

WATERPROOFING OF CMU / CONCRETE BLOCK WALLS

Xypex Recommended Procedure for the Waterproofing of CMU or Concrete Block Structures from Either the Positive or Negative Side

2016-01

CMU or concrete block is a common building material. However, the pore structure and thus the permeability of these blocks vary greatly from region to region depending on the raw materials used, mix design, manufacturing process and many other factors. As such, the waterproofing of these materials is often difficult. This said, the following procedure has been used to successfully waterproof CMU / concrete block structures against water ingress. While the procedure outlined below is best installed on the positive side, it is used successfully on either the positive or negative side with most applications having been done on the negative side. Due to the high variability in block and the many different scenarios in which block is used the following procedure is not guaranteed to provide a waterproof structure but, Xypex's experience is that this assembly has a very high success rate in most installations.

If the block structure is in an application with high hydrostatic pressures Xypex Megamix II at a thickness of ½" - 1" (12 - 25 mm) may be considered as a replacement for the Xypex Megamix I recommended below. In this scenario a reinforcing mesh mechanically affixed to the substrate may be considered.

STEP 1: 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.

STEP 2: Repair all cracked, defective, deteriorated mortar or construction joints by removing all mortar in area to 1½" (37 mm) deep or until all unsound mortar is removed. Remove all loose materials within the slot and to 6" (150 mm) on either side of the slot. Clean, profile and saturate this area with water. Allow water to soak into concrete and then remove all surface water. If defective area is actively leaking, apply Xypex Patch'n Plug to the bottom half of the slot to stop active water flow. Coat slot with Xypex Concentrate slurry and fill the remainder of the slot to original level with Xypex Concentrate in Dry-Pac form. If slot is not actively leaking coat slot with Xypex Concentrate slurry and fill entire slot to the original level with Xypex Concentrate Dry-Pac.

STEP 3: If blocks are cracked and leaking or where there is evidence of previous leaking use one of the following procedures

If block voids are filled with concrete or cement based grout – cut a dove tailed slot over the crack 1" (25 mm) wide by 1½" (37 mm) deep and treat per the directions for treatment of mortar or construction joints.

If block voids are not filled they should not be cut into to any significant depth – rout out a shallow slot in the block, following the crack and leaving a depression to receive repair material. Use hammer and chisel, diamond blade or other means appropriate so as not to damage the block. Clean and saturate the slot and the area to 6" (150 mm) on either side of the slot. Fill the slot to the surface and mound over the top of slot and to several inches (cm)

on either side of slot to a depth of approximately ¼" - ½" (6 - 12 mm) with Xypex Patch'n Plug to stop water flow and block the crack. If crack has no indication of active or previous leaking and is less than 1/64" (0.04 mm) wide it may be left untreated.

STEP 4: Wet the surface of the CMU / block until a saturated surface dry (SSD) condition is obtained. Saturated surface dry CMU / block will not absorb any further water but has no glistening water on its surface. Maintain the CMU / block in an SSD condition until Xypex material is applied.

STEP 5: Coat surface of designated area with one coat of Xypex Concentrate at the rate of 2 lb./sq.yd. (1 kg/m²) as per manufacturer's standard specifications.

STEP 6: Allow Xypex Concentrate coating to set and harden for between 12 hours and 24 hours. During this time, moist cure coating per Xypex product data sheet.

STEP 7: Mix Xypex Megamix I with Xycrylic Admix as per product data sheet instructions.

STEP 8: Apply one coat of Megamix I over top of Xypex Concentrate coating at a thickness of 1/8" (3 mm) or 11.25 lb./sq.yd. (5.6 kg/m²). The thickness of the top coating may be varied from 1/16" - 3/8" (1.5 - 10 mm) per job conditions and requirements. Dampen Xypex Concentrate surface ahead of application of Megamix I as required to maintain a damp but not glistening substrate (saturated surface dry condition).

STEP 9: In most situations, no moist curing of Xypex Megamix I is required but in rapid drying conditions, Megamix I should be allowed to fully set and then be misted periodically to keep moist for 24 hours.

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Prior to the installation, it is recommended that a test section be completed under anticipated ambient and project conditions to demonstrate acceptable bond.

This procedure will usually provide a waterproof block wall for the life of the structure.

It is necessary to allow at least 30 days or longer at normal room temperatures for crystalline growth to form to a level that will indicate the expected level of performance of the above treatment. Lower temperatures will extend the times for crystalline development.

Re-application of Xypex Megamix I (or Xypex Megamix II – high strength structural mortar repair) may be required for reinforcement at the most severe points of leakage or

weakened areas of wall. Be sure to lightly acid wash and thoroughly rinse the existing coating of Xypex Megamix I prior to subsequent applications. In locations of ongoing active leaking Xypex Patch'n Plug may be required to stop active water flow.

As previously discussed, the waterproofing effectiveness of the above procedures and recommendations is very dependent on the quality and porosity of the CMU or concrete block installed. Further, installation of Xypex products by a qualified installer, especially for CMU / concrete block waterproofing applications, is highly recommended.

Contact Xypex's Technical Services Department for assistance.

