams (Fig. 33). This will help in lining up the two pieces when they are moved to another area to transfer the scribe lines.

b. Scribing the Pattern

The same tools and settings must be used to transfer the scribe lines onto the material that were used to scribe them onto the felt. To insure this, put the setting of your dividers on the felt before you scribe (Fig. 34). Check this setting before the pattern is transferred.

After the felt is in place, scribe the pattern with dividers or a straightedge. Using the dividers and keeping the legs at right angles to the point you are scribing, move the outline of the walls onto the felt (Fig. 35). On straight walls, you can also use a straightedge or square (Fig. 36).



Fig. 35



Fig. 36

When you come to a door trim or some other offset, extend lines for all surfaces running parallel to the legs of the dividers (Fig. 37). These lines will later be extended from the pattern onto the material. Mark pipes by using a rule to move the sides of the pipes out onto the felt (Fig. 38).

When this is done on four sides of the pipe, there will be a square on the felt. When this felt pattern is placed over the material and these lines are moved back the width of the rule (Fig. 39), there will be a square on the material. Using dividers, swing a circle hitting all four sides of the square. The pipe will fit into that circle.



Fig. 37



Fig. 38



Fig. 39

c. Transferring the Pattern

Now that the lines of all objects in the room have been extended onto the felt pattern, lay out the material to be fit in a larger area that is clean, well-lighted and warm: a family room, garage, basement, etc. It is not a good idea to take the material outside unless it is a covered area which meets the proper temperature requirements. Driveways have stones that can punch holes in the material, and sometimes tar or asphalt can discolor it. Place the felt pattern over the material so that it is lying exactly as it was in the room.

The felt pattern must be aligned with the pattern in the material so that the longest wall will be parallel to the pattern in the material.

The crosslines you put across the seam will help you to line up the pieces of the pattern. Fasten the felt pattern to the material with tape at the triangular windows so it will not move. Now extend all of the lines from the felt pattern onto the material the same distance you extended them onto the felt pattern.

Fig. 40 shows the lines being transferred with the dividers and Fig. 41 shows the lines that were put on with the square being transferred.

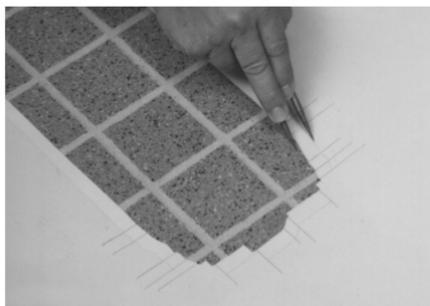


Fig. 40



Fig. 41

d. Cutting the Pattern

After you have moved all of the lines from the felt pattern to the material, you are ready to cut the material on your scribe or pencil lines. We recommend a notched-blade knife. It cuts through the material in one cut and does not cut the floor beneath (Fig. 42). Keep this in mind when you are selecting an area in the house for your pattern scribing. A good floor could be ruined if you cut into the floor beneath your material.



Fig. 42

e. Pattern Matching when Pattern Scribing

If the first piece of material is fit and adhered into place and the second piece must be pattern scribed, straightedge the first piece at the seam edge at the proper place in the pattern of the material. If the material has a grout line along the edge, reduce it to a width slightly smaller than those grout lines in the field of the material. This will allow the material to be seamed along the edge of the grout line. Next, cut the felt, butting it to the straight edge of the first piece of material, and scribe the room as usual. Then mark the pattern of the installed piece on the felt so you can place the felt over the second piece of material on corresponding pattern lines. There are several ways of doing this:



Fig. 43



Fig. 44

1. Extend pattern lines from the first piece of material onto the felt (Fig. 43). These lines can be used to place the felt over the same lines on the second piece of material and allow you to line up the pattern along the length of the material. Make an allowance to get the proper overlap of the second piece over the first piece when installed. This is necessary to allow some selvage to cut the seam and also to cut away enough material on the second piece to provide a proper match. Cut small key marks in the felt along the straightedged piece using a folding rule or bar if the felt does not butt very well to the edge of the material (Fig. 44). Use these key marks to locate the area where the seam is to be cut. You can use the edge of the felt for this purpose if it butts well to the straight edge of the first piece of material. When the felt is assembled over the material, use the lines and key marks to align the match and the overlap (Fig. 45).

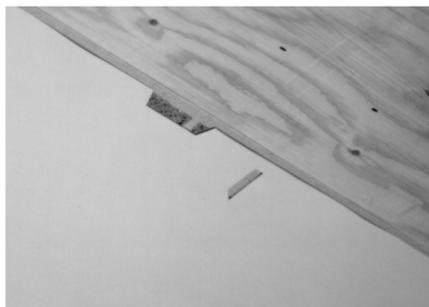


Fig. 45

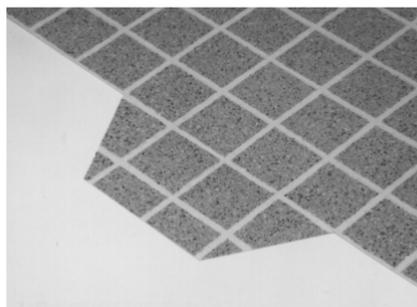


Fig. 46

2. Use a scrap piece of material to mark the match on the felt. Cut a scrap piece from the selvage that was left when the first piece of material was fit to the wall. It should correspond to the edge of the second piece of material that will be at the seam. Place this piece of material over the felt so that it matches the first piece of material that has been installed (Fig. 46). Cut the outline of this piece of material into the felt (Fig. 47).

Mark several areas along the seam. When the felt has been scribed, place the scrap template over the second piece of material so it is over the exact match (Fig. 48). Bring the felt pattern in against the scrap template until the cutout area fits around the template (Fig. 49). This should line up the end-to-end match and the overlap.



Fig. 47

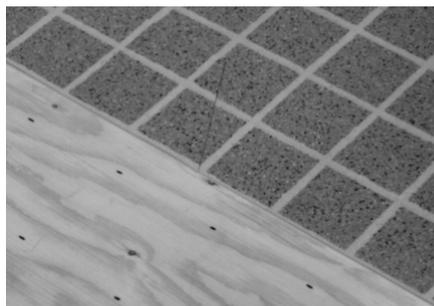


Fig. 48

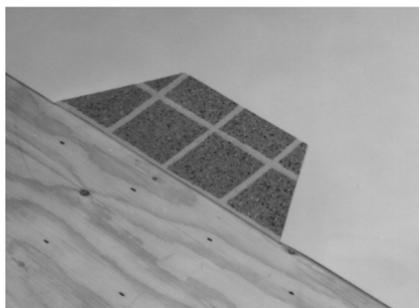


Fig. 49

f. Pattern Matching by Scribing Two Pieces at One Time

The easiest way to pattern match while pattern scribing is to lay out more than one piece at a time. The limiting factor is having enough room to lay out both pieces of material. Straightedge one piece of material for the seam and overlap the second piece to line up the pattern match.

Then tape the two pieces securely together. You can now pattern scribe the complete room and then place the felt pattern over the two pieces of material. Be sure the felt pattern is squared with the pattern of the material. Transfer the felt pattern to the material and cut it out. When the material is placed in the room, the seam area will match. You will be ready to cut the seam after you spread the adhesive.

B. RESILIENT TILE

1. Square Layout

Methods for laying out the room are the same for all kinds of resilient tile. However, there are two major types of patterns: designs laid on the square and designs laid on the diagonal. For either type of pattern, it is first necessary to center and square off the room. The basis for all resilient tile installations is careful layout.



VIII

Seams

VIII. Seams

A. PATTERN MATCHING

Our experience in the manufacturing of patterned material has shown that two closely related factors affect pattern matching. We package, ship and display our products in roll form. But, the composition of the materials may result in stretching of the wear layer and the patterns on it. This is caused by bending the material in the process of making rolls. Stress or stretching during roll-up will vary, depending on how tightly the material was rolled and the location of the individual laps within each roll. The bending stress is four times greater on the lap around a 3 core and two times greater on the lap around a 7 core than it is on the outer lap of a roll that is 12 in diameter.

Some products will experience more bending stress than others. The amount and type of wear layer, thickness of the backing and similar basic construction elements all affect the nature and degree of recovery from bending stresses that each product exhibits when unrolled and flattened out. Regardless of product type, there are several general rules installers should observe when dealing with any patterned material to minimize pattern matching problems. (Interflex material will be discussed separately.)

1. Cut materials from the roll on the day before the material is to be installed. This is important to the conditioning process and takes no longer than cutting it the day of the job. It may take a little reorganizing of the installer's time.
2. Mark the pieces 1, 2, 3 and so on as they are cut from the roll. This marking will keep the pieces in the right sequence and will allow the proper piece to be installed first. Place a piece of masking tape on the same side of each piece as they are cut. This piece of masking tape will identify one side as the trademark side.
3. Prematch the pieces in the shop if at all possible. Lay the pieces out in the order they will be installed and check if there is any pattern runoff. If there is not an acceptable match, turn the pieces around and check the match that way. If you start with the trademarked edge of piece #1 to the nontrademarked edge of piece #2 and the match is not acceptable, turn the pieces so the nontrademarked edge of piece #1 is matched to the trademarked edge of piece #2. It does not matter how the first piece is installed in the room, and if one way will provide a better match than the other, start that way. Of course, you have this option only before the first piece of material is installed. After the first piece is bonded in place, it is too late to try this procedure.
4. Roll all pieces face out into separate rolls having the same diameter. This begins the conditioning process. If all the pieces are rolled to the same size, the bending stress will be uniform and there will be less variation and runoff from piece to piece.

5. Install the pieces in the order in which they were cut from the roll (piece 1, 2, 3, etc.). Install the pieces from the outside of the roll first. If there is a runoff of the pattern, the second piece would be longer than the first piece. If this occurs, you can compress the second piece by rolling it face in for a short time to shrink the material. If the pieces are installed in reverse order and the second piece is running shorter than the first, there is no way to stretch the material. Rolling felt-backed materials face in may cause some seam edge curl. Interflex materials should not be rolled face in. See Pattern Matching Interflex Materials below.

By installing the material in the room with the shortest possible seams, you lessen the chance of pattern runoff. Most patterned material is recommended for residential installations where seams are not as long as those in commercial installations.

If you are using more than one roll on an installation, install the first pieces from both rolls, then the second pieces and so on.

Cutting patterned materials to exact measured pattern match without regard for the actual stretched match can result in pieces cut too short for matching. Always make job-length cuts on the basis of the length of actual matches in the material being installed rather than on the basis of factory-designated match lengths, such as 18 and 36. For instance, on a pattern with a factory-designated match of 18, the actual stretch match may be $18\text{-}1/16$. In a 12 length, this could accumulate to a total of $1/2$ difference between the measured factory-designated matches and the actual stretched matches. Factory-designated matches do not allow for stretching.

To review:

- Cut material the day before the job.
- Mark pieces 1, 2, 3, etc., as they are cut from the roll.
- Prematch in the shop. If match is off, turn all pieces around.
- Roll all pieces face out into separate rolls having the same diameter.
- Install pieces in the order they are cut from the roll (1, 2, 3, etc.). Install pieces from the outside of the roll first.

These steps will practically eliminate mismatch problems. Probably the most critical point is that the pieces be installed in the order they are cut from the roll. Installing pieces out of sequence may cause a pattern match problem.

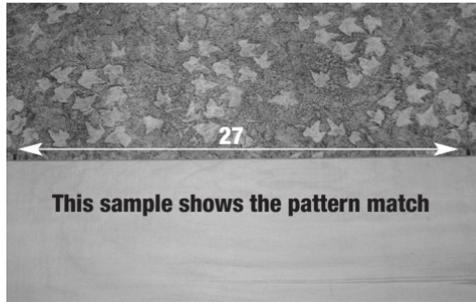
Pattern Matching Interflex Materials

1. Straightedge both pieces of material at seam edges as described under Seam Cutting Section.
2. Lay both pieces in place in the room with straightedged edges butted together.
3. Match the material in the center of the room.
4. If there is a pattern runoff, note which piece is running longer.
5. Fold back edges and spread adhesive for the seam.
 - a. Place the piece running longer into the adhesive first and roll into place with a hand roller.
 - b. Starting in the center of the room, stretch the shorter piece of material to match and roll into place with a hand roller.

B. PATTERN MATCH INDICATORS

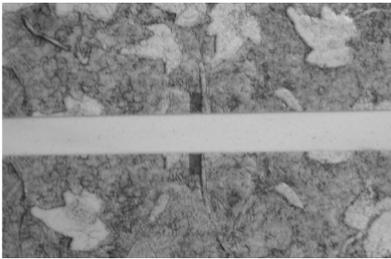
1. New pattern match indicators will be printed in the selvage edge of select sheet flooring patterns.

Certain non-geometric patterns, without grout lines, will have pattern match repeat indicators printed in the selvage edge. This will help workroom personnel and installers quickly locate the pattern repeat, cut sheet flooring accurately to take to jobs, line up the pattern at seams and locate the proper place to cut the seam. Non-geometric patterns without grout lines can make it difficult to determine what length to cut pieces to take to the job site, and on the job site often make it difficult for the installer to correctly align the pattern at a seam. The pattern match indicators take the guesswork out of these steps, save time in the installation process and allow for the best possible pattern match at the seams.



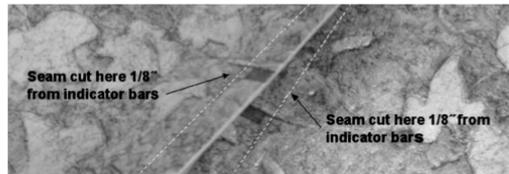
Urban Settings Cottington

The indicators appear as small bars, 1/4 wide and approximately 1/2 in length, and occur along both factory edges of 12-foot wide material. The bars are printed with the darkest ink used in each of the pattern colorations and appear as a flat embossed mark that can help to locate the indicator in overall dark patterns.



2. Here's how to use the pattern match indicators when matching and cutting seams.

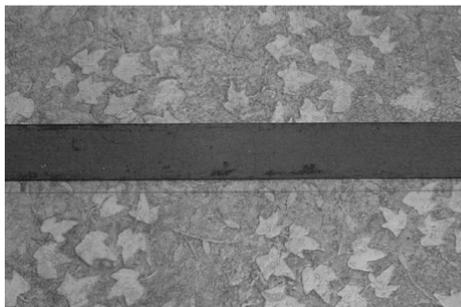
The pattern match indicators do not change the standard good practices that should be followed when installing multiple pieces of flooring, such as rolling each piece individually on the same size core to take to the job site, installing pieces #1, #2, #3 consecutively as they came off the customer roll, etc. Most residential sheet patterns are designed to be installed trademark edge to non-trademark edge (do not reverse pieces).



The pattern match indicator will be cut off along with the rest of the selvage edge when the seam is cut properly. The exact location for cutting the seam is 1/8 into the pattern from the end of the indicator bar. This means, when double cutting a seam, you will overlap the trademarked edge of piece #2 on top of the non-trademarked edge of piece #1 so that:

- a. The match indicators are aligned across the seam
- b. The inside end of the top indicator on piece #2 overlaps the inside end of the bottom indicator on piece #1 by 1/4 .

The indicator bars are 1/4 wide. This will provide a visual reference for judging when you have the correct amount of overlap of the two pieces. You will also be able to quickly reference the other design elements at this point to ensure correct overlap. If there is some minor runoff in the machine direction, balance it in the center of the seam or in the most conspicuous location.



Position a straightedge 1/8 away from the end of the indicators on the top piece and cut your seam. If positioned properly, this seam cut will also be 1/8 away from the end of the indicator on the bottom piece. Both top and bottom seam match indicators will be removed along with an additional 1/8 of pattern along both sides of the seam.



For those installers who straightedge and butt seams, the straightedge should be positioned so that the cut is made 1/8 away from the end of the pattern match indicator on both sides of the seam. This will assure proper match at the seam.

Please keep in mind that the pattern match indicators need to be removed by the installer during the installation and seaming process.

If a factory edge of the sheet is butted along a straight wall to start the job, be sure that wall base or mouldings will cover the indicators so they are not visible in the finished installation. Armstrong plans to extend this installation aid to other new patterns as appropriate.

C. SEAM CUTTING

Seam cutting is one of the most important aspects of flooring installation. It is relatively easy to repair miscuts when fitting most materials, but it is almost impossible to repair a miscut on a seam and make it look like a well-cut seam.

There are three ways to cut seams: double-cut, recess scribe or underscribe, and straightedge and butt.

Cut both pieces of material at seam edges, allowing enough of the pattern on each piece to maintain the proper size grout line at the seam. Cross section #1 shows the proper placement of a seam in material with an embossed grout line. Cross section #2 shows the incorrect placement (Fig. 1).

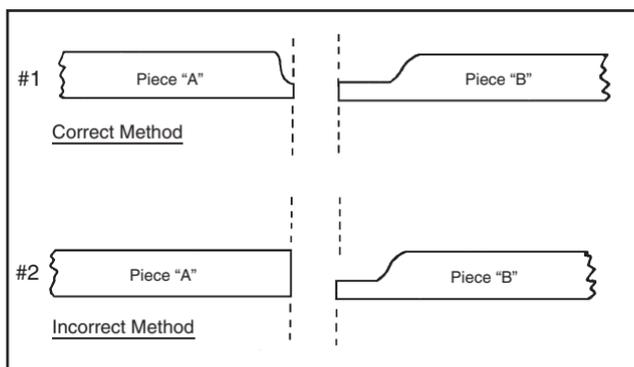


Fig. 1

1. Double-Cut Seams

Double-cut seams are generally used on heterogeneous products and felt-backed rotovinyl materials. These are materials which can be cut through two thicknesses in one cut. Install the first piece and bring the second piece into place in the room. It is best if the first piece has adhesive spread under the half along the wall to keep it in place. The seams will be cut dry (without adhesive under them), so the area approximately one or two feet back from the seams will not be spread with adhesive. The second piece is overlapped to the first one at the factory edge. If you are installing patterned goods, the overlap must be the correct amount so the pattern will match (Fig. 2). Now secure the second piece by spreading adhesive under the half along the wall.



Fig. 2

Place a 2- or 3-wide piece of scrap under the seam area before the seam is cut. It will save the point of the knife when you cut through the two pieces of material and it will also produce a slight fullness to the seam. This is important because when the two edges are pulled back to finish spreading adhesive under the seam, the face can be compressed, causing the edges to be slightly apart when placed back in the adhesive. After the scrap

piece is in place, put the straightedge in place at the area where you want to cut the seam and cut through both pieces in one cut. Hold the knife straight up and down. If you are right-handed, the scrap piece you are cutting off the top should be on your right-hand side. After the adhesive is spread, roll the seam into place. After hand rolling seams in place, roll again with a 100-lb. roller. Apply seam treatments as recommended for the product being installed.

2. Recess Scribe or Underscribe Seams

This method is recommended for heavier materials which are not easy to cut through in one cut. Recess scribing is the easiest way to cut seams if the installer can cut a good, straight edge on the first piece, has set his underscriber correctly, has a sharp knife and can cut on the score line. After fitting the first piece in the room, it should be straightedged with a sharp knife. Hold the knife straight up and down. Keep the scrap on the same side as the hand you are cutting with. Nonpatterned materials may also be trimmed using the S-33 Edge Trimmer (Fig. 3) or by cutting at least 1/4" off the factory edge. On patterned material, remove the proper selvage using a straightedge and sharp knife.

Fit the second piece of material and obtain proper overlap. With the second piece overlapping the first straightedged piece, insert the recess scriber (Fig. 4). If the scriber is set correctly, the knob on the bottom will follow the straightedged piece, and the pin that is set over the back edge of the knob will mark the top piece directly over the straight edge (Fig. 5).



Fig. 3

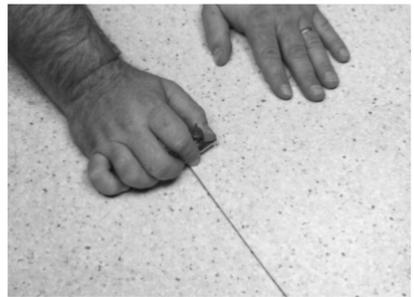


Fig. 4

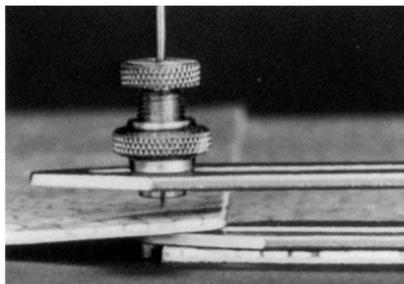


Fig. 5



Fig. 6

Insert a piece of scrap material face down beneath the scribe mark. Cut the seam using a straight-blade knife (Fig. 6). Hold the knife straight up and down. Keep the scrap on the same side as the hand you are cutting with. These seams must be cut with the adhesive spread beneath them. One advantage of recess scribing is that you have to spread adhesive only one time. The seam must be cut before the adhesive sets up. The seam edges should lay together with no fullness. They should not have to be forced into place.

After the seam is rolled into place with a hand roller, remove the burr or rough edge (Fig. 7). This burr comes from the recess scriber when the seam is scribed. After the piece is in place, use the back of the S-92 Knife to skive off the burr (Fig. 8). Or, before putting the second piece of flooring in place, hold a small piece of #320 sandpaper at an angle to the cut edge. Move lightly back and forth to remove the burr. After hand rolling seams in place, roll again with a 100-lb. roller.



Fig. 7



Fig. 8

3. Straightedge and Butt Seams

Use the straightedge and butt method to cut seams in Interflex products only. The best place to cut the seam is near the edge of the grout line. Straightedge the first piece so that the grout line is 1/16 more narrow than it should be (Fig. 9). To pick up the match, place the straightedged piece of material over the second piece and align it so the pattern matches. Slide your metal straightedge against the straightedged piece of material. When you lift the straightedged piece of material, the metal straightedge is in the exact place it should be to cut the second piece (Fig. 10). Seams in Interflex products should be adhered in place before the perimeter is fastened.



Fig. 9



Fig. 10

D. SEAM COATING FOR RESIDENTIAL HIGH GLOSS SHEET FLOORING PATTERNS

1. Materials Needed



FLAMMABLE MIXTURE
HARMFUL OR FATAL IF SWALLOWED
VAPOR HARMFUL
EYE AND SKIN IRRITANT

S-595 Seam Coating Kit which includes:

- S-570 Seam Coating
- S-585 Seam Cleaner
- S-591 Seam Coating Accelerator and Accessories
- White Felt Cleaning Pads

Or S-596 Seam Coating Kit without accelerator

2. Preparing the Seam

- a. After the flooring has been installed and the seams are firmly bonded and rolled, clean dirt and adhesive residue from the seam area using a clean white cloth dampened with detergent and water. Avoid the use of solvents as they may contribute to staining at the seam area. Be sure seam and surrounding area are completely dry before beginning the seam coating procedure.
- b. Apply a small amount of S-585 Seam Cleaner to a clean white felt pad. Using moderate pressure, rub the seam evenly using a series of 7 or 8 back-and-forth passes for each section. Hold the pad so that a strip approximately 3/4 wide, centered over the seam, is treated. Apply additional S-585 to the pad as needed, turning the pad when necessary. **Treat entire seam to ensure good bonding. DO NOT use S-585 when installing Natural Fusions or CushionStep.**
- c. Remove most of the S-585 with a clean white cloth. Allow remaining residue to dry at least 5 minutes until a white haze appears.
- d. After S-585 is completely dry, use a new dry, clean white cloth to remove all traces of seam cleaner.

NOTE: With dark patterns, be sure to remove all white residue from the seam before coating. Any residue in the seam will be more visible after the coating dries. A soft-bristled brush, such as a toothbrush, may be used for this purpose.

3. Mixing Coating With Accelerator

- a. Only a small amount of accelerator is needed to speed the cure of S-570 Seam Coating. Each applicator bottle contains enough S-591 accelerator to mix with one fluid ounce of S-570. The entire contents of both bottles must be mixed together to get the proper cure. After mixing the two components in the applicator bottle, the coating is usable for approximately 60 minutes.
- b. Mix components over scrap material or newspaper to protect from spills. Gently shake container of S-570 for approximately 5 seconds. Pour S-570 into the applicator bottle containing the S-591 Accelerator until half full. Replace cap and vigorously shake to mix components.

Remove cap, fill applicator to the shoulder of the bottle with S-570, recap and shake again to complete mixing.

- c. Keep S-570 container closed when not in use.

NOTE: DO NOT mix accelerator, or accelerated S-570, with fresh S-570 in original container. This will cause the whole can of S-570 to cure rapidly.

4. Applying Coating to Seams

- a. Carefully cut approximately 1/32" from the tip of the applicator nozzle.
- b. 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 nozzle into seam.** Apply narrow bead of coating centered on top of the seam (Fig. 11).
- c. You may find it helpful to guide the applicator along a straightedge. Position a clean straightedge at least 1/4" away from and parallel to the seam. Then, resting the side of the applicator nozzle on the straightedge, apply a 1/8" wide uniform bead of coating on top of the seam (Fig. 11). Avoid getting the straightedge in contact with the coating. Be sure it is completely clean before repositioning it further down the seam.

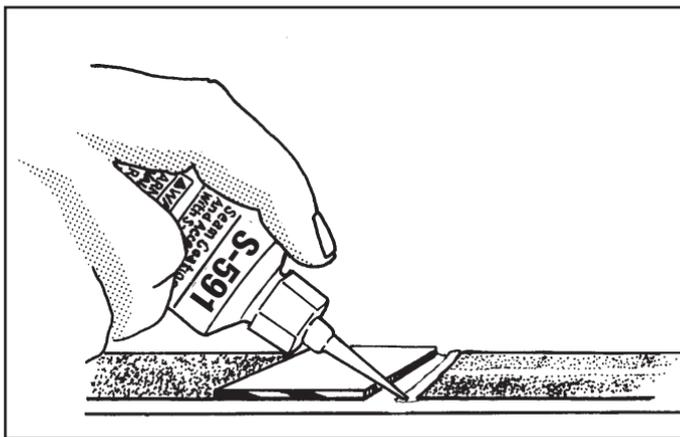


Fig. 11

- d. Accelerated S-570 cures within 2 hours (within 12 hours without accelerator), so use of protective covers may not be needed. If coated seams are covered, **be sure that protective covers do not touch the seam coating.** Cardboard cores from rolls of sheet goods make excellent protective covers when cut in half lengthwise to form a "tunnel." Place protective covers over the seam areas and secure in place with paper masking tape.
- e. When finished coating seams, find a safe place to remove nozzle and allow contents of applicator bottle to set up. Dispose of solidified materials in accordance with applicable federal, state and local waste disposal regulations.

E. SEAM COATING FOR RESIDENTIAL LOW GLOSS, ULTRA LOW GLOSS AND SEMI GLOSS SHEET FLOORING PATTERNS

1. Materials Needed



FLAMMABLE MIXTURE
HARMFUL OR FATAL IF SWALLOWED
VAPOR HARMFUL
EYE AND SKIN IRRITANT

S-564 Low Gloss Seam Coating Kit which includes:

- S-570 Seam Coating
- S-585 Seam Cleaner
- S-593 Seam Coating Deglosser
- Seam Coating Applicator and Nozzle
- Felt Cleaning Pads

2. Preparing the Seam

- a. After the flooring has been installed and the seams are firmly bonded and rolled, clean adhesive residue from the seam area using a clean, white cloth dampened with detergent and water. Avoid the use of solvents as they may contribute to staining at the seam area. Be sure seam and surrounding area are dry before beginning the seam coating procedure.
- b. Apply a small amount of S-585 Seam Cleaner to a clean white felt pad. Using moderate pressure, rub the seam evenly using a series of 7 or 8 back-and-forth passes for each section. Hold the pad so that a strip approximately 3/4 wide, centered over the seam, is treated. Apply additional S-585 Seam Cleaner to the pad as needed, turning the pad when necessary. **Treat entire seam to ensure good bonding. DO NOT use S-585 when installing Natural Fusions or CushionStep.**
- c. Remove most of the S-585 with a clean white cloth. Allow remaining residue to dry at least 5 minutes until a white haze appears.
- d. After seam cleaner is completely dry, use a new dry, clean white cloth to remove all traces of seam cleaner.

NOTE: With dark patterns, be sure to remove all white residue from the seam before coating. Any residue in the seam will be more visible after the coating dries. A soft-bristled brush, such as a toothbrush, may be used for this purpose.

3. Mixing Coating with Deglosser

- a. Mix components over scrap material or newspaper to protect from spills. Gently shake container of S-570 for approximately 5 seconds. Pour one-half of the S-570 into the clear glass mixing bottle containing the S-593 Deglosser. Replace cap and vigorously shake for 1–2 minutes to mix components. Remove cap, fill mixing bottle with S-570 (S-570 bottle should be empty), recap, and shake again to complete mixing. You must mix the **entire** contents of the S-570 bottle with the S-593 Deglosser to obtain a consistent gloss level.
- b. After thoroughly mixing the two components, pour the coating into the applicator bottle and attach the applicator nozzle. The deglossed coating is usable for approximately 90 minutes.

4. Applying Coating to Seams

- a. Carefully cut **no more than 1/32** from the tip of the applicator nozzle and attach it to the S-593 bottle.
- b. 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 nozzle into seam.** Apply narrow bead of coating centered on top of the seam (Fig. 11).
- c. Deglossed S-570 cures within 2–3 hours, so use of protective covers may not be needed. If coated seams are covered **be sure that protective covers do not touch the seam coating.** Cardboard cores from vinyl sheet flooring make excellent protective covers when cut in half lengthwise to form a “tunnel.” Place protective covers over the seam areas and secure in place with paper masking tape.
- d. When finished coating seams, find a safe place to remove nozzle and allow contents of applicator bottle to set up. Dispose of solidified materials in accordance with applicable federal, state and local waste disposal regulations.

F. REPAIRING COATED SEAMS

1. If dirt gets into the **wet** seam coating within the first minute of applying the coating or if drops of coating fall on the flooring other than at the seam, they can be wiped up immediately with a clean, white cloth dampened with lighter fluid (naphtha).
2. If dirt gets into partially dried seam coating or if dirt is not detected right away, wait until coating has cured. Then using fine sandpaper, carefully remove the dirty portions of seam coating and recoat the affected area using the applicator bottle or a cotton swab to apply the S-570.

G. S-553 SEAL AND WIPE PROCEDURE FOR TRANSLATIONS, PERSPECTIVES AND TIMBERLINE SHEET FLOORING

1. Cut seams net. **DO NOT** cut seams too tight as it will be difficult to seal the seams properly.
2. Roll with a hand roller and then with a 100-lb. roller.
3. Clean seams with a cloth dampened with a neutral detergent and water and allow to dry.
4. Fill the S-571 needle-tip applicator bottle one-half full with S-553 Seam Sealing Adhesive and firmly attach the applicator head.
5. Insert the needle of the S-571 applicator into the seam. While pulling the applicator slowly towards you, lightly squeeze the applicator to allow the S-553 to flow down into the seam depositing a 1/8 to 1/4 bead on the flooring surface.
6. Remove all residue of S-553 from the surface of the seam within 3 to 5 minutes using a clean white cloth dampened lightly with mineral spirits.
7. When using mineral spirits, read and follow warning statements on the container.