MILLIKEN-APPROVED INSTALLATION METHODS FOR:

INTERVALS®

Installation methods not approved by Milliken are at the customer's discretion.

DESIGN	INSTALLATION METHOD
Power Chord	Monolithic
Soundwave	Quarter-Turn Only (50cm and 1m)
Fret Not	Monolithic
Octavio	Monolithic
Measure For Measure	Monolithic
Beat For Beat	Monolithic
Note For Note	Monolithic

Milliken Contract

Modular Carpet Installation Instructions – TractionBack®

The following document describes the correct method for installing Milliken modular carpet manufactured with **TractionBack®** adhesion backing.

GENERAL: Milliken modular carpet with TractionBack® is designed to be installed without the general use of adhesive. However, the **TractionBack®** adhesion backing system will **ONLY** function properly when the stringent floor preparation and installation guidelines outlined below are followed. For this reason it is **VERY** important that a qualified installation contractor install this product.

CERTIFIED INSTALLERS: Milliken strongly recommends the use of a Milliken Certified Installation Contractor when installing modular carpet products using the TractionBack® adhesion system. Other qualified installers of modular carpet products with TractionBack® include Floor Covering Installation Board (FCIB) certified contractors. And companies that can document that they employ installers certified at the C-2 level or higher by the International Certified Floor Covering Installers Association (CFI).

INSPECTION: The installation contractor is responsible for reasonable on-site inspection of the product prior to installation and for the maintenance of dye-lot integrity during installation. Milliken will not be responsible for visible defects after carpet has been installed.

APPLICABLE CRI INSTALLATION METHODS: Except where modified by the following supplemental installation guidelines, Milliken considers CRI document 104 as the minimum standard acceptable for the installation of Milliken modular carpet products with TractionBack®.

TILE ORIENTATION: Some Milliken designs require specific installation methods (Quarter-turn, Ashlar, etc.) to achieve the intended appearance. PRIOR TO INSTALLATION, always consult your local Milliken sales representative or Milliken Technical Services (1-800-528-8453 Option 3) if you have questions or concerns about the correct installation method. Due to the nature and construction of solution-dyed nylon, we are able to provide very unique, tufted design patterns. From time to time during installation, these products may require that tiles be shifted within the layout in order to avoid a dark line in one tile being positioned next to a dark line in another tile. The dark seam is not a carpet manufacturing defect and can be avoided by attention during the installation phase.

FLOOR PREPARATION:

NOTE: The following are installation guidelines only. Financial responsibility for bringing any floor into conformance with these guidelines must be determined prior to beginning work.

- **Sub-Floor**: Sub-floor must be structurally sound, clean, **dry**, dust free, smooth and level. Cracks and holes in excess of 1/8" (3.2mm) should be filled with a Portland Cement based floor patching material such as W.W. Henry 547 Unipro™, DAP "Webcrete 98", Maipei "PlaniPatch", Ardex "Featherfinish" or similar. Gypsum based compounds are not recommended.
- **Sealing of Floor:** Any required sealing or other post-treatment of concrete floors is the responsibility of, and at the discretion of, the installation contractor. Typically, properly cured (90 days minimum) steel trowel finished concrete requires no additional treatment. Excessively porous or dusty concrete slabs are an exception. Please call Milliken Technical Services (1-800-528-8453 Option 3) if you have questions. Durabond D250 is a recommended product should this type of treatment be deemed necessary; however, any non-silicone based sealer will work acceptably with non-PVC backings. This treatment is NOT intended to be a corrective for out-of-specification water vapor transmission levels.
- **Old Adhesive:** Since Milliken modular carpet backings are non-reactive and contain no P.V.C. or plasticizers. It is typically not necessary to remove old adhesive from the floor prior to installing Milliken modular carpet tile with **TractionBack®**. No chemical incompatibility exists between Milliken modular carpet with **TractionBack®** and any existing floor covering adhesive. This includes "cutback", asphalt emulsion, general-purpose adhesive, epoxy and any other commonly found flooring adhesives. Existing adhesive films must be smooth and non-tacky, Residual trowel notches must be reduced to 1/32"(0.8mm) or less. In most cases the removal of the existing floor covering accomplishes this. Milliken is not responsible for subfloor conditions. The installer has the responsibility for obtaining a successful installation.
- **Dust Removal: For TractionBack® to effectively prevent lateral movement, it is REQUIRED that ALL dust and dirt MUST be removed from the floor prior to installation of product. A thorough wet mopping of the floor surface is REQUIRED prior to beginning installation of TractionBack®.**
- **Sweeping Compounds**: Oil or silicone based sweeping compounds, and similar products, except where specifically approved; must not be used during floor preparation. **TractionBack®** must not be installed over surfaces contaminated with oily residues.
- **Oily Residue / Asbestos Abatement:** If your sub-floor is contaminated with an oily residue either from removal of "cutback" during asbestos abatement or from a previous end use such as metal fabrication, this residue **MUST** be totally removed or covered prior to applying modular adhesive and carpet. In addition, if residual adhesive – either "cutback" or general purpose - has been damaged/reactivated by previously installed PVC backed carpet, call Milliken Technical Services **(**1-800-528-8453 Option 3**)** for guidance. NEVER scrape, sand or mechanically abrade any exposed black adhesive or any existing resilient floor. These may contain asbestos. If residual adhesive is **not** black, scrape or sand until smooth and non-tacky as required above and follow with a through mopping as directed above. If smoothing of the residual adhesive layer is required and the adhesive is black (cutback or asphalt emulsion) smoothing **must** be accomplished by applying a very thin layer of one of the above patching compounds.
- **Level Floor:** Protruding objects must be removed. Floor must be flat (not undulating) to within 1/4" in 12' (6.4mm across 3.66m) with no abrupt changes. This is very critical with **TractionBack®** since there can be no differential adjustment of corner alignment as is possible when a general coverage of adhesive is present.
- **Carpet Storage and Conditioning:** Carpet should be stored between 40°F and 100°F (4°C to 38°C) and must be conditioned to between 60°F and 90°F (15°C and 32°C**)** for at least 24 hours prior to and during installation.
- **Installation Temperature and Humidity:** Floor temperature should be 60°F (15°C) minimum for proper performance of the TractionBack®. Floor temperature should not exceed 100 ^{0}F. Relative humidity of the slab should not exceed 85% as measured by the RH Probe Test (ASTM F2170).

Water Vapor Emission: Water vapor emission should not exceed 8 lbs. per 1000 sq feet (3.6 kg/92.9 m2) per 24 hour period as determined by the #625 Anhydrous Calcium Chloride test available from Taylor Tools, Denver, CO 303-371-7667. Equivalent test (Vaprecision ® or SINAK's "dome" test) are also available from various suppliers. Any test used MUST be performed to comply with ASTM F-1869-98. Milliken Modular Carpet Tile with Tractionback® has been tested to accept water vapor emission levels up to 8lbs without creating adhesion bonding problems. **However, on all Tractionback® projects where the use of any supplemental adhesive materials may be necessary, and the water vapor emission level is above 5 lbs in that area, the installation MUST be pre-approved in writing by Milliken Technical Services – call 1-800-528-8453, Option #3.**

INSTALLATION INSTRUCTIONS:

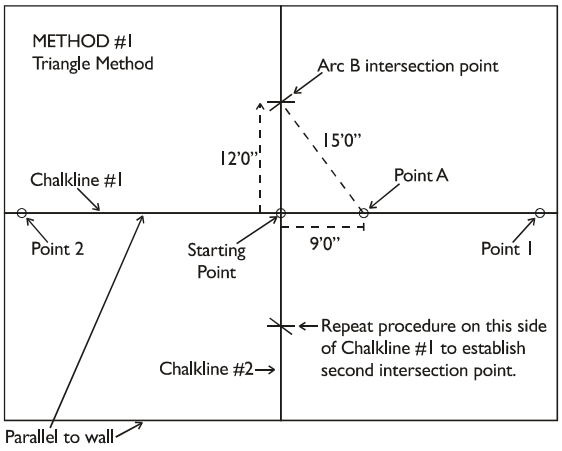
GENERAL: The most important part of any modular installation occurs before the first module goes on the floor or any adhesive is applied. **Proper planning and layout is crucial to the success of all modular installations.**

Floor preparation should be verified before beginning installation. Milliken Technical Services should be contacted for assistance if problems are encountered.

1. **Place module on the cleaned floor and press the entire module down firmly. Kneel beside the module and attempt to slide it across the floor by grasping the opposite edge and pulling. The tile module should not move laterally.**
2. **Lift the corner of the tile and lift the module from the floor. The module should easily separate from the floor surface.**

CHALKLINE APPLICATION: Once floor preparation is completed and the floor is thoroughly mopped, two working chalklines must be applied to the floor to insure a straight, square, and properly aligned installation. These chalklines intersect at the starting point and are exactly 90º to each other. Following are two methods for applying chalklines:

METHOD #1 - TRIANGLE METHOD:



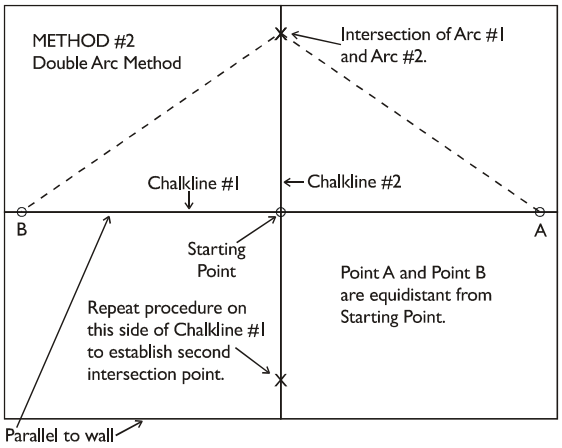
Chalkline #1: Regardless of method, Chalkline #1 – also referred to as the "baseline" - is snapped roughly parallel to some architectural feature (outside wall, column line, etc.) and generally runs the longer dimension of the area. This is done by placing two and only two points on the floor as far apart as possible within the area at the same distance from the selected architectural feature. (See Point "1" and Point "2" on the diagram.) This distance is determined by the installer to optimize cut sizes and minimize waste.

Starting point and Chalkline #2: Select a starting point somewhere on Chalkline #1. Location of starting point is usually but not always close to the true center of the area. It may be offset to optimize cut sizes. Using the largest possible multiple of a 3-4-5 triangle (6-8-10,9-12-15,12-16-20, 15-20-25, 18-24-30, 30-40-50 etc.) construct a chalkline through the starting point exactly 90º to Chalkline #1 as follows:
Note: in this example we will use a 9-12-15 triangle measured in feet and inches, however, units of measure used do not affect the validity of the procedure.

Construct Chalkline #2 as follows:

1. Measure exactly 9'0" from the starting point along chalkline #1.
2. Measure exactly 12'0" from the starting point approximately perpendicular to the line #1. Mark an arc (line) on the floor parallel to Chalkline #1 four to five inches long as indicated by Arc "B".
3. Measure exactly 15'0" diagonally from point "A" to Arc "B" as indicated.
4. That point on Arc "B" exactly 15'0" from point "A" when connected with the starting point gives a line exactly 90º to Chalkline #1. For maximum accuracy, this procedure should be repeated on the opposite side of Chalkline #1. A chalkline or a dry line should be stretched between the two intersection points created. If measurements are accurate, the string will go directly across the starting point.

METHOD #2 - DOUBLE ARC METHOD:



Chalkline #1 - Same as in Triangle Method.

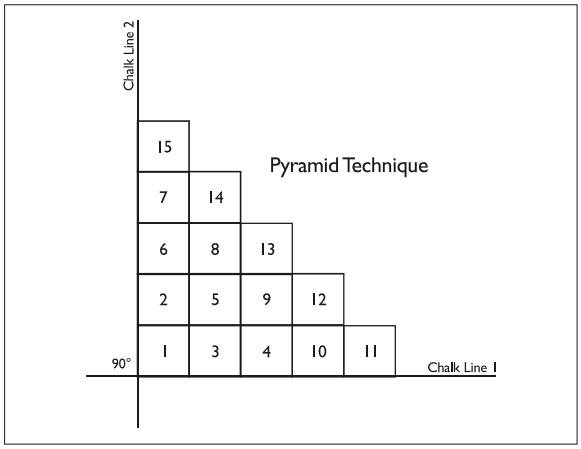
Chalkline #2 - Select starting point same as Triangle Method and proceed as follows:

1. From the starting point, measure any convenient distance both directions along Chalkline #1 and mark point A & B on the floor (see diagram). These points should be as close as possible to the end walls of the area and must be the same distance from the starting point.
2. From points A & B measure diagonally as indicated by the dotted lines allowing the tape measure to feed out until you are close to the side wall. Place a framing square or a carpet module at the starting point aligned with Chalkline #1 to act as a visual guide to tell you when you are close to 90 degrees. Once you feel you are close pick a distance and remember it.
3. Strike an arc (Arc #1) measuring the distance determined above from point "A". Now working from point "B", measure diagonally using exactly the same distance used to strike Arc #1 and strike Arc #2. This intersection point connected to the starting point is a 90-degree angle to line #1.
4. As in the Triangle Method, this procedure should be repeated on the opposite side of line #1. Once accurate chalklines are applied, begin installation at the intersection point of the two chalklines.

When working with TractionBack®, it is necessary to move across the newly placed modules very carefully until the installation can be locked in at the perimeter.

GENERAL:

- The pyramid technique (see diagram) gives three alignment checkpoints on each tile placed and should be used on ALL products regardless of module size or backing. This technique also helps control spacing or "growth" and keeps the entire layout closely referenced to the chalklines. Strict attention should be paid to corner alignment. Tiles found to be out of alignment by more than 1/16" (1.6mm) on 18" (457mm) product or 1/8" (3.2mm) on 36" (.91m) product should not be used. Some "wandering" of edges due to undulation in the floor is unavoidable. This will be gradual and tend to come and go randomly, however, if corners become misaligned and this misalignment continues to increase, this indicates an out of square condition. The problem should be immediately determined and corrected.

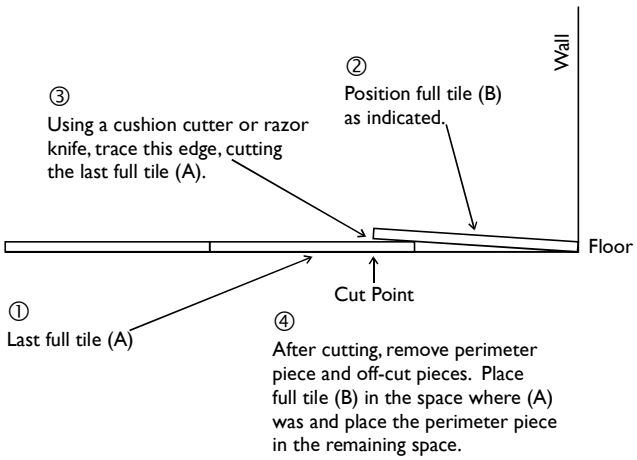


- Always **SLIDE** each module into position from the side to prevent trapped yarn. Set each module by firmly rubbing both joints. Should the TractionBack become contaminated with dust, the back of the module should be wiped with a damp cloth to remove the contamination and restore the effectiveness of the TractionBack.
- Modules should be tight but not compressed. Peaking will occur when modules are too tight. Too loose an installation will never achieve the best possible overall appearance and, can show gaps over time as the looseness accumulates in one area.
- Tightness or "growth" should be determined by measuring the distance covered by 11 full modules (10 joints). This measurement should be no more than 1/8" (3.2mm) over the calculated distance for eleven tiles. In some cases this distance may be less than calculated. This distance may also vary between the length and width of the product. Once this "growth" figure is determined it must be maintained throughout the installation.

- Directional arrows are applied to the back of each module indicating pile direction. This allows the customer/installation contractor to choose the method of installation preferred – Quarter-Turned, Monolithic (Corner-to-Corner or Ashlar), Random, 180 degree turned. Checkerboard, Mosaic or a mixture. Some designs REQUIRE that specific installation methods be used to achieve the desired visual. Always check with your Milliken representative or call Technical Services if there is any question.
- Whenever possible it is recommended that arrows be run parallel to major traffic lanes. Unless it is unavoidable, arrows should not run across hallways.
- Installations receiving heavy rolling traffic should be locked in every 30'.
- When installing Milliken Carpet with TractionBack® on inclined surfaces a locking mechanism (Milliken Pressure Sensitive Adhesive) must be used for the entire incline area.

CUTTING:

- The parallel or "scribe" cutting technique is one method of easily and accurately cutting modular carpet. (See diagram below) This method is valid regardless of backing system. This method yields a good vertical cut that is snug but not compressed. Any method that achieves this result is acceptable.
- **A fixed and unmoving perimeter is mandatory to insure the performance of the finished installation. To avoid tile movement or shifting, requires that each module be firmly fitted (within 1/16th inch) to all wall lines or fixed building structures. When this is not practical, the product must be securely anchored using a perimeter adhesive (18"-24" wide) or double sided tape. Adhesive or double sided tape should be used under all partial or cut tiles measuring less than 12" in any single direction.**



- In situations where vertical abutments do not extend to (connect with) the floor, or cutting techniques do not yield a snug fit to the wall, Milliken recommends the use of a locking mechanism. A minimum of two strips double faced carpet tape or a 12" wide application of Milliken pressure sensitive adhesive applied along the walls are applicable locking mechanisms.

- Properly installed installations with TractionBack® can begin receiving foot and rolling traffic as soon as they are finished and **locked into the perimeter** of the area. Exposed edges should be protected when rolling heavy loads such as pallets of carpet across the installed portion. Plywood or Masonite should be positioned on carpet when heavy furniture or supplies are moved.

- The recommended casters for desk chairs should have a tread width of 3/4" to 1" (19mm to 25mm), and a wheel diameter of 2"- 21/2" (5cm - 6cm) tapered. Hard polyolefin composition is recommended. For more detailed information, contact Milliken Technical Services.

TRANSITIONS:

- For the most attractive finish with its modular products Milliken recommends the use of top set cove base after carpet installation is completed.
- Appropriate transition strips MUST be installed wherever there is a potential for an edge to be exposed or where Milliken carpet finishes to another flooring type. The total thickness of Comfort Plus®- and Underscore™-backed products requires a transition treatment capable of accepting the carpet without the necessity of modifying or adapting the edge. Johnsonite's EG-XX-W edge guard and CRS-XX-D reducer have proven successful for edge protection for Comfort Plus- and Underscore-backed products. Equivalent products from other manufacturers are also acceptable.
- Johnsonite transition treatments and similar products from other manufacturers are sold through distributors. For the location of the nearest Johnsonite distributor, call 800-899-8916. When obtaining transition product from other manufacturers, always be sure to specify the total thickness of the carpet product being installed to insure the correct transition product is used. **USE OF IMPROPER AND/OR INADEQUATELY INSTALLED TRANSITION TREATMENTS WILL RESULT IN EDGE FAILURE. SELECTION AND INSTALLATION OF THESE PRODUCTS IS THE RESPONSIBILITY OF THE INSTALLATION CONTRACTOR.**

PROTECTING CARPET AFTER INSTALLATION:

Milliken & Company recognizes CRI 104 (The Carpet and Rug Institute) as the standard guideline for protecting carpet and associated materials after installation.

CRI 104 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 the 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 the potentially affected areas."

Also, CRI cautions: "Self-adhering plastic film 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."

NOTE: THE ABOVE INSTALLATION INSTRUCTIONS ARE GENERAL IN NATURE AND ARE NOT COMPLETE FOR EVERY MILLIKEN MODULAR CARPET PATTERN. SOME MILLIKEN PATTERNS REQUIRE SPECIFIC INSTALLATION METHODS (QUARTER-TURNED, ASHLAR, ETC.) TO ACHIEVE THE DESIRED APPEARANCE. ALWAYS CONSULT YOUR MILLIKEN REPRESENTATIVE OR TECHNICAL SERVICES IF THERE ARE QUESTIONS ABOUT THE CORRECT INSTALLATION METHOD.

This information is supplied by Milliken & Company
300 Lukken Industrial Drive West, LaGrange, Georgia 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 #3

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