

Thorough planning is an absolute in a proper installation and pattern alignment at seams, in doorways and along the walls. Failure to follow any one of these steps could result in a mismatch that cannot be remedied without serious repercussions. In addition to the specific requirements outlined here for the proper installation of pattern carpet, the basics in the Carpet and Rug Institute's most recent installation standard, CRI 105 must be followed for product-related warranties to remain in effect. This document is available online at the Carpet & Rug Institute web site, <http://www.carpet-rug.com>. Additional instructions are available for specific construction styles of carpet.

Always cut on pattern

For tufted patterns, cutting on the pattern means following a row (cutting from the top along the space between two rows or lines of tufts) on every cut for side seams. ***Do not trace cut, double cut, or attempt to use a straight edge in making side seams!***

A mistake in cutting can cause significant loss of carpet, usually a full pattern. An undetected mistake in cutting can ruin the job.

Dry lay entire area

By rolling out all the carpet and roughly fitting it into the rooms or corridors before attempting to make any seams, the installer can make certain that all the patterns will fit together before any section has been seamed. This is called 'loose' laying or 'dry' laying. Dry laying is absolutely necessary in the installation of patterned carpet. It can make a very critical difference for the following reason: *Short patterns can be stretched to align with long patterns, but long patterns cannot be compressed to align with short patterns.*

The installer who seams pattern carpet as he pulls it off the roll runs a substantial risk of seaming a section of short patterns and then facing the impossible task of aligning the next section of longer patterns. G.E. Shnier is not responsible for pattern misalignments that result from a failure to dry lay the carpet and proper analysis of pattern layout.

Plan to power stretch

Knee-kickers are rarely sufficient to properly install patterned carpet. Power stretching and stay nailing are required for proper alignment of pattern. In installations over pad using tackless strips, some seams may have to be pre-stretched and stay-nailed before the hot melt tape is adhered and the seam constructed.

Sealing cut edges

In planning for a trouble free installation of patterned carpet, a key reference point, again, is the CRI 105 Installation Standard. However, a commonly overlooked, but vital part of any installation is the use of seam sealer. This includes loop pile or cut pile products in stretch-in installations over pad. Put very simply: *All seams must be sealed*. Seams on stretch-in installations should be sealed with a latex-based sealer or a solvent-based adhesive.

Correction of pattern distortion

Patterned carpets, particularly geometric patterns with strongly visible lines in length and/or width, present a special challenge to both manufacturer and the installer. The challenge is to present a finished carpet installation with pattern lines that match at the seams and are straight and square.

Pattern distortion of some degree is inherent in all textile products. Manufacturers work tolerances on pattern lines follow, within these tolerances, it is possible for the installer to stretch patterns into register. The maximum tolerances permitted at manufacturing are:

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|---------------------|---------------------------------------|
| 1. Bow | 1 ½ inch across 12 feet width |
| 2. Skew | 1 ½ inch across 12 feet width |
| 3. Trueness of edge | +/- 1 inch from nominal straight line |
| 4. Pattern repeats | 2 inches in 12 feet of length |

Within certain parameters, these variations can be overcome. These variations of the pattern are in relation with a straight line. These pattern distortions cannot be cut out. Instead, they must be stretched 'square' again in order to maintain a proper pattern match.

Bow : Bow indicates that the pattern has gained in the middle of the carpet. Up to 2 inches of bow can be corrected. The normal tolerance of the industry would be 1-½ inch or less of bow, but the following steps must be taken to correct even slight bow. Remember that, when you cut an end seam or cut an end where it meets the wall, you must still cut on the pattern. The pattern shape will have a slight curve – with the centre going inward on one end, and outwards on the opposite end.

1. Cut on the pattern, make side seams.
2. Cut ends on the pattern.
3. Stretch pattern straight to the walls.
4. Patterns should align with the walls.

Skew : Skew indicates that the pattern has gained on one side of the carpet. Up to 2 inches of skewing can be corrected in stretched-in installations. The normal industry tolerance would be 1-½ inch or less of skew, but the following steps must be taken to correct even slight skew. Skewing is not noticeable where the pattern meets a perpendicular angle, such as a wall. Side seams are less of a problem than are end seams or where the carpet is cut into the wall on either end. Routinely, the installer should be prepared to correct up to an inch of skew. To correct skewing, take the following steps:

1. Make the seam, taking care to match the pattern.
2. Making sure to leave enough carpet on the opposite end, start on one end cutting in the same place on the pattern as you would for an end seam. At this point, the carpet should be laying at an angle to the wall.
3. Force the short side onto the tackless strip, which should create a wrinkle on the long side.
4. Attach the long side to the tackless strip also while stretching across the room to force the wrinkle diagonally into the short side on the opposite side of the room.

Trueness of edge : Carpet takes on a shape that is similar, in varying degrees from slight to severe, to an “S”. This condition is relatively easy to correct and should not prevent proper pattern match if handled correctly. The distortion is throughout the piece and simply ‘trimming back’ a few patterns will not help. The carpet must be bumped or stretched straight again. Please note *that using a straight edge, a chalk line, or a trace cut to ‘cut out’ the distortion will make pattern match impossible!* G.E. Shnier will not be held responsible for mismatched or misaligned seams that are trace cut or double cut in an effort to overcome trueness of edge irregularities along the carpet length.

As much as 2 1/2 to 3 inches can be effectively corrected in a stretch-in/tackless installation, by following these steps:

1. Begin making the seams, being careful to follow the cutting instructions outlined earlier. Even though the rows may curve like a snake, the carpet must still be cut on the pattern and on the row or along the space between the tuft rows.
2. Match patterns perfectly while making the hot-melt seam. Stretch each side to a straight line. All patterns will then line up properly and the seam will flatten.

Pattern size variation : Unlike the other pattern distortion problems discussed here, variation in pattern size is usually more gradual and is not detectable unless measured or compared with another pattern during dry laying. Remember that small patterns must be stretched to align with larger patterns and large patterns cannot be compressed to meet smaller patterns.

To determine pattern size variation or elongation, measure several patterns (usually 10 to 20 smaller patterns or 3 to 4 when dealing with larger patterns.) 1 ½ percent variation can be overcome. That amounts to a maximum of 2 inches every 12 feet in length. The installer should take care to arrange the rolls in order of pattern sequence whenever possible so that like-sized patterns are grouped together to improve ease of installation. Typically, the installer should be prepared to overcome one inch of pattern runoff or pattern elongation in 12-feet on any pattern installation.

Sections with shorter patterns must be pre-stretched to align with longer patterns in order to make the seams.

Seam Peaking : Seam peaking is to some degree a natural and sometimes unavoidable phenomenon, however, it can be minimised by using certain precautions. When the two cut edges of the carpet are joined with seaming tape and stretched, the tape is pulled up to the level of the two backing it joins, the face of the carpet over the seaming tape then projects above the surface of the rest of the carpet and a peak occurs. This condition is most apparent in smooth finish cut piles, saxonomies, berbers, and commercial loop carpets, seam peaking becomes apparent only after the carpet has been stretched on the width.

The simplest illustration of the situation is the pulling of a rope with a kink in it – as the rope tightens; the kink is pulled into a straight line. In carpet, think of the primary backing as the straight part of the rope. The cut edges at the seam do not allow the pull to continue in a straight line across the gap. Since the gap is bridged by the seaming tape, which is below the secondary back, the pull is transferred to the tape, and the force attempts to straighten the kink, as stretching tightens the back, the tape at the joint is pulled upward into the line of the pull, the edges of the carpet at the seam are then slightly above the surrounding pile surface. This explains why seams seldom show peaks until stretched.

Other factors can and do contribute to peaking. Overheating the seaming tape in an attempt to speed seaming can damage polypropylene primary and secondary backings and even cause yellowing of the carpet fibres at the seam.

The following steps will help to minimise seam peaking:

1. Make sure incident light does not strike across the seam, the difference in light refraction on the fibre to both side of the seam can create a shadow like effect. This would enhance even a very slight peaking condition to the point of complete dissatisfaction for any given installation. Seams should be perpendicular to a light source.
2. Separate tufted rows with a row opener, (a blunt edge screwdriver will do)
3. Row cut the carpet with a cushion back cutter.
4. Place the seaming tape (preferably the 6" wide type) in the proper position. Apply seam sealer to both edges at this time.
5. Tuck the carpet over tackless strip at one end of the seam.
6. Pre-stretch each piece of carpet along the seam and plant stay nails about 8" from the wall and 6" from the seam on each side.

There may be minor unevenness of the row cut edges along the length of long seams. Areas where fullness exists should be worked out with the knee kicker or power stretcher and stay nailed. Areas where gaps exist should be likewise adjusted and stay nailed. The stay nails should always be about 6" from the seam to give sufficient room for the seaming iron.

1. With the iron temperature set at 2 – 2 ½ to prevent overheating the backing, complete the seam. Use a 3' long piece of smooth 2" X 8" board to hold the seam in place as it cools. It should have a number of 1/2" holes drilled to allow heat and moisture to escape. The use of a toolbox tray for this purpose is discouraged for two reasons. It traps heat and moisture and will eventually rust and discolour the carpet as it is dragged along a seam.
2. Allow the seam to cool completely before attempting to stretch on the width.
3. Apply a controlled pressure on the width with a power stretcher to test the seam. If the seam peaks at a 1.5% stretch, lower the pressure until the seam lays flat and hook onto the smooth-edge.