

Water Repellent Performance in Pozzolan and Traditional Mortars

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Abstract:

The test for determining water penetration through a wall is ASTM E 514 (Standard Test Method for Water Penetration and Leakage through Masonry). ASTM C 1403 ((Standard Test Method for Rate of Water Absorption of Masonry Mortars) is used to qualify Water-Repellent Admixtures under ASTM C 1384 (Standard Specification for Modifiers for Masonry Mortar). The C 1403 test measures the rate water is absorbed through the mortar. The E 514 test will pick up water that flows through the mortar and through cracks and holes where the mortar is not present.

Various traditional and Pozzolan Mortar formulae were tested. KreteGard Liquid water repellent was selected to test.

Data is collected after one minute, 15 minutes, 1 hour, 4 hours, and 24 hours. The data would indicate that Pozzolan mortars have the lowest rates of absorption. With both the treated and the untreated samples, the Portland/Lime mortars had the highest rate of water absorption.

Since the results of the ASTM E 514 test (leakage through the wall) are considerably different than the ASTM E 1403 test (rate of absorption testing), a hypothesis can be presented that the E 1403 test may not be a direct indicator of the amount of water that passes through a wall.

The data indicates that untreated traditional masonry cement mortar has a leakage rate of approximately 12 times the leakage rate of untreated Portland/Lime mortar. Untreated Portland/Lime mortar has a leakage rate of approximately 16 times the rate of the Pozzolan Masonry Cement treated with KreteGard.

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