



Waterproofing Concrete: Topical Treatments

Most waterproofing sealers can be grouped into two categories: topical and penetrating. Before examining treatment options, however, the difference between waterproofing and dampproofing should be established. The American Concrete Institute (ACI) Terminology Committee (TAC 90-02) has changed the definitions of these terms:

Waterproof: *an idealized property of a material indicating imperviousness to water in either liquid or vapor state.*¹

Dampproof: *a treatment of concrete or mortar to retard the passage or absorption of water or water vapor either by application of a suitable coating to exposed surfaces, or by use of a suitable admixture or treated cement, or by use of a preformed film such as polyethylene sheets placed on ground before placing a slab.*²

ACI has limited the use of waterproofing so that products now fall under the dampproofing descriptor, but most product manufacturers are still using “waterproofing” to describe their products. Spray-Lock Concrete Protection (SCP) utilizes the terms “waterproofing” and “dampproofing” interchangeably to facilitate fair comparison of product performance.

Topical sealers, which include acrylics, epoxies and polyurethanes, form protective barriers on top of the concrete surface. Some of the common issues when applying protective film sealers are surface traffic and proper application. Acrylic and epoxy sealers require regular maintenance due to a high wear potential. Polyurethane sealers are thicker, with a durable abrasion-resistant finish, but water should not be on the concrete surface during application. Additionally, with all topical sealers, reapplication is required when removing flooring placed over a sealed surface.

Another category are the penetrating sealers, which include silanes, silicates, siliconates and siloxanes. These sealers penetrate the top surface of the concrete and react within the bleed water capillaries of the concrete to stop the migration of moisture and deicing chemicals. ASTM F710 requires the removal of these products prior to installing floor covering systems.

SCP products penetrate into the concrete substrate and work differently than other sealers. The SCP products consist of colloidal silica which chemically reacts with the available alkali in concrete to primarily form calcium silicate hydrate (C-S-H), blocking capillaries and pores within the concrete matrix. SCP is a one-time treatment that penetrates the

concrete matrix, reducing water migration levels to an acceptable range for most coatings, adhesives and floor coverings. Within the interaction zone of SCP, the concrete becomes permanently dampproofed for the life of the concrete. Unlike topical treatments, SCP does not wear away or need to be reapplied. SCP Treatment also provides other additional benefits, including reducing drying shrinkage of 40% to 60% typical at 28-days and vapor transmission reduction of 70% to 80% typical.

1 ACI Concrete Terminology – ERRATA as of January 6, 2017

2 ACI Concrete Terminology – ERRATA as of January 6, 2017

5959 Shallowford Rd. Suite 405, Chattanooga, TN 37421

P: 423.305.6151 F: 423.305.6150

www.concreteprotection.com