

3/11/23

SURFACE PREPARATION

Importance of Surface Prep

One of the most underrated components of coatings and restoration work is hidden well beneath the finished product. Whether its roofing, flooring, or corrosion protection, an age-old adage summarizes the overall long-term performance of a product: “You are only as good as what you are going over.” In some cases, this means complete removal of overburden, eliminating yeas of degradation or potential contaminants. Other times, the solution is proper cleaning and surface preparation. We can dive deeper into these concepts as they relate to specific trades and applications.

CONCRETE

Most coatings manufacturers (and I will certainly not speak for all) would prefer a direct to concrete application. While concrete presents its own specific problems as related to moisture content, the finish of a concrete surface will have a profound effect on the overall performance of the applied system. In regards to the products we sell, a CSP 3-5 is required. ***CSP refers to the “surface profile”, or in some circles, “roughness” of a concrete substrate.*** By properly “roughing up” the surface, we will effectively create more surface area for a coating product to adhere to. Smooth, unprepared concrete, will give a contractor less area to bond to, yielding an overall weaker adhesion. As a general rule in coatings, the heavier the mil thickness you plan to apply, the greater your surface profile will have to be. Potential methods for achieving a profile include:

- Grinding to achieve a CSP-2
- Shot Blasting to achieve a CSP 3-5

We also look to open up a concrete substrate to increase the porosity, or how much a liquid will penetrate the surface. In many cases, we can recommend a Water Droplet Test. In summary, if a drop of water sits on the concrete and does not penetrate, we can assume a liquid product will behave similarly. The image show is of a substrate that is not sufficiently porous, and “failed” the test.



*Importance of
Surface Prep*

WATER DROPLET TEST

ASTM F-3191

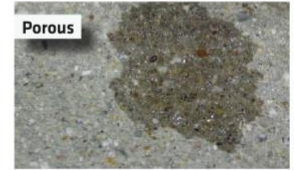
ASTM F-3191 developed a test in order to determine the porosity of the substrate, steps are listed here:

1. Substrate must be clean and free of dust
2. Place a single drop of portable water (quarter size) on the substrate using a pipette
3. Results determination

Length of Time to Absorb	Substrate Determination
≤1 minute	Porous/Absorptive
> 1 minute	Non-Porous/Non Absorptive

4. Perform three tests for the first 2,000 ft² and at least one for each additional 3,000 ft².

Note: the size, shape and color of the water drop may indicate the presence of contaminants onto the substrate.



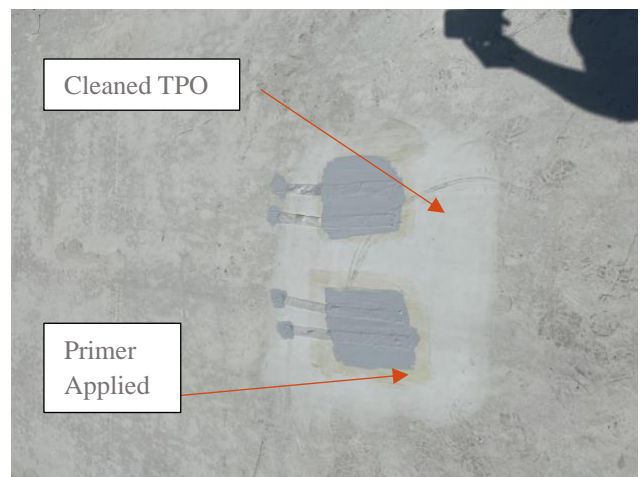
EXISTING MEMBRANES

We take a similar approach in roof coatings. While shot blasting, grinding, and Water Drop Tests are not applicable methods for prepping or evaluating existing membranes, similar principals apply. We'll consider this through the lens of an existing TPO membrane. We have several factors to consider:

- What is the age of the membrane?
- Where is the building located?
- What contaminants or greases is the membrane exposed to (stacks, mechanical units etc.)

In the case of an existing TPO (or any other membrane), we would first perform an adhesion test in which we replicate the cleaning and application process. Proper cleaning rids the surface of contaminants (which would ultimately act as a bond inhibitor) and provides a clean surface for us to coat. We would then apply our primer and test strips. We **MUST**

ensure the surface is dry and that our primer is TACK FREE.



In some cases, depending on the age of the membrane, we may recommend a slight "scuff", which as previously discussed, creates more surface area for our primer to bond to. This can usually be done by applying primer with a scrubbing pad. In the next post, we'll consider the bond strength and what subsequent values mean.

HYDRO-CORR SPECIALTIES

DAVIDSON, NC