IV. SEAMING OF RESILIENT SHEET FLOORING PRODUCTS

A. MATCHING DESIGNED FLOORS FOR SEAMING

There are two methods of matching designs for seaming within the Congoleum product line. They are:

1. METHOD 1 — REVERSE SHEETS

Reversing sheets means that seams are made by utilizing the same side (selvage) of the sheet.

- Many designs in the Congoleum resilient sheet flooring line will be seamed by the reverse sheet method. In order to assure a proper design match, Congoleum prints matching information in the selvage. Designs requiring sheet reversal will have I's imprinted at intervals in one selvage where the design repeats; there will be C's on most opposite edges. In addition to the I and C reference marks, the words "Reverse Sheets" will also be printed at intervals.
- Reverse the sheets of flooring material to be seamed and align I to I, or C to C (Figure 8). When the I's or C's are placed together and the selvages overlapped, the design will be accurately aligned at its match points.

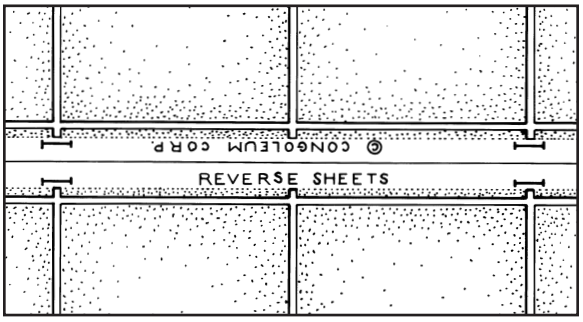

Fig. 8. Align C to C or I to I for design match points on Reverse Sheets designs.

2. METHOD 2 — DO-NOT-REVERSE SHEETS

- Some designs, because of their configuration, will not allow sheets to be reversed for seaming. In these cases, "Do-Not-Reverse" has been imprinted in the selvages; opposite sides of the sheet are utilized for seaming.
- Most designs will have an arrow imprinted in each selvage that, when aligned, is the design match point (Figure 9).

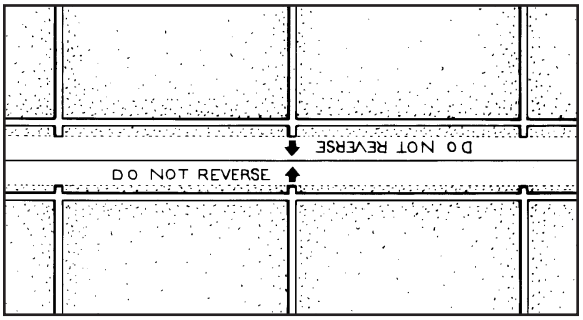

Fig. 9. Example of selvage imprinted with Do-Not-Reverse and arrow for design match point.

B. CALCULATING ADDITIONAL MATERIAL TO ACQUIRE A DESIGN MATCH AT SEAMS

Additional flooring material is required to match designs at seams on other than the first sheet installed. The amount of material required will vary, depending on the design, and whether the specification is for Reverse Sheets or Do-Not-Reverse Sheets for seaming. Use the following guidelines to estimate the additional material needed to match designs at seams:

1. REVERSE SHEETS SPECIFICATION

- When a design which specifies sheet reversal at seams is being installed, the length of the first sheet should be calculated by adding 3″ (7.6cm) to the net size required. **NOTE:** On some design types it may be desirable to add more than 3″ (7.6cm) so that the design can be centered in the room.
- The second and succeeding sheets should have the length of the design match added to the size required for the room.

  Example: The room size is 12′ x 13′9″, the material is 6′ wide and the design match is 18″. The first sheet should be 6′ x 14′ long (13′9″ + 3″). The second sheet should be 15′3″ long (13′9″ + 18″ for the match).

2. DO-NOT-REVERSE SHEETS SPECIFICATION

- Designs which specify non-reversal of sheets for seaming should be calculated by adding 3″ (7.6cm) for fitting to the net size required for the first sheet.
- The second and successive sheets should be calculated by going to the next multiple of the design match over the net size required.

  Example 1: The room size is 12′ x 13′9″, the material is 6′ wide, and the design match is 18″. The first sheet should be 14′ long (13′9″ + 3″). The second sheet should be 15′0″ long. **NOTE:** The next lower multiple of the design match is 13′6″ which is too short. Therefore, an additional design must be added to extend the length past 13′9″ which makes the length required 15′0″.

  Example 2: The room size is 12′ x 12′2″, the material is 6′ wide and the design match is 18″. The first sheet should be 12′5″ long (12′2″ + 3″). The second sheet should be 13′6″ long. **NOTE:** The next lower multiple of the design repeat is 12′, which is too short. An additional design match must be added to extend the length past 12′2″ which makes the length required 13′6″.

C. MINIMIZING DESIGN MATCH RUN-OUT

It is not unusual to experience minor design run-out when 2 or more sheets are laid together for seaming. The longer the sheet, the more pronounced the run-out can be. Design run-out can normally be brought completely onto match, or minimized to the extent that it is unnoticeable. Most designs have been created to allow some matching tolerance at seams.

The procedure for bringing the design onto match varies by product construction as follows:

- It is important that the sheets are installed on the subfloor in the sequence that they are cut from the roll.

- The length of the design repeat on the sheet cut from the outer laps of the roll could be slightly shorter than the design repeat on the sequential sheet(s).
- Reverse rolling (roll with backing out) the longest sheet (the second sheet cut off the roll) will relax the tension on the wearlayer from having been rolled in a smaller diameter than the first sheet, and bring the design onto match (note that the flooring should not be allowed to remain rolled face-in for more than 10 minutes because it will cause the edges to curl).
- If the sheet with the longest repeat is installed first (second piece cut off) and the next sheet to be installed is running short (first piece cut off) in design repeat, there is little that can be done to correct the situation.
- Some benefit is obtainable by rolling the sheet with the short match very tightly into a small diameter with the wearlayer out.

Other steps which are beneficial for bringing designs onto match are:

- Cut the individual sheets in advance of the installation and lay them out in a work area matched as they will be installed on the job. Roll all sheets with the wear surface out into the same size diameter for storage and transporting to the job site. Install the sheets as they were taken from the roll. Since the sheets were prematched, little run-out should occur. Any minor adjustments can be corrected by reverse rolling the sheets with the design match running long.
- Start matching in the center of the seam. Allow any run-out to be distributed to each end of the seam.

D. SEAMING METHODS

Seaming of Congoleum resilient sheet floors will vary by product construction. Two methods are recommended:

- Overlap and Double Cut
- Recess Scribe

See the "Installation Systems" chart on page 10 for seaming methods, seam sealers and seam sealing application by product.

1. GENERAL INFORMATION

The following is seam placement and other seaming procedures that should be followed to produce trouble-free seams in Congoleum resilient sheet products:

- Place seams in the least conspicuous and least used areas in the room, whenever possible.
- Seams will be less conspicuous if placed (whenever possible) perpendicular to the normal flow of foot traffic.
- When an existing resilient sheet floor is being covered over, run seams perpendicular to those in the existing floor. If not practical or possible, seams in the new floor should be at least 6" (15.2cm) from those in the existing floor.
- When covering over an existing tile floor, place seams of the new resilient sheet floor near the center point of a row of tile (Figure 10).

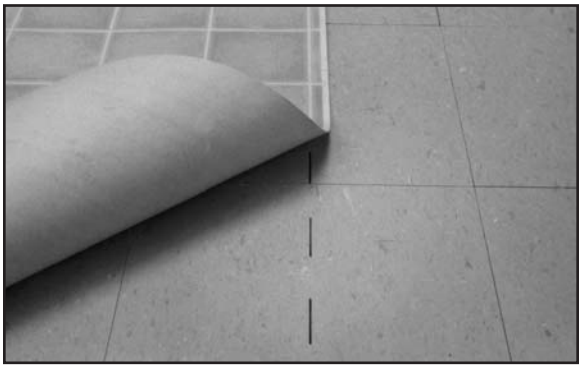

Fig. 10. On old tile floor, position seams in the middle of a row of tile.

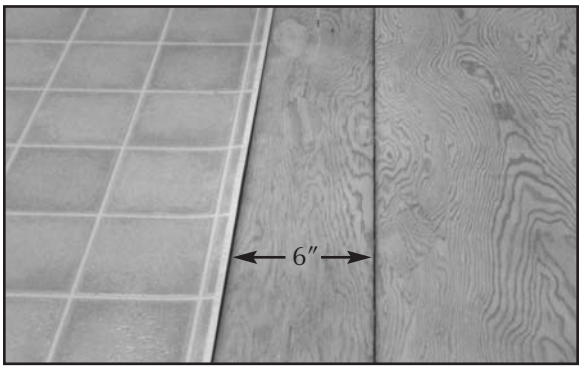

Fig. 11. Flooring seams must be at least 6" (15.2cm) from underlayment joints.

- Seams should be placed a minimum of 6" (15.2cm) from underlayment joints (Figure 11).
- On large installations where more than one roll of material is required, precautions should be taken to assure a color match at seams between rolls. In order to do this, it is necessary that the rolls be from the same production run. Additionally, the register number of the rolls should be in sequence.

  Each roll has a register number which will be found on the label affixed to the roll wrapper. Follow these guidelines to obtain the best color match between rolls:

  – All numbers (or letters) preceding the last three digits must be identical on rolls to be used for the same job. An example of a register number is **26100125**.
  – If two or more rolls are required on a job, ideally, they should be in numerical sequence as they were packed. In this case, the register numbers would be **26100125** and **26100126**. The last three numbers always tell the packing sequence.
  – If rolls in exact sequence are not available, the recommended tolerance should be no more than 10 digits between rolls. As an example, it is permissible to use two rolls numbered **26100125** and **26100135**.

- If several rolls are used on the same job, the first roll used should either be the highest or lowest number. The next roll and succeeding rolls used should be the closest number to the preceding roll.
- As a final precaution regarding color match, visually check the flooring before installing.

- When seaming designs with embossed mortar or grout lines wider than 5/32″ (4.0mm), the seam should be cut in the center of the embossed line as in Figure 12.
- On designs with narrow embossed lines, 5/32″ (4.0mm) or less, cut the seam along the top edge or shoulder of the embossing. Leave the embossed line on the top sheet when cutting the seam and completely remove it from the bottom sheet (Figure 13).

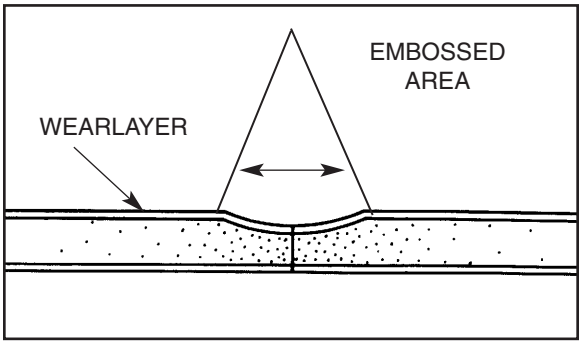

Fig. 12. Cut seam in middle of embossed mortar or grout joint.

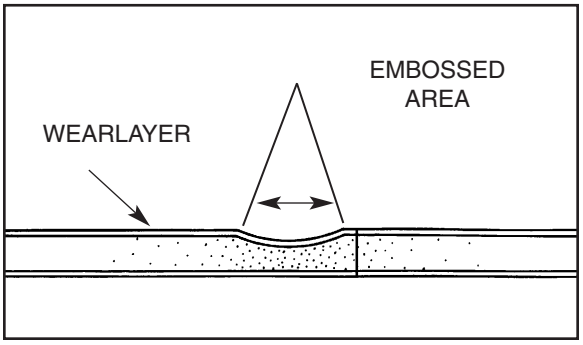

Fig. 13. Cut seam on top edge of embossed area.

- Another area for seam cutting is in the land area about 1/8″ (3.2mm) from the edge of embossed mortar lines or grout joints as in Figure 14. This method will be necessary for seaming 6′ wide flooring slit from 12′ materials where there is only one selvage edge and more than one seam is required. This seaming method may also be utilized on designs with thin embossed lines 5/32″ (4.0mm) or less in width.
- **Note Figure 15 — Cutting the seam in the fashion pictured here is NOT RECOMMENDED because the wearlayers do not meet, creating a high/low condition and a weak seam sealer weld. The potential for seam openings is high.**

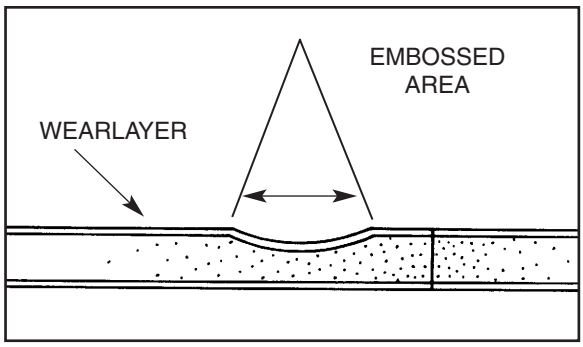

Fig. 14. Seam 1/8″ (3.2mm) from edge of mortar line or grout joint in land area of design.

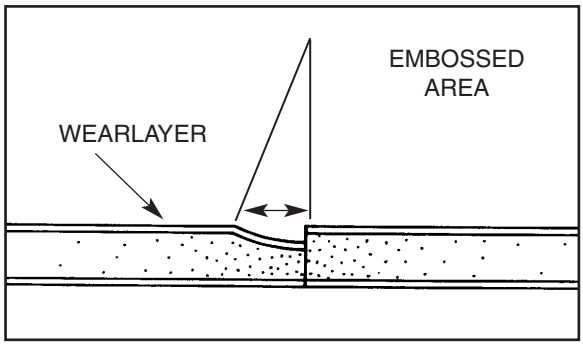

Fig. 15. Unsatisfactory seaming method; wearlayers do not meet.

- **A shade and texture variance may occur when seaming other than factory selvage edges; therefore, it is advisable to prematch the sheets by laying them out together to determine if shade and texture are consistent before starting the job.**

2. OVERLAP AND DOUBLE CUT SEAMING PROCEDURE

This method of seam cutting is recommended for cutting seams in White Shield felt-backed products except Specifications and Foundations (see chart on page 10).

- FITTING AND ADHERING SHEETS

• After determining the best placement of seams in the room, mark the subfloor with a graphite pencil where each seam will fall. Then, snap parallel chalk lines (use white chalk) on either side approximately 12″ (30.5cm) from the seam location; these will act as guides for adhesive spreading (Figure 16).

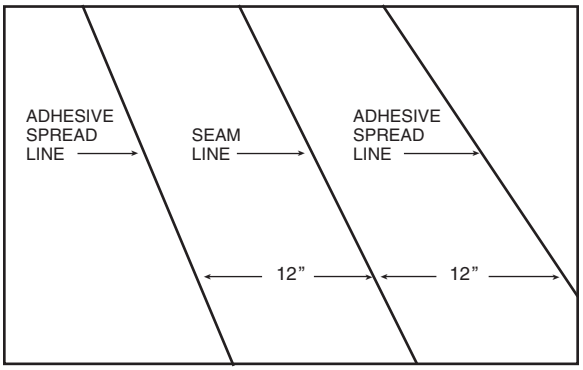

Fig. 16. Outside lines are a guide for adhesive spreading.

- Start by fitting the first sheet to the room. After fitting is complete, lap one-half the sheet back and spread the recommended adhesive on the subfloor to the first chalk line leaving a dry zone at the seam edge (Figure 17).
- Place the flooring into the wet adhesive and roll in both directions with a 100-pound (45 kilogram) floor covering roller. **NOTE:** If long sheets are being installed, the adhesive should be covered intermittently with the floor covering and rolled in both directions with the floor covering roller.
- Position the next sheet to match the design (if required); follow the guidelines on page 15 to correct any design run-out. Many designs will have embossed lines or mortar joints where the seam will be made. It is imperative that the top sheet be aligned precisely with respect to the bottom sheet in order to acquire the proper width of the mortar joint or line after the seam is cut.

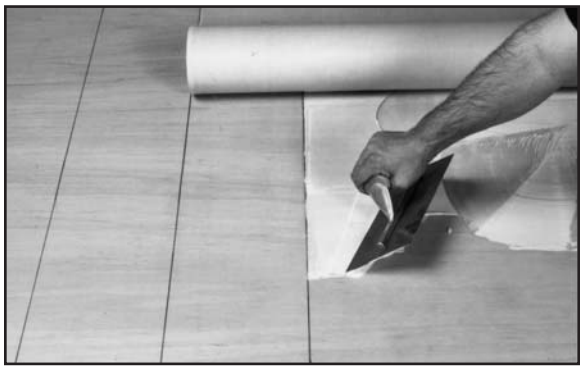

Fig. 17. Spread adhesive to first line.

- One method for determining the correct width is to make a notch in the selvage approximately every 6′ (1.8 meters) as illustrated in Figure 18. The notch should be made no deeper into the selvage than the outer edge of the mortar joint or line. The notch will then allow for a visual alignment. Use this method of determining width of mortar and grout joints only if you will be seaming in the middle of the embossed area (most designs).

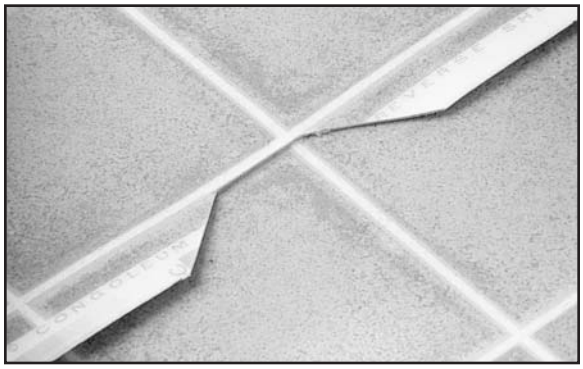

Fig. 18. Cut notch every 6′ (1.8 meters) in selvage.

- Another method for determining the proper width of the mortar joint or line is to carefully determine the width (match) of a design unit in the body of the sheet. Then double the dimension to measure the distance between two design units at the seam line (one design unit on each side of the seam). This should be done about every 6′ (1.8 meters) throughout the length of the seam.
- After the design at the seam has been accurately matched and the flooring fitted to the room, adhere and roll the second sheet the same way as the first. There is now a 2′ (61cm) wide dry zone (unadhered area) below the seam, which is now ready to be cut.

■ CUTTING SEAMS — A utility knife should be used for cutting seams in White Shield backed products.

- Always use a new blade to cut seams.
- Place a scrap of flooring material 2″ (5.1cm) to 3″ (7.6cm) wide, face down, in the dry zone centered under the seam (Figure 19). This will add slight fullness to the seam cut and help prevent damage to the subfloor below.

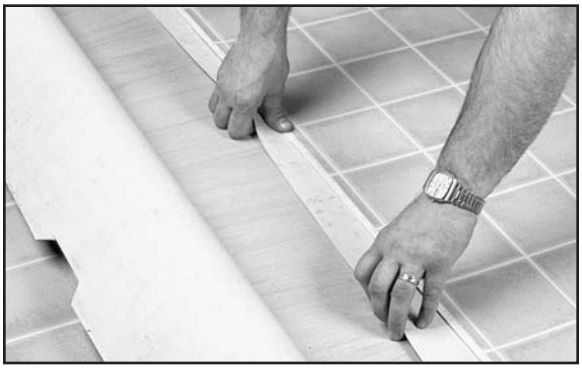

Fig. 19. Place a 2″ (5.1cm) to 3″ (7.6cm) scrap strip of flooring, face side down, centered under the seam.

- Use a steel straightedge at the seam line to guide the utility knife.
- Hold the knife straight up on a 90° angle and apply sufficient pressure to cut through both sheets of flooring in a single cut (Figure 20). A second pass with the knife may be required to cut through both layers when seaming Designer Inlaid because of its hard inlaid wearlayer. In this case, apply sufficient pressure on the first pass to cut through the top sheet and half way through the bottom sheet. Without moving the straightedge, make the second pass precisely following the previous cut to complete the seam.

  DO NOT USE THE STRAIGHTEDGE AND BUTT METHOD FOR SEAMING CONGOLEUM WHITE SHIELD FLOORS. THIS METHOD IS KNOWN TO CONTRIBUTE TO SEAM OPENINGS ON FELT-BACKED FLOORS.

■ ADHERING THE SEAM AREA

- After cutting the seam, remove the scrap cut-off pieces.
- Lap the flooring back to expose the dry zone, avoiding a sharp crease at the adhesive line.

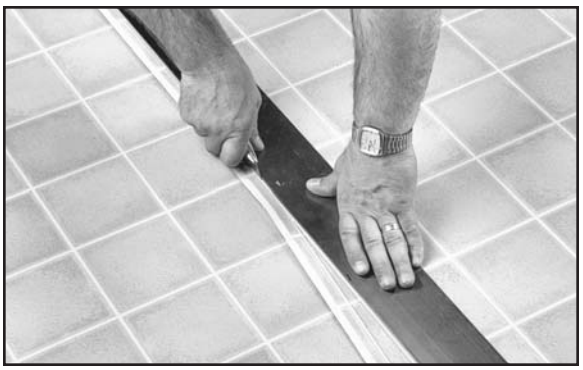

Fig. 20. Hold utility knife on 90° angle and apply sufficient pressure to cut through both layers of flooring material.

- Spread adhesive on the subfloor in the dry zone with the recommended trowel being careful not to overlap previously applied adhesive (Figure 21). Be especially careful that adhesive is not applied excessively to the point that it will be forced into the seam cut when the sheets are placed together. One way to minimize the potential for getting adhesive into the seam is to comb the adhesive lines perpendicular to the seam line and allow a few minutes for adhesive to flash off. DO NOT ALLOW ADHESIVE TO SKIN OVER.

Fig. 21. Apply adhesive to the subfloor in the dry zone with a fine notched adhesive trowel.

- After the adhesive has been spread on the subfloor in the dry zone, place the sheet which was on the bottom during seam cutting into the wet adhesive.

Fig. 22. Tuck sheet into place by bending slightly.

- Then tuck the other sheet into place by bending the edge slightly (Figure 22). **Avoid scraping adhesive from the subfloor into the seam cut.** Should this occur, carefully lift the edges of each sheet and remove the adhesive with a clean, damp cloth.
- Roll the 2′ (61cm) wide area which has been spread with adhesive with the 100-pound (45 kilogram) floor covering roller and then use a steel hand roller to bring the wearlayers level at the seam cut (Figure 23).
- Clean the surface of any adhesive or foreign material with a damp (not wet) sponge or cloth. Allow the area to dry, and the seam is now ready to be sealed.

  NOTE: Seams in Xclusive featuring Scotchgard™ Protector **must** be prepared prior to applying seam sealer by lightly abrading the seam area with the 3M Scotch-Brite® pad and dowel pin found in the SU106 Seam Sealer Kit.

Fig. 23. Bring wearlayers level with steel hand roller.

- SEAMING 6′ WIDE MATERIAL SLIT FROM 12′ WIDTH — Some 6′ wide White Shield backed products are slit from 12′ wide flooring. This means that only one side will have a true selvage. The seaming specifications on multiple seam installations will vary from one seam installations.
  - **One seam only:** Install designs with “Reverse Sheet” specification in rooms requiring only one seam by following the procedure detailed earlier. **Be certain to seam the side of the sheet with the true factory selvage.** (Align C to C or I to I and overlap the sheets to match the design).
  - **Multiple seams:** In rooms where there is more than one seam, install the first 2 sheets reversed by seaming the factory selvages together. Install the third and alternating sheets (or fill pieces) reversed by overlapping the slit edges 2 full design units (one on each sheet of flooring). This method creates waste, but it positions the seam in an inconspicuous area (allows the seam to be cut in the center of an embossed line, Figure 24).

    NOTE: As an alternative to installing 6′ wide material in rooms where more than one seam is required, consideration should be given to installing 12′ wide floor covering.

- **Optional Method:** An optional method can also be used when installing designs with "Reverse Sheets" specifications on jobs with multiple seams or with small fill pieces. **This optional method requires installing the flooring following Do-Not-Reverse seaming specifications.**

  Position the slit edge over the factory selvage and visually match the design so that it repeats consistently across the sheets (Figure 25).

  Cut the seam 1/8" (3.2mm) into the field area (beyond the embossed line) as shown in Figure 26. Do not cut the seam along the edge of the mortar line because this will create a high/low condition weakening the seam weld.

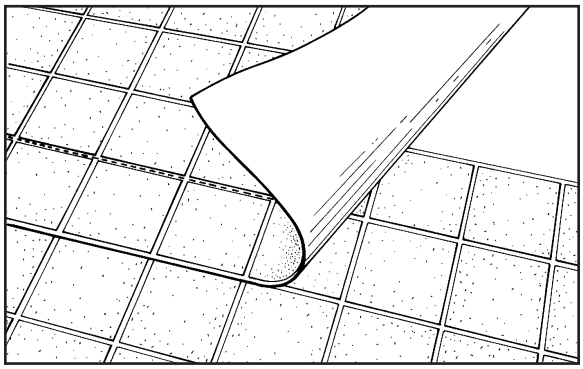

Fig. 24. Overlap the slit edges 2 full design units and cut the seam at the center of the embossed line.

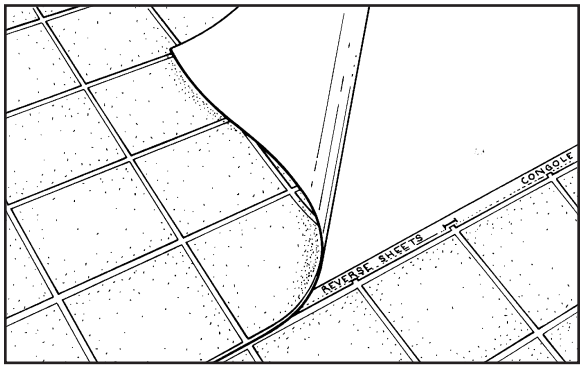

Fig. 25. Position the slit edge over the factory selvage.

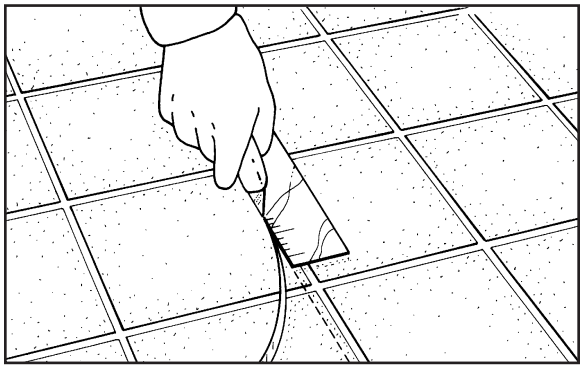

Fig. 26. Cut the seam 1/8" (3.2mm) into the field area.

NOTE: Some designs have a cross-direction match that will not divide equally into 72" (e.g. a design with a 26-1/4" cross-direction match will not be slit at a grout line). If more than one (1) seam is required, 12-foot wide flooring should be considered to avoid excessive waste.

3. RECESS SCRIBING PROCEDURE

Recess scribing produces the best quality seams in flooring products with thick, through-chip wearlayers such as Specifications and Foundations.

- Follow the instructions in the "General Information" Section on page 16 for seam placement.
- Position and fit the first sheet to the room; then, to prepare for seaming, trim 1/2" (1.3cm) of selvage off using a selvage trimmer or straight blade utility knife held straight up (Figure 27).
- After the first sheet has been trimmed, lightly mark the subfloor at the sheet edge with a graphite pencil. The line serves as a guide for adhesive spreading. Take care that the edge of the flooring is not marked by the pencil.

Fig. 27. Hold the utility knife at a 90° angle and cut a smooth, straight edge on the flooring.

- Lap or roll back one-half of the sheet to expose the subfloor. Spread the adhesive on the subfloor to the guide line (Figure 28).

Fig. 28. Carefully spread adhesive up to the guide line.

- Roll or lay the flooring into the wet adhesive and roll in both directions with a 100-pound (45 kilogram) floor covering roller.
- Repeat the adhesive application procedure on the other half of the sheet.

- Position and fit the second sheet in the room allowing a 1/2″ (1.3cm) overlap at the seam. Remember to reverse the sheets.

NOTE: If additional sheets will be installed, prepare the second and successive sheets by trimming the factory selvage as previously described. (B side of sheet as in Figure 29).

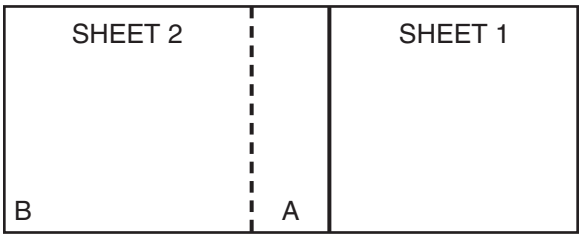

Fig. 29. A side of sheet 2 overlap 1/2″ (1.3cm)
B side of sheet 2, trim off 1/2″ (1.3cm)

Completely adhere the second sheet. Roll with a 100-pound (45 kilogram) floor covering roller to within 2″ (5.1cm) of the seam. **The seam must be completed using the following procedure before the adhesive sets up**:

- Set the recess scribing tool to produce a net fit (Figure 30). It is important that the seams are cut net. Fitting too tightly could cause a peaked or curled seam. It is advisable to check the setting for accuracy on scraps of material before scribing the flooring.

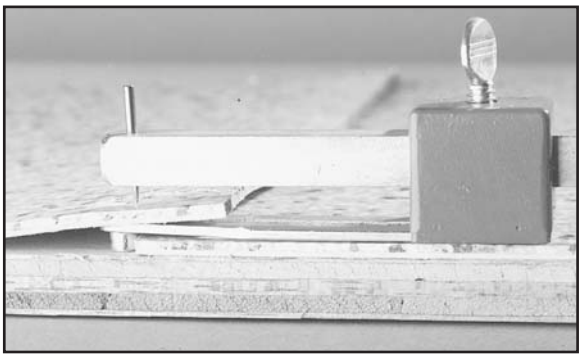

Fig. 30. Set recess scribing tool to cut seams net.

- Be certain that the pin in the recess scriber is sharp and adjusted so it only lightly scores the surface of the floor covering. Hold the recess scriber knob against the edge of the bottom sheet and lightly score the top sheet with the pin (Figure 31).
- Place a piece of scrap flooring under the edge of the top sheet to protect the lower sheet from being cut. Keep the scrap out of the adhesive.
- Cut the top sheet of flooring following the score mark with a sharp blade in a utility knife held straight up (90° angle to the flooring surface, Figure 32). A light cut followed by a finish cut will normally produce the best seam appearance.
- Remove the scrap flooring and roll the top sheet into place with a steel hand roller (Figure 33). Be careful not to force adhesive into the seam cut. Wipe the entire length of the seam with a damp cloth or sponge to remove any adhesive on the surface. As a final step, roll the seam with a 100-pound (45 kilogram) floor covering roller (Figure 34), followed by a steel hand roller to level the seam edges.

Fig. 31. Lightly score the surface of the top sheet.

Fig. 32. Cut the seam on a 90° angle following the score marks.

Fig. 33. Roll top sheet into place with a steel hand roller.

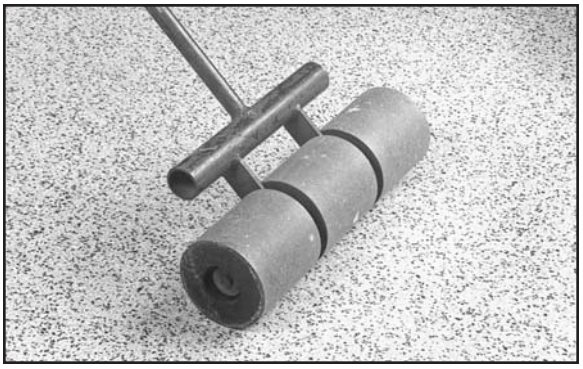

Fig. 34. Roll seam with a 100-pound (45 kilogram) floor covering roller.