



SCP Tech Brief: Structural Integrity

Structural integrity is defined by Dr. Steve Roberts of Oxford University as “the science and technology of the margin between safety and disaster.” When taken in context of the broader idea that structural integrity refers to the ability of a structure to resist loads or other damaging effects from its environment, Dr. Robert’s definition is of particular interest because it concentrates on the idea of safety factor.

Concrete is the most widely used building material globally, and many count on its contribution to the structural integrity of our built environment. Design professionals rely upon concrete to perform as anticipated to provide confidence that the factors of safety in the structural designs are reliable. In addition, concrete performance is essential in the longevity for the structures for the intended function. The primary consideration of concrete in a structural system is its capacity to function under designed load conditions. However, there are many other contributors to the life of a structure other than the load that can impact a concrete structure’s ability to endure. To fully rely on concrete’s structural integrity, its ability to resist the effects of outside influences other than load – defined as durability – must also be considered in addition to concrete performance.

Spray-Lock Concrete Protection (SCP) products contribute to concrete durability by restricting access to the concrete from the outside influences mentioned above. SCP products close capillary bleedwater channels and pore spaces with reaction products that are more stable forms of the naturally occurring reaction products already in concrete; SCP products effectively fill the voids in concrete with more concrete. The effects on concrete durability enabled by this simple action are numerous. Additionally, SCP products reduce the drying shrinkage of concrete when used at time of placement.

As stated, load considerations are often of greatest concern. SCP products improve compressive strength, allowing designers additional confidence that the concrete used in their designs will perform properly. Structural integrity is a subject to be taken seriously. With SCP, the overall structural integrity and durability of concrete structures can be improved.