

# XI. INSTALLING TILE PRODUCTS

## A. SPECIFICATIONS/RECOMMENDED USE — TILE PRODUCTS

On the chart below are specifications and other information which will be helpful when installing tile and plank products:

Specifications/Recommended Use — Tile Products

Products	Gauge	Tile Size	Weight Per Carton (Pounds)	Square Feet Per Carton	Adhesive (Dry Back)	Recommended Use	
						RESIDENTIAL	COMMERCIAL
<b>PLANK</b>							
Forum Plank	1/8"	3" x 36"	37.5	27	AD72 <sup>(3)</sup>	✓	
Endurance Plank	.080"	4" x 36" 6" x 36"	29	36	DS100 <sup>(4)</sup>	✓	
<b>RESIDENTIAL DO-IT-YOURSELF</b>							
Intrigue	.080"	12" x 12"	27	30	AD42	✓	
Majestic	.080"	12" x 12"	40	45	AD42	✓	
Advantage	.070"	12" x 12"	35	45	(2)	✓	
Carefree	H.G. <sup>(1)</sup>	12" x 12"	24.5	45	(2)	✓	
Reflection	H.G. <sup>(1)</sup>	12" x 12"	24.5	45	(2)	✓	
<b>COMMERCIAL</b>							
Selections	1/8"	12" x 12"	64	45	AD42	✓	✓
Special Effects	1/8"	12" x 12"	64	45	AD42	✓	✓
Alternatives	1/8"	12" x 12"	64	45	AD42	✓	✓
Choices	1/8"	12" x 12"	64	45	AD42	✓	✓
CX Series	.100"	12" x 12"	54	45	AD42	✓	✓

(1) HG=Household Gauge  
 (2) Not Available in Dry Back  
 (3) Use DS100 with Forum Plank over qualifying old resilient flooring.  
 (4) Use AD72 with Endurance Plank where temperature fluctuations exist.

## B. GENERAL INFORMATION

Congoleum tile products should be stored in an interior area protected from the elements. Store on a smooth floor in a dry, clean area. The ideal long-term temperature is from 50° to 70°F (10° to 21°C).

Tile should be limited in height of stacking as follows:

Tile Thickness	Maximum Height
1/8" Gauge	5 cartons
.100" Gauge	6 cartons
.070" and .080" Gauge	8 cartons
Household Gauge	11 cartons

Stack in straight, even tiers; do not stack heavy weight on top of cartons; handle carefully, avoid dropping cartons.

**NOTE: Storage of tile on an uneven surface, in extreme temperatures, or stacking higher than recommended can cause distortion of shape.**

The following should be taken into consideration when installing Congoleum tile:

- The subfloor, all flooring materials, and adhesive must be conditioned at a constant temperature between 65°F (18°C) and 85°F (29°C) for 48 hours prior to, during and for 48 hours after installation. Thereafter, maintain a minimum temperature between 55°F (13°C) and 100°F (38°C).

**NOTE: Exposure to extreme temperature varia-**

**tions can cause thermal expansion or contraction resulting in tile edge curl or gaps between tile.**

- When installing tile from 2 or more cartons, check the code number on the side of the carton to ensure that the pattern and shade numbers are the same. Mix tiles from several cartons to achieve the best appearance.
- When arrows are printed on the back of each tile, install the tile with arrows all pointing in the same direction. If an exception to this rule exists, there will be a separate installation insert in the carton that directs the proper tile layout.
- Perimeter grout lines will vary in width from tile to tile. This variation has been designed into the floor to create a more realistic visual of a hand-set tile, and to help conceal seams between tile.
- Congoleum tile products are not recommended for installation on ramps. However, they can be installed on stair treads and risers, provided that a slip-resistant stair-nose molding (generally metal or rubber) is utilized on the leading edge of the tread.
- The subfloor requirements for installing tile are basically the same as those for installing resilient sheet floor covering. Refer to "Subfloor And Underlayment Recommendations" Section II, on pages 2 through 8, for this information.

### C. FLOORING COMPOSITION/BACKING

The basic composition of most Congoleum tile, including the back, consists of vinyl resins, plasticizers and mineral fillers. All Congoleum tile can be installed on suspended wood floors and concrete subfloors on all grade levels.

#### 1. DRY BACK

“Dry Back” is the terminology used to describe Congoleum tile which is generally installed by the professional installer. Adhesive is spread on the subfloor and the tile laid into the wet or pressure sensitive adhesive (depends on the product being installed).

#### 2. ZipStik

Tile which has had the adhesive applied to the tile back is called “ZipStik”. Paper is applied to the back of each tile during the manufacturing process to keep them from sticking together in the carton. The paper is then pulled from each tile as it is installed. Tile with ZipStik is generally considered to be a do-it-yourself floor.

### D. GENERAL ADHESIVE INFORMATION

Use of the recommended adhesive applied with a

properly notched adhesive trowel is crucial for a successful, trouble-free tile installation. Excessive amounts of adhesive will result in exudation (oozing up) of adhesive between tile in service. Insufficient coverage (normally caused by worn notches on adhesive trowels) will prevent proper adhesion or bond to the tile. When trowel notches become worn (occurs more frequently on concrete subfloors), they should be renotched to the recommended size or replaced.

Tile adhesives are not interchangeable between tile products. Three adhesives are required to install Congoleum floor tile. AD72 is a wet-set adhesive, (tile must be laid into adhesive before it sets up, generally within 20 minutes). The other two adhesives (AD42 and DS100) must be allowed to dry to a tacky state before the tile is laid into the adhesive (30 to 60 minutes of drying time required depending on atmospheric conditions). The installer then has up to 6 hours with AD42, or 12 hours with DS100, to lay the tile into the adhesive.

### E. CONGOLEUM ADHESIVES

*See chart below for adhesive recommendations for installing Congoleum tile products.*

**Adhesive Recommendations for Installing Congoleum Tile Products**

Adhesive	AD42	DS100	AD72
<b>Use</b>	Vinyl Composition Tile • Selections • Special Effects • Alternatives • Choices • CX Series Dry Back D-I-Y Tile • Intrigue • Majestic	DuraStone DuraCeramic DuraCeramic Options DuraPlank Endurance Plank**	Forum Plank*
<b>Advantages</b>	Moisture and alkali-resistant, develops high initial tack. Solvent free, low odor.	Moisture and alkali-resistant, high initial tack. Solvent free, low odor.	Moisture and alkali-resistant, hard setting to resist thermal expansion and contraction. Solvent free, low odor.
<b>Type</b>	Pressure sensitive/Water based/Latex	Pressure sensitive/Water based/Acrylic	Wet-set/Water based/Acrylic
<b>Subfloor</b>	Dry concrete on all grade levels, suspended wood floors, and over approved resilient floor covering.	Dry concrete on all grade levels, suspended wood floors, and over approved resilient floor covering.	Dry concrete on all grade levels, suspended wood floors. Not recommended for use over old resilient flooring or other nonporous surfaces.
<b>Trowel</b>	1/16" wide x 1/32" deep x 1/32" apart.	1/16" wide x 1/32" deep x 1/32" apart.	1/16" wide x 1/16" deep x 1/16" apart.
<b>Working Time</b>	6 hours Dry to tack - 1 hour	12 hours Dry to tack - 1 hour	20 minutes
<b>Spread Rate</b>	250 to 300 sq. ft./gallon	200 to 250 sq. ft./gallon	125 to 135 sq. ft./gallon
<b>Freeze/Thaw Stable</b>	Yes	Yes	Protect from freezing
<b>Flammability</b>	Nonflammable	Nonflammable	Nonflammable
<b>Tracer Colors</b>	Red/Green	Dark Red	Orange/Blue
<b>Cleanup</b>	Wet: Soap and Water Dry: Clean cloth dampened with mineral spirits.	Wet: Soap and Water Dry: Clean cloth dampened with mineral spirits.	Wet: Soap and Water Dry: Clean cloth dampened with mineral spirits.
<b>Shelf Life</b>	One year if unopened.	One year if unopened.	One year if unopened.
<b>Sizes</b>	1 gal. (4/ctn.), 4 gal.	1 qt. (12/ctn.), 1 gal. (4/ctn.), 4 gal.	1 gal. (4/ctn.), 4 gal.

**WARNING: AD42 Adhesive: eye and skin irritant; DS100 Adhesive: Potential eye and skin irritant; AD72 Adhesive: eye irritant. Mineral spirits is a flammable material. Read and follow precautionary instructions on labels.**

\* Use DS100 with Forum Plank only when installing over approved resilient flooring.

\*\* Use AD72 with Endurance Plank only where temperature fluctuations exist.

- When using AD42 or DS100 Adhesive, a thin prime coat of the same adhesive, diluted 1:1 with water, may be required over porous concrete and some patching compounds. The prime coat should be applied with a smooth wall paint roller or flat trowel and allowed to dry before continuing. To test the surface, apply adhesive with a notched trowel to areas of the subfloor with and without a prime coat. If equal adhesive tack develops in both areas when dry, no prime coat is required.
- Allow AD42 and DS100 to dry before starting to install tile. AD42 turns from an opaque milky color when applied, to translucent amber when tacky dry. DS100 turns from light blue to clear. Press a finger onto the adhesive. If it is firm and does not transfer to your finger, the adhesive is dry and ready for tile installation. Tiles set into the adhesive before it is dry may result in tile shifting and gapping.
- If AD42 or DS100 adhesive is being used to install the floor tile, complete one-half of the room at a time. Spread the adhesive on the second one-half of the floor so it can dry while the last row of tiles is being cut and fit to the wall. Move all supplies and tile onto the installed tile so they are accessible.
- AD72 can only be used on porous surfaces such as wood or concrete subfloors to install Congoleum Plank. This adhesive will not dry when applied over old resilient or other non-porous floor coverings. Allow the adhesive to tack up for about 5 minutes after applying with a 1/16" x 1/16" x 1/16" (1.6mm x 1.6mm x 1.6mm) semicircular notched trowel. **NOTE: When installing Plank over old resilient or other nonporous floor coverings, DS100 Adhesive should be used. When using DS100 Adhesive, shrinkage of the Plank may occur if the room temperature fluctuates below 70°F (21°C) or above 75°F (24°C). Where fluctuations are expected to occur, Congoleum recommends the old floor be removed (following recommended procedures) or covered with an approved underlayment panel (wood constructed subfloors) and the plank installed with AD72 Adhesive.**
- When using AD72 wet-set adhesive, work in straight rows. Install cut pieces as you continue. Spread adhesive in an area no larger than can be covered in 20 minutes. The adhesive will become slightly tacky. Periodically check to see that at least 95% of the adhesive pattern has transferred to the back of the tile. Position each tile lightly against previously laid tile with corners precisely aligned. Press firmly into the adhesive. Avoid sliding tile into position to prevent adhesive from squeezing up between tiles. If the adhesive starts to set-up or skin-over, scrape it off the subfloor and reapply fresh adhesive. Tiles set into AD72, after the adhesive has "set-up" may exhibit a high/low appearance since trowel ridges may not be flattened during the rolling process.

- All tile (including ZipStik) must be rolled with a 100-pound (45 kilogram), or heavier, floor covering roller after installation. Roll diagonally in both directions with the floor covering roller. Do this as each section is completed. This is particularly important when installing Congoleum tile or plank in wet-set adhesive. Reroll the entire floor after one to two hours. Use a steel hand roller to level any raised corners or edges.
- Any adhesive smears on the face of the tile can be removed with mineral spirits or lighter fluid.

#### CAUTION

***These solvents are flammable; follow cautionary information on labels.***

- Since ZipStik tiles have adhesive preapplied, the use of additional adhesive is neither advised or recommended. If a primer is required when covering a porous surface, AD42 or DS100 may be diluted 1:1 with water and applied with a smooth wall paint roller or flat trowel and allowed to dry. The use of additional adhesive may lead to indentation problems.

#### CAUTION

***Do not stand or walk on release paper or a tile with release paper on the back. This paper is extremely slippery. Immediately place all removed release paper in a trash receptacle.***

## F. GENERAL INSTALLATION INSTRUCTIONS

There are 2 basic tile layouts: square or diagonal. Two or more colors from the same or coordinating product lines can be mixed or matched to create virtually unlimited decorative borders and custom design effects.

It is important to avoid positioning tile joints directly over underlayment joints or seams in existing floor coverings. If this should occur when laying out the installation, reposition chalk lines.

### 1. SQUARE LAYOUTS

Place a mark in the center of the floor at each end of the room. Snap a chalk line down the center of the floor to connect the marks (AB as shown in Figure 157).

Find the center of the line and snap a second chalk line at a right angle (CD as shown in Figure 157); use the 3', 4', 5' method to form a right angle.

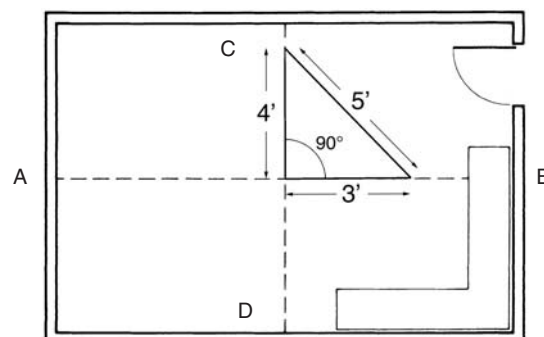
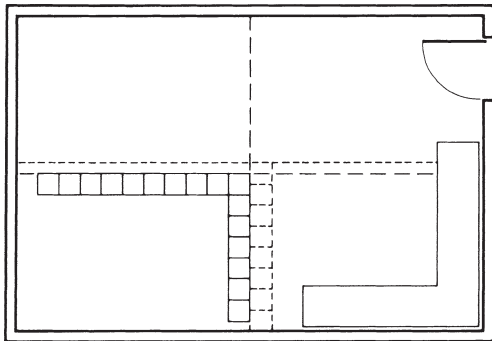


Fig. 157. Square layout.

Starting at the center of the room, lay a row of loose tiles along the chalk lines to one end wall and one side wall. If the distance between the edge of the last full tile and the wall is less than one-half tile, establish a new center line (or lines) one half the dimension of a full tile (Figure 158).

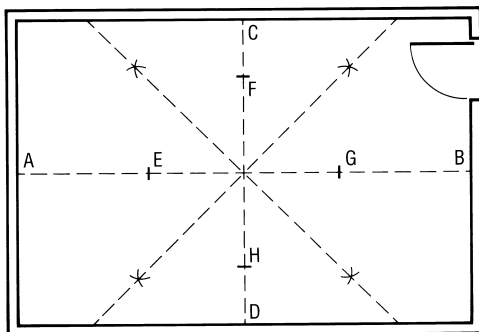


**Fig. 158.** Adjust tile layout at center lines if less than one-half tile at walls.

When installing tile in irregular shaped rooms, check the size of the last tile along all walls and adjust the center lines (if necessary) to achieve the best layout. Begin laying the tile in the center of the room following the chalk lines made on the floor.

## 2. DIAGONAL LAYOUTS

Lay out the center and perpendicular lines as in a square layout. Place a mark on each line an equal distance away from the center (distance from center is arbitrary). Use a slightly larger arbitrary size and swing an arc on both sides of each line from points E, F, G, H (Figure 159). Snap diagonal chalk lines at the point where the marks intersect. If done correctly, the chalk lines will intersect the center point.

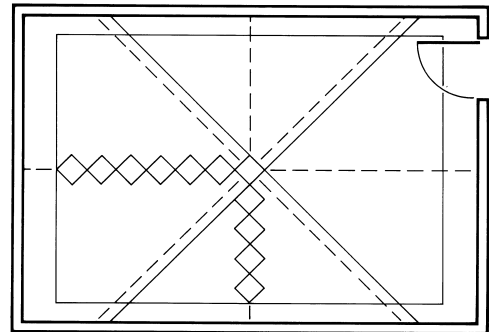


**Fig. 159.** Diagonal layout.

If the layout includes a border, adjust the size of the border to allow one-half tiles to be used at the edge of the field tiles. When using two different colors in a checkerboard design, it will be necessary to adjust the layout to allow the same colored tile to be used at the edge of the field.

To adjust the layout, snap new diagonal chalk lines one-half the dimension of a full tile away from the original line (Figure 160). It may also be necessary to adjust the size of the border. The chalk lines will

serve as a guide for laying the tile. Start installing the tile in the center of the room.

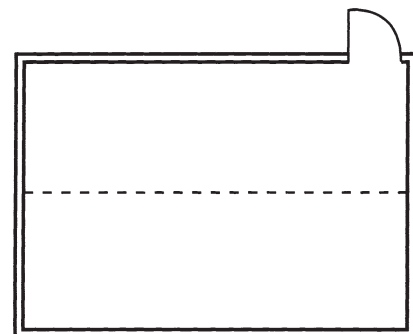


**Fig. 160.** Snap new diagonal chalk lines.

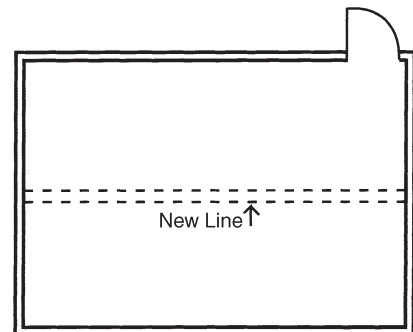
## 3. PLANK LAYOUTS

Place a mark in the center of the floor at each end of the room. Snap a chalk line between the marks (Figure 161).

It may be necessary to adjust the center line to avoid small border pieces at side walls. To do this, measure the distance between the center line and the side wall. Divide the measurement by the plank width (3" [7.6cm] for Forum Plank; 4" [10.2cm] or 6" [15.2cm] for Endurance Plank). If the remainder is less than half a plank width, adjust the center line one half the width of a plank in either direction (Figure 162)



**Fig. 161.** Center line.



**Fig. 162.** Adjust center line.

## G. INSTALLATION PROCEDURES

Installing tile in wet-set adhesive requires a different procedure than when installing in clear thin-spread

adhesive. With clear thin-spread adhesive, the installation can be done while working on top of the newly installed tile. With wet-set adhesive, the installation of the tile must be done by working on the subfloor.

### 1. PRESSURE-SENSITIVE OR CLEAR THIN-SPREAD ADHESIVES

Tile should be laid starting at the center of the room working toward the walls. Complete one-half of the room at a time. Carefully position the first tile into the adhesive at the intersection of the chalk lines (Figure 163). Continue working toward the walls. Position the tiles at a low angle into adhesive tightly against previous tiles with corners lined up. Press tiles firmly without sliding. Spread the adhesive on the second half of the room so it can dry while the last row of tile is being fitted at the wall. Move all supplies and tile onto the installed floor so they are accessible before spreading adhesive on the other half of the floor.

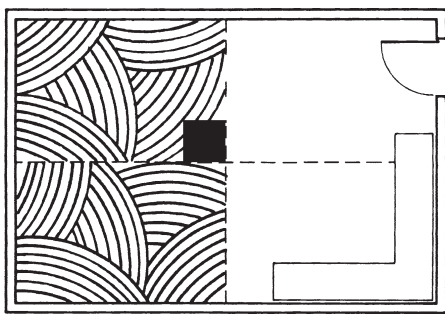


Fig. 163. Start installing tile in center of room.

The procedure for installing Congoleum Plank with DS100 Adhesive is very similar to installing 12" x 12" tiles. Spread adhesive over one-half of the floor up to the center line and allow it to dry to a tack. Start installing the plank along the center line (Figure 164). Complete each row including cut pieces at the wall before proceeding to the next row. Offset cross joints by at least six inches and position planks in a random fashion for the best appearance unless creating a pattern (as in a custom layout). Position each plank tightly against the previous one, by pressing it firmly into place without sliding it. Complete the opposite side of the room following the same procedure.

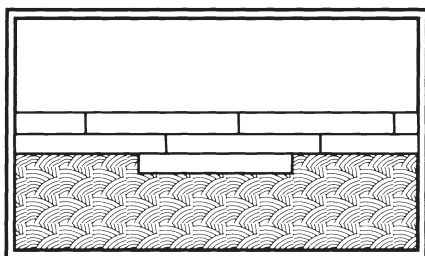


Fig. 164. Start at the center line and complete each row before going to the next.

### 2. WET-SET ADHESIVE – AD72

When installing Congoleum Plank snap chalk lines to divide the room into smaller sections for adhesive application. Measure accurately from the center line

out toward the wall, A for Forum Plank; B for Endurance Plank (Figure 165). Each section must be a multiple of the actual plank width allow for easy reach and be no larger than an area that can be covered with flooring in approximately 20 minutes.

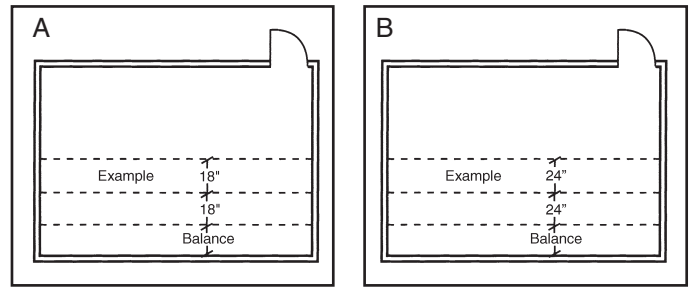


Fig. 165. Divide the room into sections.

Carefully position the first row of plank along the chalk line and then work toward the wall (Figure 166). Do not slide planks into place. Position each plank lightly against the previously laid plank and press it firmly into the adhesive. Work in straight rows or a pyramid fashion.

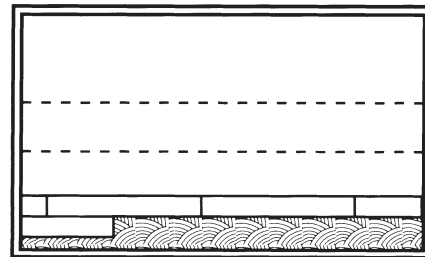


Fig. 166. Installing plank in first section.

Continue installing flooring in a random fashion, completing each section before starting the next (Figure 167). Each section should be rolled with the floor covering roller before moving to the next section.

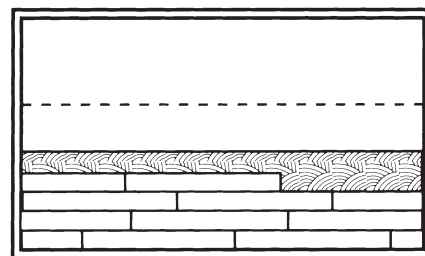


Fig. 167. Complete each section.

When installing Congoleum Plank in wet adhesive, dry fit the last row of tiles before spreading adhesive otherwise the adhesive may set up before the new row is completed.

### H. CUTTING FLOORING TO FIT

The last row of tiles on each installation must be fitted to walls and other vertical surfaces. When tile is being laid in clear thin-spread adhesives, this row is normally fitted after all field tiles are laid in each section, or can

include the entire room. **NOTE: Always fit tile and plank net to walls and vertical surfaces to avoid shifting during installation or in use.**

## 1. STRAIGHT WALLS

The last row of tiles at the wall of the room will generally be straight cuts. Fitting to straight walls is relatively easy, even if a net, or flush, fit to wall moldings is required.

Place the tile to be fitted (Tile A) precisely over the tile in the row closest to the wall. Lay another tile (Tile B) flush against the wall with the opposite edge overlapping Tile A. Draw a pencil line on Tile A (Figure 168). Cut along the line following a square or straightedge with a sharp utility knife, and snap off the excess material. Another way is to score Tile A following the edge of Tile B with a sharp utility knife, and then snap off excess material; this method saves time because it eliminates an operation.

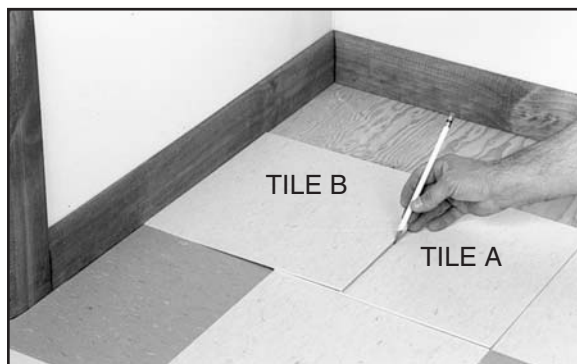


Fig. 168. Fitting to straight walls.

## 2. IRREGULAR AREAS

There are two ways that are normally used to fit irregularly shaped areas: direct scribing and pattern scribing.

To fit by direct scribing, place the tile to be cut as flush as possible to the wall with the excess overlapping the last whole tile on the floor. Make a mark on the last whole tile following the edge of the tile being fitted (Figure 169). Set dividers for the distance from the mark to the edge of the tile (Figure 170).

Reposition the tile to be fitted in place where the mark was made, and scribe the wall outline onto the tile (Figure 171). To cut curved areas apply heat from the back to soften the tile; straight areas can be scored and the excess snapped off.



Fig. 169. Make mark on last whole tile following edge of tile being fitted.



Fig. 170. Set dividers for distance between mark and tile edge.



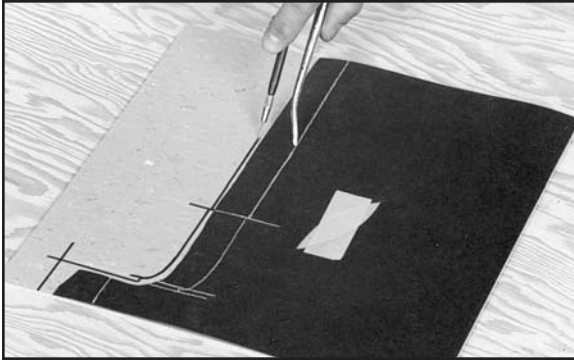
Fig. 171. Scribe wall outline onto tile; cut off excess.

To pattern scribe, which is normally used for the most complex areas to be fitted, cut a piece of heavy paper or felt to the exact size of a tile (follow tile edge with a sharp utility knife). If there is adhesive on the floor, cover it with wax paper to avoid adhesive transfer to the tile.

Position the pattern material in the area to be fit and trim it approximately 1/4" (6.4mm) short of the walls. Set the dividers so the scribing pin reaches the pattern material and score the wall outline onto the pattern material (Figure 172). Place the pattern accurately on the tile. Transcribe the wall outline onto the tile with the dividers (Figure 173). Heat the back of the tile being fitted and trim off excess material. Remove the wax paper before setting the tile in place.



Fig. 172. Scribe wall outline onto pattern material with dividers.

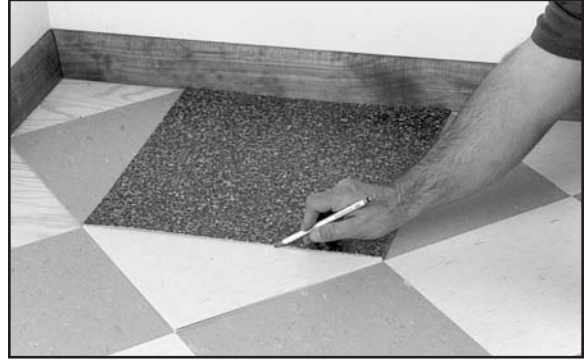


**Fig. 173.** Transcribe wall outline from pattern to tile.

### 3. DIAGONAL CONFIGURATIONS

Fitting to walls when the tile has been laid diagonally requires a different technique. Make a square template out of rigid material (a piece of resilient sheet flooring works well). Use the exact dimension of the tile when measured diagonally from corner to corner (The diagonal dimension of a 12" x 12" tile is approximately 17").

Follow the steps for fitting to straight walls (see Figure 166 on page 62), and use the template in place of Tile B (Figure 174).



**Fig. 174.** Use template to mark tile at straight walls.

On diagonal installations, use the pattern scribing method for fitting to irregularly shaped areas.

