

WATERPROOFING OF STONE AND BRICK WALLS**Xypex Recommended Procedure for the Waterproofing of Mortared Natural Stone or Clay Brick Structures from Either the Positive or Negative Side**

2016-01

While not often used today, clay brick and natural stone were common building materials in the past and many below grade structures built with brick and stone are still in use today.

The following methodology has been used to successfully waterproof clay brick and stone 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 brick and stone and the many different scenarios in which these materials are used the following procedure does not typically provide a waterproof structure with the first installation but more likely requires call backs to further mitigate more persistent leaks. Even with the most diligent application of Xypex materials complete waterproofing of a brick or stone wall cannot be guaranteed. This said, Xypex's experience is that with these procedures and diligent follow up, an adequate success rate is achieved in most installations.

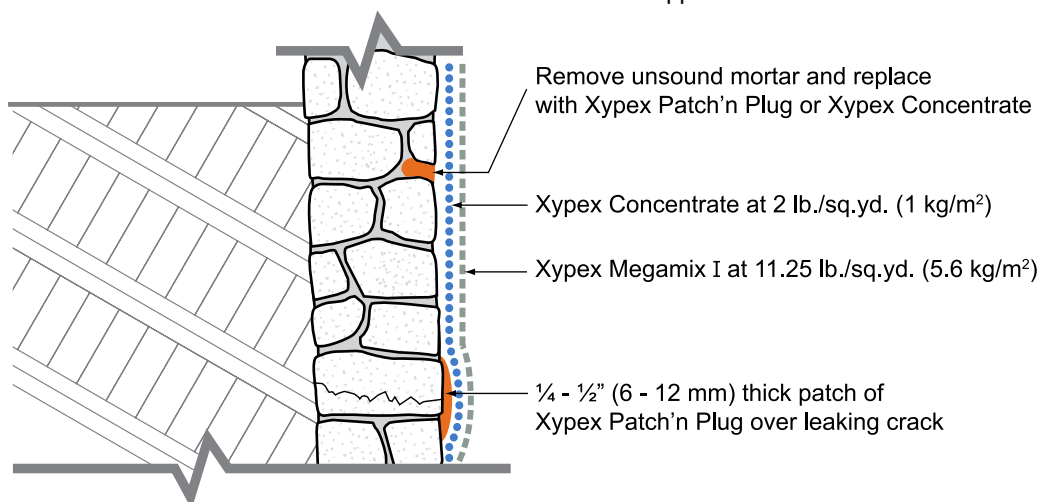
If the structure is in an application with high hydrostatic pressures Xypex Megamix II at a thickness of ½" (12 mm) to 1" (25 mm) may be considered as a replacement for the Xypex Megamix I recommended below. In this scenario a reinforcing mesh mechanically affixed to the substrate may be considered.

STEP 1: Ensure that the wall is structurally sound, with surfaces free of any foreign material. Thoroughly clean and profile all concrete surfaces to be treated including mortar joints 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, and construction joints by removing all mortar in the area to 1½" (37 mm) deep or until all unsound mortar is removed. Remove all loose materials within the slot and clean and saturate this area with water. Allow water to soak into mortar 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 remainder of 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 bricks or stone are cracked and leaking or where there is evidence of previous leaking: rout out a shallow slot in the brick, 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 brick. 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 (if the stone cannot be chipped then just mound over the crack per above) to stop water flow and block the crack. If crack has no indication of active or previous leaking it may be left as is.

STEP 4: Wet the surface of the stone or brick wall until a saturated surface dry (SSD) condition is obtained. Saturated surface dry surfaces will not absorb any further water but have no glistening water on their surface. Maintain the stone or brick wall in an SSD condition until Xypex material is applied.



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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. Uniformly apply Concentrate slurry to brick or stone surfaces using a semi-stiff bristle brush and taking care to ensure good coverage of the mortar joints. Work slurry well into surface, filling surface pores and hairline cracks.

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.

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

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 Xypex 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 brick or stone structure originally installed. A fully waterproof brick or stone wall cannot be guaranteed even after strict adherence to the recommendations given in this guide. Further, installation of Xypex products by a qualified installer, especially for brick and stone waterproofing applications, is highly recommended.

Contact your Xypex's Technical Services Department for assistance.