

Pre-installation bond tests for carpet and resilient floor coverings

POROSITY of the substrate affects adhesive open time and eventual drying time. Adhesive generally dries quicker over porous substrates, whereas adhesives applied over non-porous substrates can take much longer to dry. Before applying adhesives, the substrate must be completely free of dust and dirt, paint, oil, curing or release agents (concrete surfaces can be modified by either topically applied compounds or by admixed agents in the concrete before it is poured), sealers or existing adhesives, or anything that would interfere with the adhesive making a good bond directly to the concrete. Excessively hard or smooth concrete surfaces may need to be abraded to achieve porosity. Adhesives and subsequent flooring should not be installed over any substrate where chemical or solvent cleaners or adhesive removers have been used. Concrete may be tested for porosity by pouring small amounts of water (quarter size beads) on the surface to observe absorption. If the water is not absorbed within 5 minutes, the floor should be considered non-porous. Concrete surfaces are generally rendered porous by sanding or bead-blasting.

Concrete sealers, hardeners, and other surface treatments and coatings can adversely interfere with the adhesive bond to the substrate. When in doubt, it is recommended that a bond test be conducted. Residues from dissipative curing compounds and parting compounds that allow separation of tilt-up slabs must be removed prior to applying adhesives. After a thorough sweeping and vacuuming, a bond test should be performed.

It is up to the end user to determine the coverage that is appropriate for flooring and jobsite conditions. A bond test is a mock-up installation done prior to the general installation of the floor covering to indicate whether the adhesive will bond satisfactorily to the substrate and floor covering. Bond testing will aid in identifying both the working characteristics of the adhesive, such as the appropriate open and working time for the site conditions, and also any potential bonding problems to the substrate.

Select an approximately 2-foot square area in a typical location on the substrate and put down the adhesive and subsequent floor covering using the exact techniques that will be used for the installation. After 24 hours, observe the mock-up installation to see if any obvious problems may exist. The floor covering should be tightly bonded to the substrate, and remaining dimensionally positioned in the manner in which it was installed. If necessary, the slab would need to be mechanically profiled (bead blasting recommended) to an untreated depth, until a successful bond test can be achieved.

1. Modular carpet tiles – for a releasable and repositionable installation, the adhesive should be applied to the substrate in the recommended manner and application rate, either by trowel or roller, and allowed to dry completely. Observe the adhesive drying time, which will vary with the floor porosity and ambient conditions. After placing the carpet tile, observe whether it can be lifted without adhesive being removed from the substrate (transferring to the carpet tile backing), and whether the tile is held tightly or slipping. Evaluate again after 24 hours.

2. VCT - apply the adhesive to the substrate using the recommended trowel and application rate, and allow the adhesive to dry completely. Again, observe the adhesive drying time. After placing the VCT tile, observe whether the tile is bonded tightly to the floor, by trying to lift the edges with a scraper or other means. Evaluate the adhesive bond again after 24 hours.

3. Broadloom carpet - apply the adhesive to the substrate using the recommended trowel and application rate. Lay the carpet, either into the wet adhesive or after some allotted tack up time, depending on the carpet permeability or the substrate porosity. As the carpet is being laid, observe the adhesive legging and degree of contact with the carpet backing, and whether the carpet can be positioned easily or not. Evaluate the adhesive bond again after 24 hours. On wet set adhesive installations, do not lift the carpet until after 24 hours have passed.

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