



## Beaulieu Residential

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### **Outdoor Installations-Revisited**

Spring is the season that welcomes in outdoors enthusiastic individuals who have been penned in for months and are now in need of their favorite fix. For these individuals, artificial turfs and other outdoor carpets are popular building and renovation materials that come in a variety of types, colors and constructions.

Because outdoor carpet installations must be scheduled during certain temperature and humidity levels, Spring is an ideal time to install outdoor carpet in preparation for the warm months ahead and the ensuing increase in the amount of time individuals spend outdoors.

When considering climate conditions for outdoor installations the attention here centers on how carpet adhesives respond to cold, wet and hot conditions. According to The Carpet and Rug Institute's Installation Standards CRI 104 and CRI 105, outdoor carpet installations should be done when temperature ranges between 65 F and 95 F, and when relative humidity is between 10% and 65%. And, when installing over concrete, slab temperature must be a minimum of 65 F. Here's why: if temperature is too cold it will significantly reduce adhesive set up time, which more often than not results in insufficient adhesive transfer. If relative humidity, is too high adhesive flash off is slowed and adhesive set up time is affected similarly. If temperature is too hot an opposite effect occurs with the adhesive, causing it to set up too quickly. In each of these examples the end results is what appears to be a carpet that appears not to stick to the adhesive, when in fact the installation has been compromised by an adhesive that will no longer stick to the carpet. While adhesive manufacturers include useful instructions relative to set up time, this is variable, and the time required here will vary from one installation to another based on temperature and humidity influences. And although there is no strict standard for wind conditions, windy conditions can also compromise adhesive grab by causing the adhesive to set up too quickly.

Another point to remember here is that non-porous floors will require additional adhesive set up time before the proper adhesive working time is reached. Installation on low density concrete and concrete that has not fully cured is not recommended.

There is no question that outdoor adhesives must be strong and versatile. Various backing types, subfloor materials, and weather conditions dictate the need for very water-resistant to waterproof high strength adhesives that can be used on Marine, Unitary, ActionBac and other outdoor carpet backings. These include water-based, solvent-based and urethane/acrylic-based adhesives. Which of these adhesives will be used where depends on the need. It's suffice to say that solvent-based adhesives tend to offer the most aggressive, long-lasting grab and the highest degree of resistance to inclement weather conditions.

Adhesive application is of equal importance to the success of outdoor carpet installations. Unitary and woven synthetic secondary backings (e.g. ActionBac) should be installed using 1/8 x 1/8 x 1/8 inch U notched trowel at a spread rate of 8-10 square yards per gallon of adhesive. In these examples, a typical four (4) gallon pail of adhesive should not yield more than 40 square yards of floor spread coverage, unless dealing with a craggy constructed unitary, such as what might be encountered when installing an outdoor graphic carpet. In this case, a 3/16 x 3/16 x 3/16 inch trowel is better suited for the need, and adhesive spread rate should not exceed 8 square yards per gallon. The exception here would be those carpets that are lightweight in construction (both face fiber and backing) such as needlepunch. A V notched trowel size of 3/32 x 3/32 x 3/32 inch an adhesive spread rate of 15 square yards is more practical for these carpets. The use of larger trowel sizes and lower adhesive spread rate can, in some cases, result in adhesive bleed-through to the face of the carpet (which can also happen if these carpets are laid into the adhesive spread before it has reached its proper working time.

Marine Back carpets should be installed using the same trowel size as needlepunch, with a slightly less spread rate of 12-15 square yards per gallon of adhesive. Dimpled backings such as Waffle Back require a 1/8 x 1/8 x 1/8 inch V- shaped trowel, but the same adhesive spread rate as Marine Back. Smooth foam (e.g. Non Skid) and Urethane Backs should be installed using a 3/32 x 3/32 x 3/32 inch U or V-shaped trowel with a spread rate of 12-15 square yards per gallon of adhesive. Installers should keep in mind that spread rate requirements are generally on the lower side of the recommendation if they opt to use a U notched trowel.

Most outdoor carpets can be rolled into the adhesive using only the weight of the carpet's core. This is especially true with lightweight constructions. Over-rolling, and using a roller that is too heavy can result in adhesive bleed through to the carpet's face, especially with needlepunch. It can also cause adhesive chase-out, leaving too little adhesive to properly grab onto the carpet's backing. When more conventional outdoor carpet constructions and backings are used a 50 lb. roller will suit the need.

It is not uncommon for installers to encounter wood and fully cured concrete surfaces in outdoor installations that require sealing. In these cases, an outdoor urethane-based sealer is recommended. Urethane sealers form a strong non-porous film that is compatible with outdoor adhesives.

For more information on outdoor carpet installations please refer to the Tek Newsletter "Outdoor Installation Guidelines" and Section 17.0 "Outdoor Carpet and Synthetic Turf Installation" CRI 104 and CRI 105, which can be seen on their web site at [www.carpet-rug.org](http://www.carpet-rug.org).

**Beaulieu does not make artificial turf for playing surfaces or synthetic carpet including needlepunch for any type commercial end-use installation.**

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