

Sub Floor Examination and Preparation for ERP-270

FAILURE to read and follow all instructions will lead to the FAILURE of the epoxy sealer installation. This is not a FAILURE of the product but insufficient sub floor preparation.

Any moisture sealer is only as good as the substrate it is applied to. Therefore, PRIOR TO installation, examination of the concrete sub floor for moisture content, color, cleanliness, porosity and pre-existing residues must be completed. Stauf strongly recommends several different tests including but not limited to the Stauf Epoxy Test Kit, Calcium Chloride and RH moisture test as well as core drilling for a general understanding and determination of the concrete slab condition. Only after completing these tests can the proper sub floor preparation be determined.

New concrete:

For the purpose of this document a new slab was poured less than 6 months before the intended installation and has never received any type of surface treatment or had any flooring installed over it. If slab is in contact with ground, an approved vapor barrier must be installed directly underneath the slab. Confirm that there is no hydrostatic pressure. Slab should be free of all construction contaminants such as mud, dirt, curing compounds, paint overspray, dry wall mud, oil, grease, etc. Make sure only water based sweeping compounds have been used, since oil based or chemically treated sweeping compounds will contaminate the slab. Use a diamabrush or similar device to remove all contaminants and create a concrete surface profile 2 (CSP). Unlike a sander or grinder the diamabrush does not push the dust back into the pores of the concrete. Use a dust deputy or similar device between machine and vacuum to prevent vacuum filter from clogging. Deep vacuum and damp tack the entire floor until completely clean. Do not flood the slab with water as this will create slurry that will penetrate the pores. Perform both CaCl and RH moisture tests according to ASTM standards F1869-10 and F2170-11, either before or after the above described surface preparation. Additionally, perform epoxy bond tests using the STAUF Epoxy test kit on all slabs over 5,000 SF. Record all test results and submit with application for the STAUF Epoxy Warranty. After installation of sealer, the appearance may not be uniform due to varying degrees of porosity in the slab, which does not affect the degree of moisture remediation.

Existing concrete:

For purpose of this document, an existing concrete was poured over 6 months ago and/or has received a prior surface treatment or floor covering. In this case it is absolutely necessary to understand what contaminants might be present and how deep they might have penetrated into the slab. This will determine the necessary mechanical treatment of the concrete prior to installation of the epoxy sealer. Take core samples by following ASTM C42M-13 procedures for obtaining cores and test for contaminants according to Technical Information #16.

In addition, any slab poured over 10 years ago might or might not have an intact vapor barrier underneath. Verify with the building owner or representative whether or not a vapor barrier was installed, what type and when. Perform CaCl and RH moisture tests according to ASTM standards. RH readings over 90% and/or CaCl readings over 12# in some or all areas of an existing slab are a strong indication of a missing or compromised vapor barrier.

Depending on the results of before mentioned core test, it will be necessary to either diamabrush, shot blast or shave the concrete before installation of the epoxy sealer. Examples of proper surface preparation are discussed below, but are only a guideline. Additional work might be necessary. Only the installer at the job site can determine the full extent of necessary sub floor preparation.

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a) Core drill test:

The results from the core drill tests will reveal the amount of organic and inorganic contaminants in the slab as well as how deep these contaminants reach. Shot blasting can take up to 1/8" off the concrete, grinding and subsequent shot blasting will reach up to 3/16". Anything deeper will have to be removed using a shaver, then grind to smooth out the surface, then shot blast to create the required CSP3 surface profile.



b) Extremely high moisture and/or missing vapor barrier:

RH Moisture meters generally have a +/- 2% variance that elevates to +/- 3% once readings over 90% are acquired. Simply put, any reading of 97% or above means the slab is saturated with water and could be subject to hydrostatic pressure. Collect information from the building owner or operator to determine whether or not there is a vapor barrier underneath the concrete slab and if there have been signs of hydrostatic pressure or a compromised vapor barrier.



c) High moisture without hydrostatic pressure:

RH readings of 97% or less and CaCl readings of 18# or less and the absence of organic and inorganic contaminants require only shot blasting to CSP3. This will create a surface profile that gives the epoxy sealer a mechanical bond in addition to a chemical bond.

d) Sealers & curing compounds:

Place a water drop on the concrete; if the water beads and does not absorb into the subfloor, then there is a compound on the concrete that needs to be removed. Shot blasting to a CSP3 will usually take off enough concrete surface to open up the pores. This will create a surface profile that gives the epoxy sealer a mechanical bond in addition to a chemical bond.



After any of the above described surface preparations, use only water based sweeping compounds since oil based or chemically treated sweeping compounds will contaminate the slab. Deep vacuum and damp tack the entire floor until completely clean. Do not flood the slab with water as this will create slurry that will penetrate the pores.

Visit the Stauf web site for more information or call Stauf Technical Services at 901.820.0007.