N E W S
L E T T E R

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Factors That Affect Direct Glue Down Complaints

Factors That Can Affect Direct Glue Down Installations

Although the direct glue down method of installation is still the most common method of installation for commercial jobs and is considered to be much less complex and trouble free than the tackless method there are still many variables that can affect the success or failure of these installations. Complaints concerning the adhesive drying too quickly, the adhesive remaining wet, the adhesive not transferring to the carpet's backing, and the adhesive not holding down the carpet are not unheard of in our trade. In many cases the dealer or installer faced with one of these dilemmas' turns to the carpet manufacturer for assistance. In some instances the more exasperated dealer may even go so far as to claim the carpet manufacturer for what they perceive to be a carpet problem.

While it is true that a carpet that is received with wrinkles or with fluted or scalloped edges may present more of a challenge to install **there is no material used in the construction of todays carpet backing systems that would in any way inhibit bonding with the recommended floor covering adhesive.** To further address the issue of recommended adhesives for a given carpet or end-use, one adhesive manufacturer, Advanced Adhesive Technology (AAT), has literally eliminated most of the guess work by designing a high grade adhesive (AAT #675) that is compatable to virtually every backing system and sub floor material you can encounter.

Adhesive manufacturers make every attempt to inform their customers that adhesive performance will vary based on the grade of their product. Just like carpet manufacturers, adhesive manufacturers generally offer a wide range of products, from the very base grade adhesive to the "premium grade" product. Each has its place. Unfortunately, like carpet, the more costly "premium grade" adhesive is occasionally substituted with a base grade product that is incapable of delivering the performance needed. In most cases adhesive manufacturers list the recommended uses for their products on their label. Two bonding strength characteristics of floor adhesives that are generally not listed on the label but deserve consideration when selecting an adhesive, particularly in more critical applications, is adhesive shear and tensile strength. As an example, adhesive shear strength would be a vital consideration for installations with rolling traffic since it addresses the horizontal stresses imposed upon a carpet, while tensile strength would be of interest for products that may be prone to edge curl, such as unitary and urethane. Good adhesive shear strength ranges at or above 150 pounds per square inch, while tensile strengths at 50 pounds per linear inch or above should be desired. Adhesive manufacturers generally have the shear and tensile strengths of their products available and will readily share this information with their customers.

Even when the proper adhesive is used we occasionally hear of complaints concerning adhesive performance. In virtually all cases these complaints stem from environmental factors that influence adhesive set up or "tack" time rather than any deficiency in the adhesive itself.

One factor that controls adhesive set up time is temperature of the adhesive. It is not unusual to experience significantly longer set up times in the winter months if the adhesive is not allowed to adequately condition. Sixty-five degrees fahrenheit should be considered the bare minimum acclimation and working temperature. Cold adhesives that are not allowed proper acclimation may require an additional hour or more to set up, and will be unstable and harder to work with. Most adhesives today are designed to be freeze/thaw stable and will perform as designed and intended even after the coldest exposures, **provided** they are given adequate time to reach their recommended working temperature before use.

Porous subfloors can influence adhesive set up time by absorbing moisture emanating from the adhesive. The more porous the floor the faster the adhesive set up time. Conversely, nonporous floors such as tile and linoleum can as much as double the open time when compared to unsealed concrete and plywood.

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Trowel size will also influence adhesive set up time. The larger the trowel the more adhesive is used and the longer the set up time. Although this factor is somewhat unavoidable, it should not influence the use of an improper sized trowel. Studies have shown that improper trowel size can result in installation failures occurring within as little as three months.

Another consideration for proper adhesive open time is the construction of the carpet's backing. Non-permeable backing systems such as unitary and vinyl require extended adhesive open times since they will not permit evaporation through them. Failure to extend the adhesive open time when installing these carpets will trap moisture escaping from the adhesive between the carpet and subfloor interface, causing the adhesive to remain wet longer and the formation of bubbles under the carpet. Increasing room temperature and decreasing humidity will help expedite adhesive open time requirements (fans will also help speed the evaporation process).

Excessive adhesive open time should also be considered. This is the time when the adhesive skims over and will no longer transfer to the carpet's backing. Under "ideal" conditions the typical adhesive set up time for permeable backing systems such as action back is generally between 20-30 minutes. Since there are so many factors that influence set up time, determining the proper open time for any job may be more art than science. Working with adhesive suppliers' guidelines, many installers make a final determination by simply pressing their thumb into the adhesive spread and then pressing their thumb against their index finger. If two inch "legs" of adhesive develop when separating the finger from the thumb, the adhesive is ready to accept the carpet and adequate floor adhesive transfer should be obtained. The importance of achieving adequate floor adhesive transfer cannot be overstated since foot traffic and changes in the environment can literally shear a carpet off the floor if only marginal adhesive transfer is achieved. Once this occurs a carpet becomes prone to react (shrink or expand) according to ambient conditions. This can often be seen as shrinkage at the seams and along the walls, particularly in outdoor installations, where extreme variations in temperature are often encountered.

Other concerns such as alkalinity, moisture, and adhesive compatibility to various surfaces and finishes, even the environmental characteristics of the adhesive, are all equally important to the success of a direct glue down installation and certainly explains why the same adhesive may perform differently from job to job if variations in on-location conditions are not taken into account. Architects, specifiers, and installers should be encouraged to refer to the Carpet and Rug Institutes Standard for Installation, CRI 104 and 105, for more information. Additionally, most adhesive manufacturers are staffed with knowledgeable technical personnel who can offer invaluable insight to assist even the most experienced installers with problem solving, education and support.