



Adhesive Failures



The planning of installations is essential to cost control. Without it waste and delays creep into the work. In time this can cause failures as the installer speeds up his work to cut his losses. With adhesives, it is important to schedule the work so that the correct adhesive will be used properly and perform as expected.

In spite of its importance, careful planning is not nearly as common as it should be. Inferior and/or incorrect materials are often used on jobs and cause problems. There seems to be three main reasons why the wrong product is purchased:

- Concern about buying the lowest price product
- Insufficient knowledge about what product is needed to achieve proper results
- One adhesive does not work for all products

Usually, the adhesive cost is a very small part of the total cost of the installation. Therefore, “cheap” adhesive doesn’t represent a large savings. My experience has been that below a certain cost level, it is not chemically possible to manufacture consistent, reliable, satisfactory adhesive. Concern about price is often self defeating, and can result in call-backs that are far more expensive. Cheaper adhesives usually have more filler in them, rather than more additives to assist with bonding. Higher filled adhesives also have lower moisture resistance because they have more filler in them than additives. Also, what is the spread rate of the cheap adhesive compared to a higher priced adhesive? Must I use twice the notching to achieve what I need to do? Is that cheaper adhesive really cheaper now? Cheaper adhesives generally have Does using someone else’s low end adhesive void the flooring manufacturers’ warranty? For example, I am installing Armstrong VCT and have chosen a lower cost adhesive, Chapco 775 rather than the recommended and warranted adhesive Armstrong S-515 or S-521 Adhesive. Let’s compare the working attributes of both adhesives;

Properties	Chapco 775	Armstrong S-515
Dry Time	45 minutes or more	45 minutes
Working Time	8 hours	24 hours
Spread Rate	160-260 sq. feet	350-400 sq. feet
Calcium Chloride	5-lbs.	7-lbs.
RH Probe	N/A	90%
Rolling Required	Yes	No

As you can see, the Chapco 775 has less working time, less spread rate, less moisture resistance, I must roll this adhesive, longer dry time, and no installation system warranty. This adhesive better be darn cheap for giving me no benefits.

Also, when an installation problem arises when I use someone else’s adhesive, there is a lot of finger pointing by the manufacturers and you are stuck in the middle. If you choose to use another manufacturers’ adhesive, be sure they will cover you. For instance, Mapei will write system warranties for their products. It seems that many people assume that all products work alike; nothing changes significantly; they know all about the product already from past experience. To some degree these assumptions can be partly true and understandable. However, good job practice should be to keep up to date on changes that have been made to product for possible additions and changes.

It is important to select the proper adhesive for the job to be done. Consideration must be given to open time, working time, ability to properly bond to the substrate, moisture resistance, trowel notching and spread rates.

When a complaint does happen,

The elements of a good installation are:

- A clean, solid substrate
- A substantially dry surface
- A reasonably flat surface
- A tolerable degree of porosity in the substrate (not too high or low)
- Proper temperature requirements

Several years ago, a study was made of product complaints received; only three occur with any regularity:

- Not bonded to substrate
- Adhesive does not set up
- Air bubbles with the flooring.

Adhesive that does “not bond” when:

- The open time of the adhesive was exceeded. Too much open time
- Very porous substrate. Sucks the guts out of the adhesive & is too dry when flooring is placed in the adhesive
- Curing compound or sealer not removed before flooring is installed
- Wrong trowel notching was used (not enough adhesive)
- Outside the recommended temperature (too hot it sets up quickly, too cold it retards the cure time)

Adhesive that does not “set up” results when evaporation or adequate absorption does not occur because it was placed upon a:

- Damp or wet substrate that cannot absorb more water
- Non-porous surface, such as existing vinyl, that cannot absorb water
- Too large a trowel notch was used
- Outside the recommended temperature (too cold)

Air bubbles happen when there is air at the interface between flooring and substrate, and are caused by:

- Not enough open time. Flooring was placed in too the adhesive before it was ready.
- Too large a trowel notch was used or even not enough adhesive was used
- Wrong adhesive used. Adhesive not made for non-porous substrates

Remember, flooring and adhesives have a required temperature range that they perform best in. Too hot and the adhesives set up too quickly. Too cold and they take longer to set up and cure. That is why having the building HVAC system up and running can be critical to the installation. Plus, it helps stabilize and dry out the substrate. The end performance of the adhesives comes down to job site conditions such as, substrate conditions, temperature, and humidity.

The one common denominator in most complaints is the trowel used during the installation. Using the correct trowel is critical and can often help you on a complaint as it will be one of the first things looked at. I get the call about 3 times a year, your “XYZ” adhesive is not getting the spread rate it promises. Every time, the wrong trowel was used. I actually had a veteran flooring person tell me he had no idea every manufacturer had a specific trowel notching for their adhesives. They thought there was a general trowel notching used for all adhesives. By the way, they were only getting half the spread rate promised with the adhesive they were using.....scary.