SECTION 1

CONCRETE & MASONRY 101

CONCRETE IS ONE OF THE MOST POPULAR ARTIFICIAL BUILDING MATERIALS ON EARTH.

To take advantage of the coatings opportunities this prolific material presents, you need to have a solid foundation of knowledge about the material itself.

WHAT IS CONCRETE?

Concrete is a material composed of fine and coarse mineral aggregates and sometimes various admixtures bonded together with a fluid cement.

Much like a three-part epoxy, Part A, Part B and Part C are mixed together to create a reaction. In this case, Part A is the aggregate, Part B is the water (activator) and Part C is the Portland cement. When all of these materials are mixed in the correct proportions, a complex chemical reaction called cement hydration takes place. The paste binds to the aggregates, and forms a rock-like mass as it hardens.

WHY COAT CONCRETE?

Even though it can be a very strong, hard substrate, bare concrete is also subject to deterioration. We coat concrete to protect it from various chemical and physical attacks such as:

- Paste degradation. Concrete can be very porous, so chemicals can penetrate the pores and attack the paste.
- Physical wear of the paste and aggregate from impact and abrasion.
- Water damage. Water can penetrate concrete, freeze and expand inside it.
- Rebar corrosion damage. Rebar can corrode if moisture, oxygen and chloride ions penetrate the concrete, contributing to the deterioration of concrete.

Other reasons to apply a coating:

- Protect products stored or processed in direct contact with the concrete from contamination
- Improve its appearance
- Increase ease of maintenance
- Provide light reflectance
- Prolong the life of the structure

Terms Of The Trade

AGGREGATES: Inert granular materials such as sand, gravel or crushed stone that provide volume and stability to hardened concrete. Aggregates make up 60 to 75 percent of the concrete and are graded into two types: coarse and fine.

CEMENT: A substance used in construction that sets and hardens and can bind other materials together.

PORTLAND CEMENT: Mined materials like limestone with a clay-like material added to it. This mixture is heated in a furnace until the materials fuse together to form hardened nodules called "clinker." Once cooled, the clinker is reground into fine powder particles to form Portland cement.

CEMENT HYDRATION: The process by which concrete hardens and cures.

MYTH #1

All the products and processes available today to colorize and detail concrete are "coatings."

FACT: There are numerous ways to enhance the appearance of concrete surfaces, but many of these are not actually concrete "coatings."

Acid, polymer and other chemical stains are not paints or coatings, but are a coloring process. Water-based concrete stains, typically composed of acrylic resins — while not technically coatings — behave more like coating products.