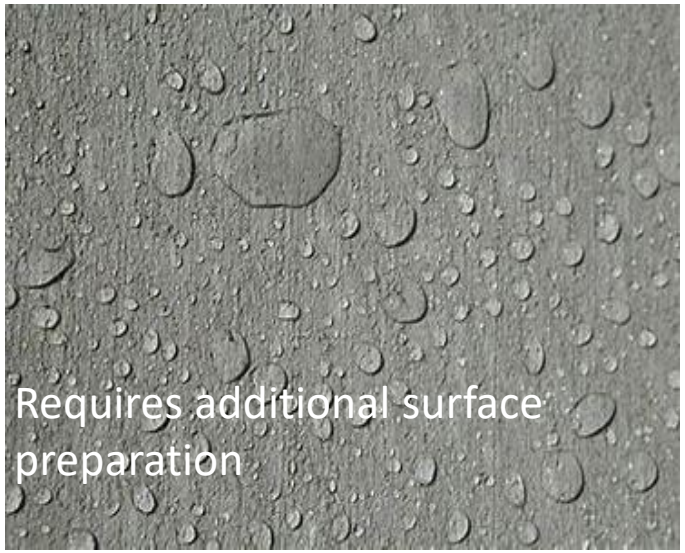
GARAGE FLOORING LLC

THINGS TO KNOW BEFORE INSTALLING YOUR GARAGE FLOOR SYSTEM AND HOW TO TROUBLE SHOOT PROBLEMS

ADEQUATE SURFACE PREPARATION:

Scratch testing concrete Is done to determine a slab's abrasion resistance. The test gives some an indication of how easily the floor will grind. Higher abrasion resistance concrete generally requires more surface preparation to achieve a good bondable surface for coating system adhesion. For non-professional, do it yourself application, surface preparation is the most difficult part of the project. The concrete surface needs to be porous enough to allow the coating to soak into the concrete and create a mechanical bond. Scratch testing is generally only use by professional contractor. The next slide indicates a common test that can be used as a good indicator of adequate surface preparation.

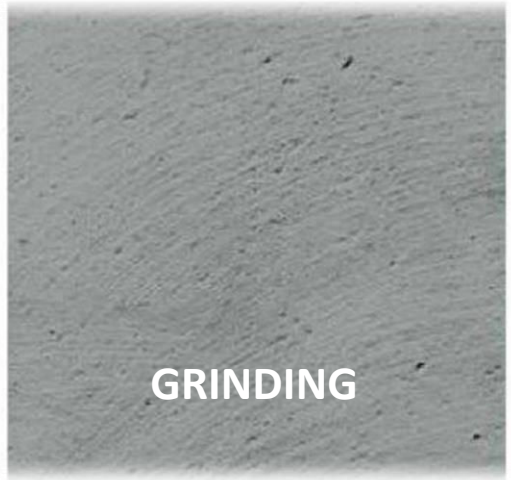
WATER DROP TEST TO DETERMINE ADEQUATE PREPARATION. A quick and easy method to tell if the surface has been properly prepared is known as “the **water** drop test.” Simply sprinkle water droplets onto the concrete slab and observe. If the droplets quickly “wet out” the surface, absorbing into the concrete like a sponge, then a coating will generally do the same. Most coating application failures are due to poor surface preparation.



SURFACE PREPARATION:

Acid etching, grinding and light sandblast are acceptable preparation methods. The objective is to prepare the concrete by opening the surface to allow for coating integration providing a strong mechanical bond. Surface preparation is the key element for long term success. The concrete surface must allow the coating to absorb into the surface of the concrete to create a strong mechanical bond.

The surface profile, an overly aggressive surface profile can telegraph thru on thin mil applications.



ACID ETCHING VERSUS GRINDING:

While acid etching concrete is affordable and relatively easy to do yourself, hiring a coating specialist is the best option if it fits within your budget. A coating specialist will choose to prepare the surface of the concrete using mechanical means such as shot blasting, grinding, or dustless sanding. These methods are ideal for surface profiling concrete as they provide a uniform result. The machines that are used are designed to collect the large amounts of dust that is created during the process. However, this option requires the involvement of experts and heavy machinery.

One could attempt to use a grinder and an abrasive disc to prepare concrete themselves, but this can be challenging to do correctly. Acid etching proves to be the best option for someone looking to prepare and coat concrete flooring themselves without the involvement of a professional. Below is a simplified comparison of acid etching and surface grinding.

MURIATIC ACID:

Muriatic acid is the most common and most effective acid used for etching concrete. Muriatic acid is an unrefined variant of hydrochloric acid, and can be identified by its yellow hue, which is due to its high iron content. It is a very powerful acid that is used to clean masonry of rust and excess mortar, but it can also eat away at fabrics and corrode most metals. It can burn skin and the noxious fumes can damage your lungs and nasal passages if inhaled.

HYDROCHLORIC ACID:

As well as being found in gastric acid – also known as stomach acid – hydrochloric acid is also used to process steel, treat **swimming pools**, and is used in the manufacturing of batteries. Hydrochloric acid can also be used in the etching of concrete. It is just as powerful as muriatic acid and therefore the same amount of care should be taken when handling it.

PHOSPHORIC ACID:

Phosphoric acid is a weak acid that is found in household cleaning detergents and is often used as a food additive. It is far safer to work with than muriatic acid and hydrochloric acid. The downside is that along with being less effective, it is not widely available, and it is more expensive.

CITRIC ACID:

Citric acid is found in citrus fruit and is widely used in the food manufacturing industry. Because it is a weak acid, it has a longer reaction time than muriatic acid or hydrochloric acid, which means that it takes longer to etch the surface of the concrete. Just like phosphoric acid, it is safe to use and less protective gear needs to be worn, although it does come at a higher price.

OTHER ISSUES THAT CAN CAUSE PROBLEMS WHEN COATING CONCRETE:

LAITANCE is a build-up of weak, powdery-type concrete particles on the surface of newly installed concrete. It is quite common and is due to too much water in the concrete mix. During the curing process, water rises to the surface and brings with it fine particles of concrete that will eventually dry onto the surface.

EFFLORESCENCE is similar to laitance in that it is a build-up of chalk-like substances on newly installed concrete. Instead of containing sand and concrete particles, it contains salts. Efflorescence can provide a similar problem when it comes to the adhesion of a new coating but etching with muriatic acid can remove this stubborn residue.

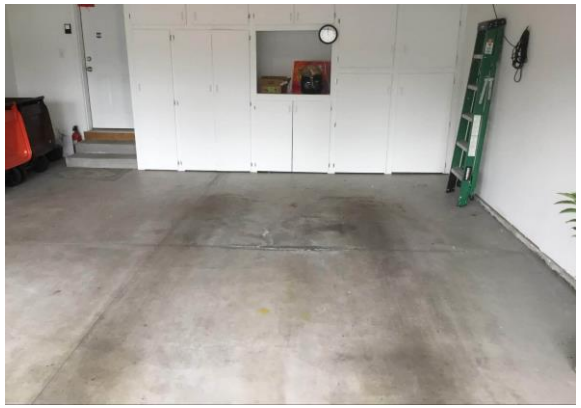
LATANCE IN CONCRETE

EFFLORESENCE IN CONCRETE

RESIDUAL OIL AND CONTAMINATES can cause adhesion problems after application. The concrete must be cleaned and degreased to avoid future peeling and bonding. The first step is to use a concrete cleaner and degreaser. This will remove oil stains from the surface of the concrete, unfortunately it is difficult to remove all the oil or contaminants that may have soaked into the concrete over many years. Oils over time can migrate to the surface under the coating and can lead to chipping or peeling.

Acid etching after the surface has been cleaned with a degreaser can help further remove latent oil and contaminants. It important to clean the concrete as much as possible prior to applying coating products.

Problems that can occur with inadequate surface cleaning prior to coating application.

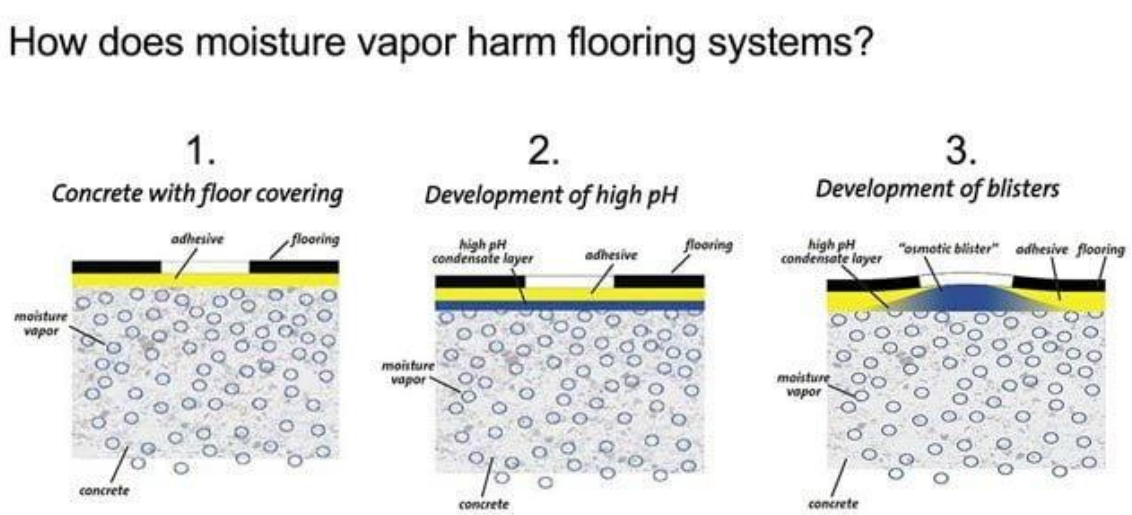



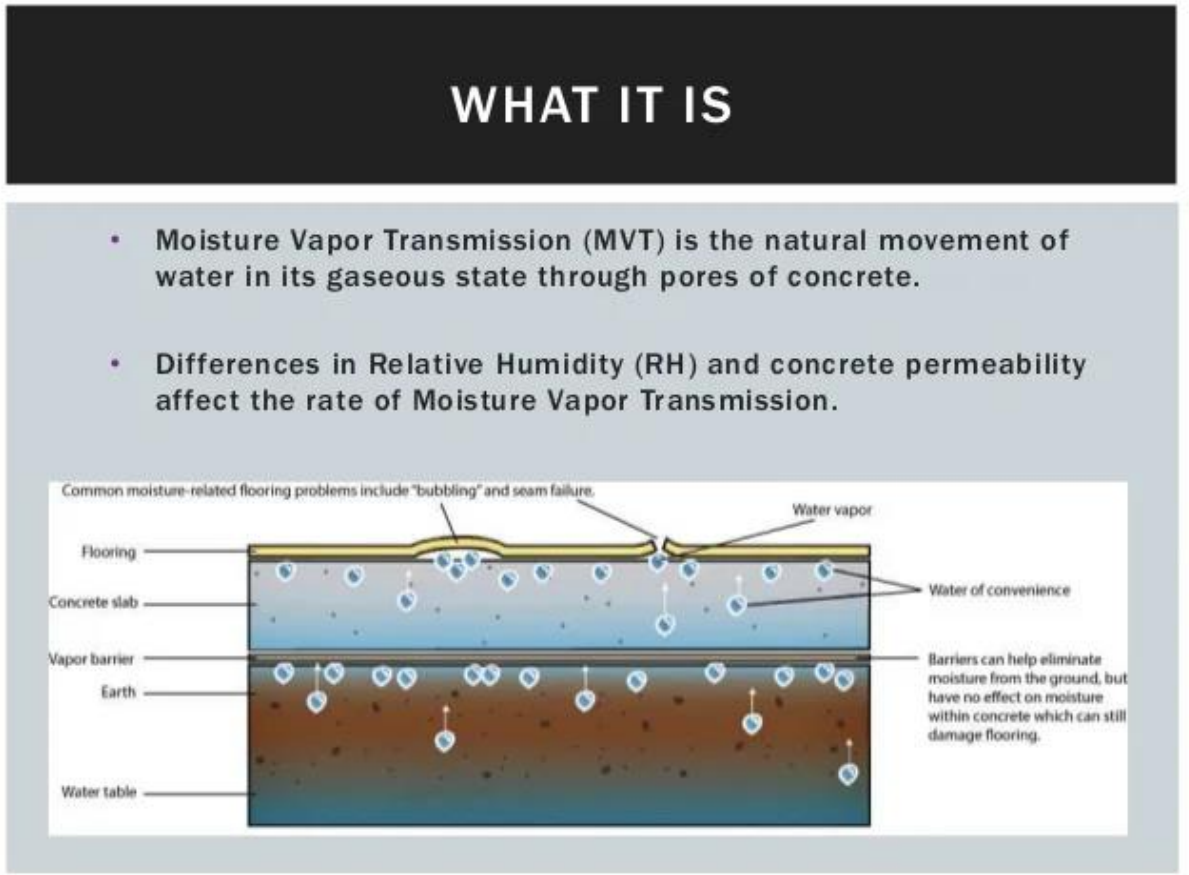




Moisture Vapor Transmission

Delamination or raised fluid filled blisters are often seen as the direct result of moisture or vapor drive issues. Although there are two methods usually associated with measuring concrete moisture in a flooring survey, (ASTM F-1869 Calcium Chloride and ASTM F-2170 Relative Humidity), neither can predict for certain the future for the concrete slab. In other words, these tests, in essence, are a snapshot of current conditions. With this realization, end users must rely heavily on recommendations from both manufacturers and installers on best practice when it comes to preventing moisture failures.





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SURFACE PREPARATION A REPAIR AREA:

When repairing a troubled area remove the loose unadhered coating and prep the concrete to create a clean surface that provides good adhesion. Recoat the repair area using the same process as the original application.