WATERPROOFING OF STONE AND BRICK MASONRY WALLS

from the positive or negative side

Historically, builders commonly used stone and brick masonry to build foundation walls. Unfortunately, these walls are prone to water ingress problems and the deterioration of mortar joints.

The following method has been successfully used to waterproof masonry stone and brick foundation walls. The procedure is best installed on the exterior (positive) side but is often used successfully on the interior (negative) side as well.

Due to the high variability of stone and brick foundations and the many different scenarios in which these materials are used, the following procedure cannot be guaranteed. This said, Xypex experience is that with these procedures and diligent follow-up, a high level of success is achieved in most installations.

STEP 1

Inspect the wall surface carefully, taking note of areas of active leaks, areas of suspected leakage, soft masonry mortar, and damaged or loose brick or stone. Design a restoration plan that considers all necessary structural and waterproofing details. The structural aspects of foundation walls are beyond this document's scope, and if needed, a structural engineer should be consulted. The waterproofing and construction aspects of this method statement can be complex, and consultation with experts in these details is recommended.

STEP 2

Thoroughly clean the wall to remove all paint, parge coatings and other overcoating materials or contaminants down to a bare stone or brick surface.

STEP 3

Rout or rake out all mortar joints throughout the entire wall area to be waterproofed to a depth of 1½" (40 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 the water to soak into the mortar and remove all surface water. Note: Consider structural aspects of mortar removal; only remove mortar when it does not compromise the structural support of the wall.

STEP 4

For actively leaking joints, apply Xypex Patch'n Plug to refill mortar joint and stop water flow (See Xypex Method Statement "Repair of Cracks and Faulty Construction Joints" - see Type A Joints in Figure 1. Rake/tool the Patch'n Plug, as shown in Figure 2.).

STEP 5

For all other joints, coat the slot with Xypex Concentrate slurry and fill the entire slot with a 50/50 blend of Xypex Concentrate powder and Xypex Patch'n Plug powder made into a mortar consistency (see Xypex Instructional Video and Method Statement "Concentrate / Patch'n Plug Blends – Repair Mortar - see Type B Joints in Figure 1. Rake/tool the mortar blend joint, as shown in Figure 2.).

Example Xypex Megamix II over concentrate installed on stone wall.

Note: *Where required for additional structural support, the mortar blend can be substituted for Xypex Megamix II; however, this will reduce the amount of waterproofing chemicals and may reduce the waterproofing performance of the system.*

STEP 6

For leaking cracks passing through stone or brick, or where there is evidence of previous leaking cracks, complete the Xypex crack repair method (see Method Statement "REPAIR OF CRACKS AND FAULTY CONSTRUCTION JOINTS" and Xypex Instructional Video "XYPEX CRACK REPAIR"). Sawcut or lightly chisel a slot and fill it with Xypex Patch'n Plug (active leaks) or mortar blend (no active leak). This repair may dislodge the stone or brick, in which case it may be necessary to remove and reset the stone or brick after completing waterproofing repairs.

STEP 7

Complete the additional Xypex waterproofing details at the wall slab intersections (see Type C, Figure 1, and Method Statement "Repair of Slab Interface Joints") and pipe penetrations (see Xypex Method Statement "Xypex Waterproofing of Annular Spaces").

STEP 8

Reclean the wall to remove all loose mortar and contamination from the stone or brick surface.

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STEP 9

Install suitable mesh reinforcing pinned to the wall and standing off of the wall by ¼" - ½" (6 - 12 mm). The design of mesh is beyond the scope of this method statement.

STEP 10

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 and will have no glistening water on their surface. Maintain the stone or brick wall in SSD condition until Xypex material is applied.

STEP 11

Mix and apply Xypex Megamix II as per product data sheet instructions. Apply Megamix II at a typical thickness of 3/4" (20 mm) over the stone or brick or as per the project requirements. Where there is a surface depth variation of greater than 1 ½" (40 mm), apply Megamix II in two layers (see Figure 1). Cross-hatch the first layer to increase bonding for the second layer. Once completed, the layer of Megamix II should have a minimum thickness of ½" (12 mm) over all stone or brick.

STEP 12

Immediately after finishing, start moist curing the Megamix II and continue for a minimum of three days. Early curing by fog spray or light misting at an early age is essential to mitigate cracks and delamination. Keep continuously wet using wet burlap or other specialty curing blankets or plastic sheets.

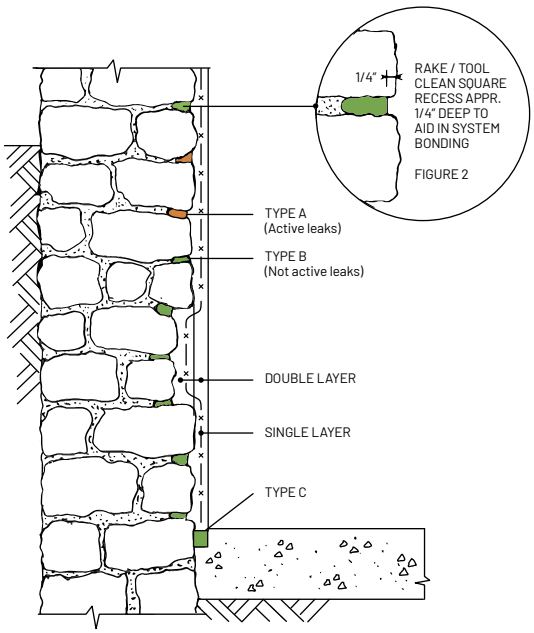

Figure 1

Patch'n Plug

Concentrate & Patch'n Plug Mortar blend

Notes:

1. *Complete a mock-up or trial area to verify the performance of the method.*
2. *This method statement is Xypex's best practice. Deviations from the method are expected based on site conditions and performance expectations.*
3. *If the existing wall is such that the joints provide significant mechanical interlock between the wall and the Megamix II, a reinforcing mesh may not be required.*
4. *While the use of Xypex Megamix II is most common for stone masonry applications, in some applications where a relatively smooth surface exists, a system of Xypex Concentrate and Megamix I can be considered (See Method Statement for block wall waterproofing).*
5. *This procedure's waterproofing effectiveness depends on workmanship, the quality of stone or brick structure, and other factors. A fully waterproof brick or stone wall cannot be guaranteed even after strict adherence to the recommendations given in this guide. Installation of Xypex products by a qualified applicator is highly recommended.*
6. *It is necessary to allow at least 30 days at average room temperatures for crystalline growth to form to a level to provide the expected level of performance of the Xypex treatment. Seepage may occur prior to this period.*
7. *For problematic leaks that cannot be fully stopped with this Method Statement, additional drainage strategies behind a false wall can also be considered.*
8. *Successful overall strategies for basement space often include methods to reduce humidity using adequate ventilation and dehumidification methods.*
9. *Contact Xypex Technical Services or the local Xypex representative for further assistance.*