

WATERPROOFING OF DRY MIX SHOTCRETE / EXISTING CONCRETE POOLS

Xypex Coating Procedures for the Waterproofing of Dry Mix Shotcrete (Gunitite) / Existing Concrete Pools, Fountains or Other Structures That Will Be Receiving Additional Finishes

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A common application for the Xypex coating system is the waterproofing of shotcrete or gunite formed pools and fountains that will ultimately be finished with tile or plaster. Following is the recommended procedure for waterproofing these structures using Xypex coating materials. These same procedures could also be used for waterproofing of cast in place concrete pool structures that do not contain Xypex Admix in the concrete.

Application of Xypex Coating

Surface Preparation: Thoroughly clean and profile all concrete surfaces to be treated to remove any overcoating materials or contaminants and to achieve an open pore, “tooth and suction” (ICRI CSP-3) profile on the concrete pool shell.

Repair of Defects: Surface defects shall be repaired in accordance with manufacturer’s technical literature and Method Statements (www.xypex.com). Procedures are generally as follows:

1. Cracks and Faulty Construction Joints: Chip out joint gaps and cracks creating a “U” shaped slot 1” (25 mm) wide and a minimum of 1 ½” (37 mm) deep. The slot may be saw cut instead of chipped but ensure that the slot is dovetailed or otherwise shaped such that there will be mechanical interlock of materials placed into the slot at a later stage. Clean slot of debris and dust. Soak area with water and remove excess surface water. Apply a slurry coat of Xypex Concentrate at the rate of 1.5 lb./sq.yd. (0.8 kg/m²) into the slot. While the slurry coat is still tacky fill cavity with Concentrate Dry-Pac. Compress Dry-Pac tightly into cavity using pneumatic packer or block and hammer. For cracks or joints that have active water leaking see Method Statements or contact Xypex Technical Services.

2. Rock Pockets, Honeycombing or Other Defective Concrete: Saw cut around the affected area and chip out defective material to sound concrete. Pressure wash the area to remove loose materials and to saturate the substrate with water. Remove excess surface water and apply a scrub coat of the Xypex Megamix II repair mortar. Fill cavity to surface level with Xypex Megamix II (for small repairs substitute Xypex Patch’n Plug for Megamix II). Cure per manufacturer’s recommendations.

Wetting Concrete: Prior to application of waterproofing treatment, thoroughly saturate concrete surfaces with clean water to provide a saturated, surface dry (SSD) condition. SSD concrete will not absorb any more water but has no glistening water on the surface. Remove free-standing surface water before application. An SSD condition is required to ensure migration of crystalline chemicals into voids and capillary tracts of the concrete.

Surface Application: After concrete repairs, surface preparation and treatment of construction joints and cracks have been completed (in accordance with manufacturer’s product literature and as specified herein), apply Xypex treatment. A single coat of Xypex Concentrate shall be applied uniformly to concrete surfaces with semi-stiff bristle brush, broom or suitable spray equipment. Application rates shall be at 2 lb./sq.yd. (1 kg/m²) and in accordance with manufacturer’s product data. When brushing, work slurry well into the concrete surface, filling pores and hairline cracks. When spraying, hold nozzle close enough to ensure that slurry is forced into pores and hairline cracks.

Curing: Begin curing as soon as Xypex coating has hardened sufficiently so as not to be damaged by a fine spray. Cure Xypex treatment with a mist fog spray of clean water three times a day for 2 - 3 days, or cover treated surfaces with damp burlap for the prescribed period. In warm climates, more than three sprayings per day may be necessary to prevent excessive drying of coating. Pooling or puddling of water is not acceptable. The use of some specialty curing blankets are also effective for curing, especially on horizontal surfaces. Xypex Gamma Cure can be used especially in hot, dry or windy conditions to lessen the need for misting. Coating must be kept “green looking” for 2 - 3 days.

As described in the following sections of this method statement, the above curing regime will be shortened if the “Early Installation Option” is used.

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Installation of Thinset and Tile or Plaster

There are two alternatives for the application of additional cementitious materials systems over Xypex Concentrate.

Early Installation Option: After Xypex Concentrate has reached a final set and within 48 hours (the 12 - 24 hour window is considered ideal), thinset, mortar or plaster may be applied directly to the Xypex Concentrate coating. Mortars should contain an acrylic polymer to assist in bonding to the Xypex Concentrate coating. During the time between installation of the Xypex Concentrate onto the substrate and the application of the thinset or pool plaster the Xypex coating must be kept "green looking" using the curing methods described above. The brush or spray applied finish of the Xypex coating is normally an acceptable profile for subsequently applied materials but this must be confirmed with the over coating material's manufacturer. Maintenance of the Xypex coating in an SSD condition (or not) during application of other cementitious materials should be confirmed with those products' manufacturers.

Standard Installation Option: After the 2 - 3 day curing period allow Xypex Concentrate to remain on the substrate undisturbed for 21 days. After that time, one of the following methods should be used to prepare the surface for application of the thinset, mortar or plaster:

BEST – Completely remove the Xypex Concentrate coating by sand blasting, wet blasting or water jetting. 5,000 psi (350 bar) is normally acceptable to achieve full removal of the Xypex coating. Additional cleaning of the substrate shall be done such that it is left clean of dust or any other residue. The surface profile and other properties of the substrate shall be as required by the over coating material's manufacturer. After 21 days there has been sufficient chemical transfer of Xypex active ingredients into the substrate concrete that removal of the coating will not adversely affect the performance of the Xypex waterproofing.

BETTER – High pressure wash the Xypex Concentrate coating with 3,000 - 3,500 psi (200 - 350 bar) water to remove as much Xypex Concentrate coating as will easily come off with this level of pressure washing. Then wash any remaining Xypex Concentrate coating with a 3% - 5% acid solution to open the pores of the coating and remove any surface crystallization. Thoroughly flush off any acid residue from treated surfaces. Confirm the surface is acceptable to the over coating material's manufacturer.

ACCEPTABLE – Acid wash the Xypex Concentrate coating with a 3% - 5% acid solution to open the pores of the coating and remove any surface crystallization that may have formed. Thoroughly flush off any remaining acid or residue from treated surfaces.

In this scenario the surface preparation of the substrate prior to application of the Xypex Concentrate is critical. The bond of the Xypex Concentrate to the substrate is not being tested by pressure washing and the adhesion of the entire system is dependent on the bond of the Concentrate layer to the substrate. Confirmation of the acceptability of the Xypex coating surface to the over coating material's manufacturer is recommended.

Xypex accepts no responsibility regarding bond between the Xypex Concentrate and the subsequently applied materials. Prior to the installation, it is recommended that a test section be completed under anticipated ambient and project conditions to demonstrate acceptable bond.

Note: Xypex Chemical Corporation makes no representations or warranties regarding the compatibility of Xypex products with plasters, stuccos, tiles and other surface-applied materials. It is the responsibility of the installer of these surface-applied materials to take whatever measures are necessary, including testing, to ensure acceptance by or adhesion to the Xypex treated surface.

Xypex does not recommend the use of Xypex Concentrate as an aesthetic surface finish in any water retaining structure applications.