Tufted Broadloom Installation Instructions – Millitron® Patterned, Non-Patterned and Attached Cushion

Milliken **strongly recommends** the use of a **Milliken Certified Installation Contractor** to install all broadloom products. Installation contractors certified by the Floor Covering Installation Board **(FCIB)** as well as firms that can document the employment of installers certified by the International Certified Floor Covering Installers Association **(CFI)** at the R2, C2 or Master level are also recognized as sources of good quality installation labor.
APPLICABLE CRI INSTALLATION METHODS: Except where exceeded or modified by this instruction, Milliken recognizes the CRI™ 104 Standard for Installation of Commercial Carpet, and CRI™ 105 Standard for Installation of Residential Carpet September 2015 as the minimum acceptable standards for the installation of its carpet products.

NOTICE: Dealer and/or installer must inspect carpet prior to installation. Milliken **cannot be responsible** for visible defects after carpet has been cut and installed.

STRETCH-IN (OVER CUSHION) INSTALLATION:

As in all broadloom carpet installations, lay the carpet flat, remove wrinkles and allow the carpet to condition sufficiently at room temperature, which should not be less than 65 degrees F (18 degrees C). Extra effort will be required to stretch the carpet if installed below this minimum temperature. Carpet should be maintained after installation between 65 and 85 degrees F (18 to 30 degrees C). Drastic changes in temperature and humidity can cause wrinkling in installed carpet.

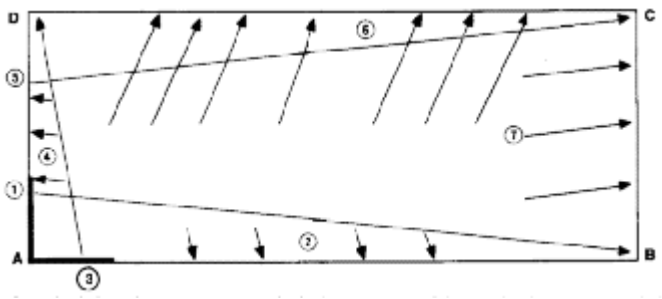
STRETCH THE CARPET

- Stretch synthetic-backed (Endura-Loc™) carpet more than jute-backed carpet. Don't worry about overstretching.
- Stretch selvage-to-selvage just as much as end-to-end.
- Stretch at least 1% in **both** directions (length and width).
- A good rule of thumb is to stretch 1 ½" per 12 feet (3.81 cm per 3.66 m).
- See the seven-step stretching procedure below.

STRETCHING AND HOOKING PROCEDURE

Below is a 7-step technique for successfully power stretching a room. (See diagram.)

1. Using a knee kicker, hook carpet in corner A as indicated by heavy lines and power stretch from A to B at a 15-degree angle. Hook carpet in corner B.
2. Using a knee kicker, hook wall AB firmly onto the tack strip working from A to B at a slight angle.
3. Power stretch from wall AB into corner D at a 15-degree angle. Hook carpet in corner D.
4. Using a knee kicker, hook wall AD firmly onto the tack strip.
5. Power stretch from wall AD into corner C at a 15-degree angle. Hook carpet in corner C. Note: This is a temporary tensioning stretch, which allows stretching into wall DC.
6. Power stretch from wall AB into wall DC, working at a 15-degree angle toward corner C. Stretcher head should be moved no more than 2 head widths between each successive stretch. Approximately 2 to 3 stretches before reaching corner C, unhook the tensioning stretch taken in step 5 and complete stretching into corner C.
7. Power stretch from wall AD to wall BC, working toward corner C at a slight angle.



Caution: Make sure carpet is uniformly stretched at least 1% in both directions. To aid you, we suggest you chalk (white chalk) a line across the carpet close to the wall and measure the distance this mark travels toward the wall.
Note: Carpet stretched in over existing carpet is not recommended or guaranteed.
In large areas, the use of a commercial stretcher is recommended (Roberts 10-222 Senior Stretcher). Large areas should be subdivided into smaller, roughly rectangular areas with each area stretched as described above.

CUSHION RECOMMENDATIONS:

RESIDENTIAL: Maximum Thickness is 7/16" or 11.2 mm (nominal) regardless of type cushion chosen.

- Bonded Polyurethane: Minimum Density 6.5#/cu. ft.
- Prime and "Densified Prime" Polyurethane: Minimum Density 2.8#/cu. ft.
- Needled Synthetic (felt): Minimum Density 32 oz./sq. yd. (1.1 Kg/sq. m.)

COMMERCIAL:

- **Needled Synthetic:** Minimum Density 40 oz./sq. yd. (1.35 Kg/sq. m.), Maximum Thickness 3/8" (9.5 mm.)
- **Slab Rubber (vulcanized synthetic rubber such as TredMor®):** Minimum Density 18#/cu. ft., Maximum Thickness ¼" (6.4 mm.)

Note: Improper cushion is a leading cause of re-stretch callbacks, seam failure, unsatisfactory carpet performance and poor appearance retention.

SEAMING PROCEDURE:

1. All methods of seaming are acceptable, however, the thermoplastic or "hot melt" method gives the strongest seam in the least amount of time and is the recommended procedure. Wider 6" (15cm) tapes are available where seam peaking is a concern. Always use a premium quality seaming tape.
2. The following seaming tapes are recommended:
   - Super 3 (Stretch-in only) and K-80 for direct and "double stick" - **Orcon Corp., 510-489-8100.**
   - GT-350 (Stretch-in only) – **Roberts Consolidated Industries (a QEP Company), 800-423-6545.**
   - The seaming iron should be equipped with a heat shield to prevent damage to backing and face yarns. Seams should be made on a hard, flat surface.

   All cut edges **MUST** be sealed. Milliken Barrier Bond® seam sealer is recommended. Refer to Material ID 3000015511 when ordering. This product is packaged in 8-ounce squeeze bottles with a standard "Yorker" tip. One (1) case is the minimum order. Each 8-ounce bottle will cover 200 linear feet of seam. Thermoplastic chemistry is also an acceptable method for preparing/sealing seam edges. This can be accomplished using a number of available hot melt guns and applicator tips designed for this purpose. Gundlach (618-233-1781) and Orcon (# above) are the most widely available sources for this technology.

CUTTING PROCEDURE:

- For cut pile non-patterned carpet, the preferred method of cutting is to row cut both breadths, however, on tufted carpet the rows are occasionally not straight enough to allow this. If this is the case, carpet should be chalk-lined and straight-edge cut from the back using a sharp razor knife.
- When cutting from the back, care should be taken to just cut through the backings. Cutting too deeply can damage the face yarns and cause an unsightly seam.
- On **non-patterned** loop pile carpet, row cut both breadths if possible. If not, row cut one breadth, overlap and scribe cut the second breadth using a cushion back cutter.
- **Remember that seam sealing is mandatory on all carpet.**
- On patterned carpet, regardless of construction, cut along complementary patterns. DON NOT ROW CUT MILLIKEN PATTERNED CARPET. Cut from the face using a "cushion back cutter" and straight edge or Gundlach's #295 UniCutter and Hang Over Straight Edge.
- An alternate method for patterned carpet is to slit the carpet approximately every 3' (1m) from the face along complementary pattern points and cut between slits from the back.



Milliken Millitron® patterned carpet should be cut on the face. ***DO NOT ROW CUT.***

PATTERN MATCH TECHNIQUE:

- Trim both breadths to be seamed along complementary pattern points as directed above. DO NOT ROW CUT MILLIKEN PATTERNED CARPET.
- For best results and maximum ease of installation, lengthwise pattern repeat, pattern bow and pattern bias should be measured on all rolls to be installed. These measurements are made as part of the final inspection process in manufacturing and are available on roll tags and on the packing list that comes with each shipment. Site measurement of these properties allows the contractor to "fine tune" the sequence of installation. Measure these as follows:

1. LENGTHWISE PATTERN REPEAT (L.P.R.):

- Divide published length pattern dimension into 144" for 12' (3.66m) wide material or 162" for 13'6" (4.1m) wide material. This answer will generally be a whole number. If not, round up to the next higher number. Example: On 13'6" (4.1m) wide material having a 40.5" length repeat, 40.5 goes into 162 four (4) times.
- Measure along both selvages on each roll the number of pattern repeats obtained above (four in this example). This measurement will typically be slightly larger or smaller than 144" or 162" (3.66m or 4.1m). **In any dye lot, all measurements obtained in this way will vary no more than 2" (5cm).**

2. PATTERN BOW (WIDTH AND LENGTH):

- For width bow, pick two identical pattern points on the same widthwise pattern line – one at the left edge and one at the right.

- Pull a chalk line or tightly stretched string between these points across the width (12′ or 13′6″, 3.66m or 4.1m). Measure the distance between the chalk line or string and the same pattern point at the point of greatest separation. **This will be no more than 1″ (2.5cm) across 12′ or 13′6″ (3.66m or 4.1m).**
- For length bow (also called "trueness of edge"), use the same procedure connecting common pattern points 40 feet (12.6m) apart along the edge of the carpet. **The pattern will be no more than ½″ (12.8mm) from the string or chalk line.**

3. PATTERN BIAS:

- Starting at the same pattern points isolated in the width bow measurement – call these "A" and "B" – measure lengthwise along both selvage edges exactly 9′ and mark these points with a small piece of tape. Call these points "C" and "D".
- Measure from point A diagonally to point C and from point B diagonally across to point D. **The difference between these measurements will not exceed 2 3/8″ (6.0cm).** More detailed information sheets on each of these criteria are available if needed.

4. GENERAL PATTERN PROCEDURES – STRETCH-IN INSTALLATIONS:

- Group rolls and cuts working from the longest pattern repeat gradually down to the shortest.
- Shift trimmed breadths to achieve a match near the midpoint of the seam
- Insert hot melt tape under the seam.
- Melt together that portion of the seam that is visually acceptable.
- Using a power stretcher or knee kicker, stretch along the "short" side (smaller pattern repeat) in 3 to 5 foot (1 to 1.6m) sections.
- As each small section of the seam is matched, insert the seaming iron and prepare that section. Leave stretcher locked in position until each section cools.
- Do not complete any section of seam that does not match.
- Once all seams are matched and complete, the entire installed area is stretched as described in the above diagram.
- Width Pattern Bow up to ½″ (1.2cm) and all pattern bias is dealt with during the power stretching process.
- Width Pattern Bow between ½″ and 1″ (1.2cm to 2.5cm) must be dealt with as the seams are assembled, working both sides of the seam simultaneously with the knee kicker, power stretcher OR "crab" stretcher as required.
- Patterned Corridor Carpets (runners and caps) are subject to the same variations and are cut, pattern-matched and installed using the techniques above. **Maximum pattern width variation is ½″ in 6′ (1.3cm in 1.8m).** For best results, keep right side runners with right side caps and left side runners with left side caps.
- These same procedures also apply on all end or "cross" seams. These seams are usually assembled from one side to the other across the width of the material.

DIRECT GLUE-DOWN INSTALLATION:

RECOMMENDED ADHESIVES:

Milliken Broadloom Carpet Adhesive – Material ID 3000015604, 4-gallon pail – is the **ONLY** recommended adhesive for all Milliken broadloom products and should be ordered with the carpet. This applies to all products having the Endura-Loc™ secondary and to all attached cushion products. This adhesive product carries the CRI™ "Green Label" and is specifically designed to provide optimum performance with all Milliken broadloom products regardless of the installation method chosen.

COVERAGE:

- Direct glue, Endura-Loc™ and attached cushion: 10 to 15 sq. yds. per gallon using a 1/8″ x 1/8″ x 1/16″ (3.2mm x 3.2mm x 1.6mm) "V" notched trowel.
- Double stick between cushion and carpet: 6 to 8 sq. yds. per gallon using a 1/8″ x 3/16″ x 1/8″ (3.2mm x 4.8mm x 3.2mm) "U" notched trowel or as recommended by the manufacturer of the double stick system being used.

FLOOR PREPARATION:

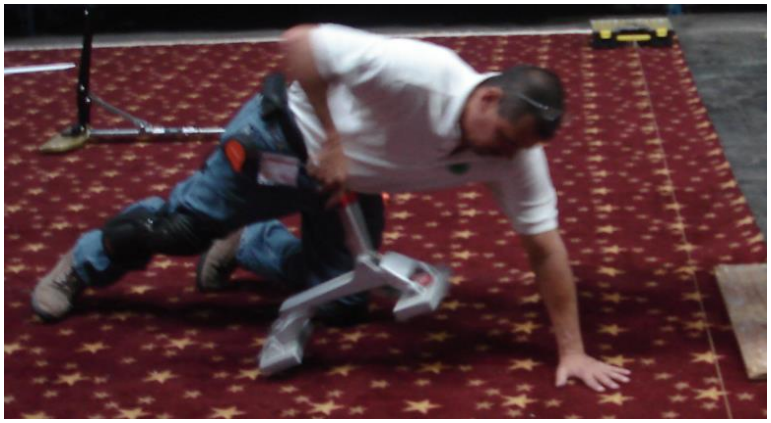
- All dust, foreign matter, non-compatible adhesive residues, grease, paint, wax, oil, dirt, etc. should be removed.
- Cracks, holes and depressions should be filled with a Portland cement based patching material. Protrusions should be removed.
- Floor surface should be smooth and non-undulating to within 1/8″ (3.2mm) in 10 feet (3.0m) in conformance with ACI standards.
- Standard alkalinity and moisture tests should be performed. Concrete slab pH should not exceed 9.0. Excessive moisture will interfere with the curing/performance of the adhesive. Water vapor transmission should not exceed 3#/1000 sq. ft. (1.4 Kg/93 sq. m.)/24-hour period as determined by the anhydrous calcium chloride test performed in accordance with ASTM F-1869-98. Milliken subscribes to the industry position that this testing should be performed by an independent agency trained and certified to perform this testing.
- "Sealing" of concrete floors is at the discretion of the flooring contractor. In general, properly cured and dried (90 days minimum) steel trowel finished concrete requires no additional treatment. Excessively porous or dusty concrete slabs are the only exceptions. Please call Technical Services if you have questions. KURE-N-SEAL WB from Sonneborn (800-243-6739) is a recommended product should this type of treatment be deemed necessary. This type of "sealing" is not a curative for excessive water vapor emission. If out of tolerance emission levels are encountered, call Technical Services for assistance.

INSTALLATION PROCEDURES – ADHESIVE INSTALLATION:

- Trowel notch size, shape and adhesive coverage rate MUST be maintained as noted above. Insufficient adhesive is the #1 cause of failure in all adhesive installations.
- Proper open time must be allowed. Temperature and relative humidity influence adhesive open time.
- If patterned carpet is being installed, installation sequence MUST be determined based on pattern repeat size as described above. There is no requirement for roll number sequence to be followed. **L.P.R. Bow and Bias amounts are printed on the packing list and roll tag for added convenience.**
- On non-patterned, loop pile carpets, row-cut one of the breadths to be seamed, overlap this edge over the second breadth and scribe cut to the row-cut edge. This method does **NOT** apply to patterned carpets. These must be cut along complementary pattern characteristics to insure a proper match. The use of hotmelt seaming tape to achieve and secure pattern match is strongly recommended on all double stick installations and is very helpful on direct cement installations where repeat variation is significant. **Orcon K-80** seam tape is the recommended product for both direct and double stick applications.
- Obtain a net seam – do not compress. Use knee kicker or "crab" stretcher to position.

- Bead all edges with seam sealer on all carpets regardless of construction. (See previous section on seaming procedures and recommended products.)
- Avoid air entrapment. Lay carpet into adhesive working in both directions from center. Depending on the amount and type of pattern variation present, it is sometimes necessary to vary the way the carpet is placed back into the adhesive. For severe bow or bias, it is more efficient to roll the carpet into the adhesive end-to-end in short sections, working and straightening each section before proceeding. Where significant pattern repeat variation is present, it is generally easiest to assemble the seams "dry" using the K-80 seaming tape noted earlier and then roll the carpet sideways to expose the floor under the seam. The backing paper on the K-80 is then removed and adhesive spread. The carpet is rolled back into the adhesive once the proper open time is observed.
- Roll with 75 lb. (34 Kg) roller in both length and width directions or as directed by the cushion manufacturer in double stick applications.
- Restrict heavy traffic and furniture movement for 24 hours.

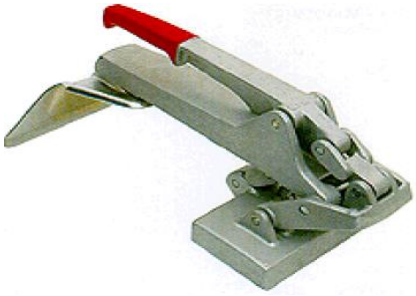
Power stretcher, crab stretcher, deadman, and dry lines should all be utilized to assure proper pattern alignment.



PATTERN MATCHING TOOLS:



Power Stretcher



Mini or crab stretcher



Deadman & dry line



Stay Nails

PROTECTING CARPET AFTER INSTALLATION:
Milliken recognizes the CRI™ 104 Standard for Installation of Commercial Carpet, and CRI™ 105 Standard for Installation of Residential Carpet September 2015 as the standard guidelines for protecting carpet and associated materials after installation. The CRI™ Standard specifically states: "It is recommended that carpet be the last trade on any job site. However, if it is required to protect the finished floor covering from soil or paint, or if any additional work is required to be done after installation, the carpet should be covered with a non-staining building material paper. Protect the installation from rolling traffic by using sheets of hardboard or plywood in potentially affected areas." Also, CRI™ cautions: "Self-adhering plastic films may leave residues that result in rapid soiling after removal. Do not place plastic sheeting over any carpet installation because it may present a slip hazard. Most importantly, plastic coverings will trap moisture, retard adhesive curing and may promote mold growth."

Milliken cannot be responsible for pattern match in direct glue-down installations. This includes all double stick methods. If a consumer desires an adhesive installation, carpet must be inspected for visible manufacturing defects prior to installation. Once installed, Milliken will decline all complaints except for latent defects. Sequencing of rolls by pattern repeat is mandatory for success when installing patterned carpet in any direct glue or double stick application.

Milliken and Company, Floor Covering Business
Installation Services Dept., 300 Lukken Industrial Drive West, LaGrange, GA 30240
BACKED BY THE LARGEST, MOST PRODUCTIVE RESEARCH AND DEVELOPMENT FACILITY IN THE CARPET INDUSTRY.
Call Technical Services Team Toll Free 1-800-528-8453 – Select Option #2

The above instructions represent the best available data and are deemed correct and complete. However, Milliken assumes no liability for installation-related problems.
03/2016