WATER REPELLENT COATINGS

Cast stone is naturally permeable, which is similar to natural limestone and architectural concrete. The purpose of a water repellent coating should be to minimize water intrusion through the outer surface of the cast stone or mortar, while allowing sufficient vapor transmission to let moisture out of the wall cavity, thereby improving weathering qualities and the ability to easily clean the surface if it becomes dirty. The technology of water repellent coatings has improved considerably in the last few years with many durable products available that reduce water intrusion through cast stone and mortar joints. Proper application of water repellents can minimize efflorescence, mildew, staining and dirt. Some product manufactures offer 5-10 year warranties when following their specific recommendations.

The most popular and time-tested water repellent coating formulations are silicone, acrylic, silane and siloxane based. Silicones are relatively inexpensive, only provide a surface protection, and usually, only last a short time. Silicones are mainly used to keep cast stone clean during construction and they make the finished installation easier to clean. Many types of acrylics are available but most have poor vapor transmission, low penetration and inadequate resistance to ultraviolet light. Some acrylics have been known to turn yellow or produce a gloss.

When a water repellent coating is desired, the Cast Stone Institute® recommends using a silane or siloxane (or blends of each). Silanes and siloxanes work by penetrating the exterior surface and then undergoing a chemical reaction with the moisture to form a water-repellent silicone resin within the void structure. Since they react with water, walls may be slightly damp but if water is contained in the pores, penetration may be limited. It is important to follow the manufacturer's application recommendations.

Planter, fountain, and swimming pool coping, treads, risers, stone pieces above grade, and pavers may be treated with a silane or silane/siloxane blend water repellent coating after setting. For below grade applications, a dampproofing product, such as a cementitious waterproof stone backing or bituminous dampproofing may be applied to the back, sides and the below grade face surfaces. This will minimize the likelihood of dirt and groundwater entering the surface of the stone; a frequent cause of staining, efflorescence and enhancement of crazing. Verify that the water repellent coating does not affect color or texture when dry.

Water repellent coatings are not a remedy for moisture penetration problems caused by poor details such as the improper use of flashing, lack of weep holes, non-ventilated wythe, failure of joint materials or the a use of hard mortar joints where sealant joints should be used. Water repellents should be applied after all pointing repair, cleaning and inspection operations are completed. Proper evaluation of suggested water repellents should include inspection of similar installations where the proposed material has been used under similar exposure conditions. The application should be guaranteed by the water repellent manufacturer or the applicator not to discolor the cast stone.