

# INSTALLATION BASICS FOR TUFTED BROADLOOM BACKING

## Basics

Bentley Mills has adopted the Carpet and Rug Institute's "Standard for Installation of Commercial Carpet," (CRI 104) ([www.carpet-rug.org](http://www.carpet-rug.org)) as the basic minimum industry guideline for the installation of Bentley Mills carpet. Please note, however, that the instructions for some specific styles may exceed the basic minimum requirements set forth in the CRI 104 Standard. When consulting the CRI 104, please make certain it is the most recent edition and contains the latest updates. Copies may be obtained on the CRI website. These instructions relate to Bentley Mills' tufted broadloom carpet and include all the special backings, whether High PerformancePC, Prestige PlusRC, Optimum Barrier II, Optimum Barrier II Cushion, or Easy Street Cushion.

## Conditioning the Space

The temperature should be between 65 and 95 degrees Fahrenheit. Humidity should not exceed 65 percent. The building receiving the carpet should be enclosed and, in many instances, requires that the air be either heated or cooled to assure proper conditions.

## Concrete Subfloor

All new concrete shall be fully cured, clean, and dry. Old concrete must be clean, dry, level, and free of paint, dirt, old adhesive, oils, or other contaminants. All concrete floors must comply with moisture and alkalinity requirements prior to proceeding with installation. The concrete shall be free of curing or parting agents that interfere with the bonding of the adhesive. Whenever a powdery surface is encountered, such as lightweight concrete, a sealer compatible with the adhesive, such as Taylor's Zephyr or 2025 Primer must be used to provide a suitable surface for direct glue installation.

Level the floor to the standards outlined in the American Concrete Institute specifications for Concrete Building ACI 301 in regards to trowel finish and finishing tolerance. Leveling compounds must be Portland-based cement. Patch cracks and holes with one of the following approved patching compounds: Ardex Feather Finish, Ardex K-15, Henry's 547, Mapei Plani Patch, or similar cement-based compound. Do not exceed manufacturer's recommendation for patch thickness. Gypsum-based compounds are not recommended.

Please note: Incompatible adhesives, solvent-based materials, and other contaminants should be removed and the residue encapsulated prior to installation of carpet. Please contact Bentley Mills for further information at 800.423.4709.

## Concrete Moisture

Concrete floors, even with adequate curing time, can present an unacceptable moisture condition by allowing excessive amounts of moisture vapor to pass through to the surface. Vapor emission from concrete sub floors can destroy adhesive and cause installation failure.

## Test Conditions

Accurate testing of concrete floors requires the building to be HVAC controlled, remove fully enclosed with the air conditioning and heating system functioning to a level similar to that expected when the space is occupied.

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## Calcium Chloride

The test must be administered in strict adherence to the specifications of the ASTM F1869 test procedure. Moisture emissions must not exceed eight (8) pounds or less per 1,000 square feet for 24 hours. If the test results are higher than eight pounds, do not proceed with the installation until subsequent testing demonstrates the emission rate is eight pounds or less. Once testing has confirmed the slab to be within eight pounds of moisture as determined by the proper application of the calcium chloride test, the chemical pH of the slab must also be determined.

## Relative Humidity

The test must be administered in strict adherence to the specifications of ASTM Standard F2170 and as described here. Moisture levels in the concrete subfloor must be 90 percent or less before proceeding. Once levels have been determined to be 90 percent or less, then the chemical pH of the concrete subfloor should also be tested. In the event of a discrepancy between calcium chloride Test results and the results from relative humidity testing, the decision on whether to remediate or correct excessive vapor emission should be based on results from relative humidity testing. Relative humidity testing will take precedence over calcium chloride testing when both tests are performed on the same project.

## Chemical Ph

All concrete floors, old or new, should be tested for alkalinity by using an alkalinity test kit, a pH Test Probe or pH Test Meter. The slab should have an alkalinity level ranging from 6.0 to 9.0 to be suitable for installation. Chemical pH test strips should be capable of measuring a range of 0-14. The area to be tested must be enclosed and acclimated as described.

## Conditioning Carpet

Let the carpet breathe prior to installation. All carpet should be rough cut and dry laid or spread out prior to installation in the area to be installed. This step is essential for many shifted graphics styles, allowing the carpet to assume the same basic moisture level likely during the installation. The amount of time necessary for conditioning will depend upon temperature extremes during storage. In humid areas of the country or during humid periods, more time may be required to allow the carpet to acclimate and water-based adhesives may need more time to flash off prior to placing carpet into the adhesive to prevent growth and shrinkage. Ideally, the carpet should be allowed to condition in the space to be carpeted for 24 hours, whenever possible.

Please note: Bentley Mills cannot be held responsible for carpet stability issues such as expansion, or contraction when carpet is not properly conditioned prior to installation.

## Row Cutting Only

Both side seams on tufted broadloom carpet should be row cut. Row cutting means trimming the carpet along the space between the tufted rows on both selvage edges in a manner that yields a full, complete pattern when the two portions of the pattern are put together in a seam. Row cutting is essential to achieving an acceptable pattern match. Row cutting involves opening a row with a flat-blade screwdriver and cutting along the space between the rows using a loop pile or cushion-back top cutter. On patterned carpets, the row being cut should correspond with a portion of the pattern in such a way that a full pattern is obtained when two breadths of carpet are seamed together.

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## **Broadloom Adhesive**

Bentley Mills' Healthbond 1000 premium multi-purpose adhesives are recommended for all Bentley Mills' tufted broadloom carpets. Healthbond 1100 is an excellent choice when more open time is needed to align pattern carpets. Use a spread rate around 10-12 square yards per gallon of adhesive.

## **Seal All Seams, Transitions**

A consistent bead of seam sealer must be applied to the carpet edges to be seamed in a direct-glue installation. Bentley Mills' Healthbond 3000 Seam Sealer is water based and low VOC. A bead should be large enough to cover the primary backing, yarn bundles and secondary backing, but never contact the face fiber. Raw carpet edges that transition to hard surface flooring, stairways, or entryways should be protected with a bead of Healthbond 3000 Seam Sealer and a proper transition strip.

## **Stretch-In**

Today, most patterned carpet styles can be manufactured with an attached cushion. A factory-attached cushion offers comfort under foot as well as the added security of a direct-glue installation and single-source responsibility. Yet, in spite of the long-term potential for installation-related issues, many Bentley Mills' styles are still installed by the stretch-in method. Due to the difficulty many installers have with getting a proper stretch in larger office spaces and because of the problems associated with buckling or rippling carpet, Bentley Mills recommends always using attached cushion whenever possible.

Remember these important steps for any stretch-in installation:

- All broadloom carpet being installed in a stretch-in application must be power stretched (1%) one percent in both the length and width of the carpet as outlined in the CRI 104.
- Calculate the amount of stretch needed to achieve one percent (1%) in both the length and width. That amounts to about an inch and a half stretch for every 12 feet of carpet length and width.
- Use double tackless strip or architectural tackless strip throughout the installation.
- Select a cushion with a minimum density of 10 pounds and a thickness that is a maximum of 3/8 inch.

## **Buckling**

Proper power stretching reduces the potential for the carpet to later buckle or wrinkle during shifts in humidity levels. Buckling or rippling carpet in a stretch-in installation are not considered manufacturing defects and can usually be traced to inadequate stretching during the initial installation. When carpet buckles, the only certain means of correction is to remove all furniture and completely re-install the carpet with proper power stretching techniques. A proper re-stretch means that the carpet will be stretched past corners and doorways, creating the need for plugs. In all likelihood, seams will have to be opened and remade.

PLEASE NOTE. Buckling and wrinkling carpet occur as a direct result of inadequate stretch during the initial installation; a failure to allow carpet to acclimate prior to installation; a cushion that is either too thick or too soft; and/or a tack strip that is incapable of firmly securing the carpet along the perimeter of the installation. Buckling and wrinkling are not considered manufacturing defects.

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For these reasons, Bentley Mills will not be responsible for buckling or wrinkling in stretch-in installation.

## **Patterned Carpets**

Sequence rolls to be used in the installation by pattern measurements of each roll rather than by roll number. To help the installation go more smoothly, Bentley Mills takes extensive pattern measurements for each roll of an order on all patterned Bentley Mills carpet styles. A list of rolls and their pattern sizes should be provided to the purchasing contractor to aid sequencing. These pattern measurements and the pattern sequence list can help prevent surprises and mismatched patterns. Please use these complimentary measurements to help stage the project and to dry lay as much of the job as possible before spreading adhesive. Be prepared to power stretch as necessary to overcome inherent variation or elongation.

## **Sequence Rolls by Pattern Measurement**

Always install the single roll with the largest pattern measurement first. Then, sequence subsequent rolls by decreasing or smaller pattern measurements. The smaller patterns can be power stretched into alignment with a larger pattern. However, large patterns cannot be compressed to align with smaller patterns. For that reason, dry laying carpet breadths prior to spreading adhesive is an essential step to help the installer visually determine how the patterns will align prior to spreading adhesive. Power-stretched carpet should be held in place with stay nails until the adhesive has fully set to prevent recoil. If pattern measurements are not readily available, the installer should be prepared to perform similar pattern measurements to plan suitable roll placement within the installation. Bentley Mills cannot always guarantee an exact pattern match. Pattern variation is inherent in patterned textiles. However, the installer should be able to combine sequencing, dry laying, and power stretching to achieve a patterned installation that is visually square and in acceptable alignment. If the installer finds, for any reason, that an acceptable installation cannot be achieved, it becomes the installer's responsibility to STOP the installation immediately, before spreading any adhesive or cutting any more carpet, and call Bentley Mills Customer Quality Assurance at 800.423.4709.

Bentley Mills will not be responsible for installation of carpet that appears out of square or with patterns that have obvious variation.

## **Materials for Protection**

If required to protect the finished floor covering from soil or paint, or if additional work is to be done after the installation, cover with a non-staining building material paper such re-enforced Craft Paper. Protect the installation from rolling traffic by using sheets of hardboard or plywood in potentially affected areas.

Please note: It is important for the adhesive to be able to cure without being restricted by a plastic membrane that will not allow moisture and adhesive off gassing to escape. Material used to protect the installation should permit the adhesive and subfloor to breathe.

**CAUTION:** Never place plastic sheeting over any carpet installation. In addition to posing a slip hazard, plastic with a pre-applied adhesive may leave a residue that can result in rapid soiling after removal. More importantly, plastic can trap moisture that will retard adhesive curing. The

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resulting trapped off-gassing from adhesive and subfloor emissions can cause irreversible discoloration of the carpet.

Bentley Mills will not be responsible for carpet discoloration or rapid soiling if plastic is used as a protective material following installation or at any other time during the installation.

### **Avoid Double Glue**

Bentley Mills does not recommend double glue as an installation method because of the many variables that can contribute to installation failure, often within the first two years of installation. Such failures are difficult or impossible to repair. Variables that can lead to double glue failure are not related to the carpet itself. Bentley Mills will not be responsible for bubbling, buckling, or wrinkling that may occur with a double-glue installation.

### **Factory Attached Cushion**

Bentley Mills prefers the superb performance record, the long-term security and single-source responsibility of one of our attached cushion products, such as Prestige PlusRC, a dense, factory-attached polyurethane cushion.

### **Contact Us**

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