The Importance of Using DRY-BLOCK® Mortar Admixture

The DRY-BLOCK® System of Integral Water Repellents has been successfully used to provide protection from moisture penetration in thousands of masonry wall systems. DRY-BLOCK Mortar Admixture, one of two required components of the DRY-BLOCK System, plays a critical role in providing this protection. Substitution or elimination of this vital component may compromise the water-repellent performance of the masonry wall system.

Tests were performed at the National Concrete Masonry Association Research and Development Laboratory to demonstrate the effect DRY-BLOCK® Mortar Admixture has on the capillary wicking characteristics of mortar and to show compliance with ASTM C1384 Standard Specification for Admixtures for Masonry Mortars.

ASTM C1384 requires that the rate of water absorption be performed in accordance with ASTM C1403 Standard Test Method for Rate of Water Absorption of Masonry Mortars. The rate of water absorption testing was performed on Type S Portland Cement/Lime and masonry cement mortar with and without DRY-BLOCK® II Mortar Admixture. In this test, mortar cubes were cast and then cured for 28 days. After curing, the mortar cubes were partially submerged in water and the amount absorbed by capillary wicking into the mortar was measured. The cubes were weighed at intervals of 15 minutes, 1, 4, and 24 hours to determine the amount of water absorbed in the mortar. Table 1 and Table 2 summarize these results.

Table 1: ASTM C1384-06a Requirements and Summary of Test Results* (PC/L)

Physical Property	Water Repellent Admixture Requirements	Control Mortar	DRY-BLOCK II Mortar	% of Control	Pass/Fail
Rate of Water absorption after 24 hours, g/100 cm^2	Maximum 50% of control	84	23	27.4%	Pass

* For a complete report see NCMA project 09-110-1

Table 2: ASTM C1384-06a Requirements and Summary of Test Results (MC)**

Physical Property	Water Repellent Admixture Requirements	Control Mortar	DRY-BLOCK II Mortar	% of Control	Pass/Fail
Rate of Water absorption after 24 hours, g/100 cm^2	Maximum 50% of control	68	24	35.3%	Pass

**For a complete report see NCMA project 09-110-3

The test results show that DRY-BLOCK Mortar Admixture significantly reduced the water capillary absorption of both the Portland Cement/Lime and masonry cement mortars. These results show conclusively that DRY-BLOCK Mortar Admixture should always be used when a DRY-BLOCK Integral Water Repellent project is specified. Substitution or elimination of this vital component may compromise the water-repellent performance of the masonry wall system.

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