DRY-BLOCK® Mortar Admixture  
Integral Water-Repellent

Short-form Specification  
(For inclusion in Section 04060, Mortar or Section 04200, Unit Masonry)

[Note to Specifier: The DRY-BLOCK® System is comprised of DRY-BLOCK Mortar Admixture, specified in this short-form specification, which is added to the mortar mix on site by the mason contractor, and DRY-BLOCK Block Admixture, which is mixed throughout the low slump concrete during the manufacture of the Concrete Masonry Unit (CMU) by a Qualified DRY-BLOCK Producer. The admixtures provide effective water-repellency in typical masonry construction. To complement the DRY-BLOCK admixtures and to provide maximum protection to the masonry wall structure, field apply INFINISEAL® DB Sealer, a water-based, clear, penetrating water-repellent sealer.

In addition to this short-form specification for the mortar admixture, the short-form specification for the GRACE integral water-repellent CMU admixture, DRY-BLOCK Block Admixture must be incorporated into your project specification in Section 04200, Unit Masonry. If Section 04200 for your project includes the mortar specification, this short-form specification should be incorporated in the mortar portions of the section. If Section 04200 does not include the mortar specification, this short-form specification should be incorporated into your Section 04060. Both admixtures are required in your project specifications to achieve a water-repellent masonry wall. For maximum protection include the short-form specification for INFINISEAL DB Sealer in Section 07190, Water Repellents.

Finally, it is important to understand that while the DRY-BLOCK System greatly enhances the water-resistant properties of the masonry, the DRY-BLOCK System should not be considered as a substitute for good design practices and quality construction procedures (workmanship). Proper flashing details and control joint specifications should also be included in your project specifications. Refer to information in National Concrete Masonry Association (NCMA) TEK 19-2A, 19-4A and 19-5A for flashing details, as well as NCMA TEK 10-1A and 10-2B for crack control and control joint recommendations. This short-form specification directly specifies the DRY-BLOCK System and is important to the water penetration performance of the wall. The DRY-BLOCK System components should be incorporated into your project specifications along with other important requirements, such as those specified in ACI 530.1, “Specification for Masonry Structures.”]

[Note to Specifier: Incorporate the following information in Part 1 – General]

1. Summary: Section includes liquid polymeric admixture added to the mortar for wall construction at the time of mixing.
2. Performance Requirements:
3. Submittals:
   a. Spec-Data® Sheet on Grace Construction Products DRY-BLOCK System of Integral Water-Repellent Admixtures for Block and Mortar.
b. Data Sheet on DRY-BLOCK II Mortar Admixture.
c. Technical Bulletin on Cleaning Masonry Containing DRY-BLOCK.
d. Test Reports prepared by a qualified independent laboratory indicating compliance with the performance requirements for integral mortar water-repellency as tested using:
   (1) ASTM E 514, extended to 72 hours.
   (2) ASTM C 1357.
   (3) ASTM C 1314.
   (4) ASTM C 1148.

4. Sample Panel: Construct a sample panel to determine the compatibility of materials and the effect of the materials and construction procedures on the final appearance of the wall. Use jobsite materials, including specified water-repellent CMU and mortar to construct sample panel. The CMU sample panels erected shall represent the range of texture and color permitted for the project. Prepare more than one sample batch of mortar, especially when coloring pigments are added to the mortar, to establish desired aesthetics and performance. Perform all construction procedures on sample panel, including cleaning and application of coatings and sealants. Retain sample panel during construction as standard for judging completed masonry work. Acceptance of sample panel does not constitute approval of deviations from materials contained in sample panel, unless such deviations are specifically approved by Architect in writing.

5. Site Storage:
   a. Store integral water-repellent mortar admixture in an area where temperature is maintained between 4ºC (40ºF) to 38ºC (100ºF).
   b. Do not allow integral water-repellent mortar admixture to freeze; discard any frozen admixture.

6. Warranty:
   a. Integral water-repellent mortar admixture shall be warranted by admixture manufacturer to be free of defects and to meet manufacturer’s published physical and chemical properties.
   b. Installer shall warrant that only mortar containing integral water-repellent mortar admixture at the manufacturer’s recommended addition rate has been placed in exterior walls.

[Note to Specifier: Incorporate the following in Part 2 – Products]

A. Integral Water-Repellent Mortar Admixture:
   1. Description: Integral liquid polymeric admixture for mortar added during mixing.
   2. Water Permeance of Masonry: Capable of achieving a Class E Rating when evaluated using ASTM E 514 with the test extended to 72 hours, using the rating criteria specified in ASTM E 514-74.

[Note to Specifier: The following criteria for an increase in bond strength is important to assure an adequate margin of safety in the structural design and to maximize the water-resistance of the masonry. In no case should the bond strength be allowed to show a decrease compared to the control.]

3. Flexural Bond Strength of Masonry: An increase of minimum 10% in masonry flexural bond strength shall occur as a result of adding integral water-repellent CMU and mortar admixtures when compared to a control (containing no admixtures) CMU and mortar when tested according to ASTM C 1357.
4. Compressive Strength of Masonry Prisms: Maximum 5% decrease in compressive strength of prisms shall occur as a result of adding integral water-repellent CMU and mortar admixtures when compared to a control (containing no admixtures) CMU and mortar when tested according to ASTM C 1314.
5. Drying Shrinkage of Mortar: Maximum 5% increase in shrinkage of mortar shall occur as a result of adding integral water-repellent mortar admixture when compared to a control (containing no admixture) mortar when tested according to ASTM C 1148.

[Note to Specifier: Delete the following if a performance specification is required.]

A. Integral Water-Repellent Mortar Admixture:
   1. Installer shall use only concrete masonry units containing compatible integral water-repellent CMU admixture for exterior wall construction.
   2. Installer shall use only mortar containing integral water-repellent mortar admixture at the manufacturer’s recommended addition rate and mixed according to the manufacturer’s recommended instructions.
   3. Fill head and bed joints for full thickness of the faceshells to provide the greatest resistance to water penetration.
   4. Tooling:
      a. Tool the mortar joints concave or to a V-profile to provide the greatest resistance to water-penetration. Do not use raked, flush, extruded, struck, beaded, weathered, or other joint profiles due to their reduced water-resistance.
      b. Tool the mortar joints when they are thumbprint hard to provide the greatest resistance to water-penetration and to help minimize hairline cracks between the mortar and the CMU.
   5. Cover the top of unfinished masonry work to protect it from the weather and to prevent accumulation of water in the cores of the CMU.
   6. Cleaning:
      a. Remove “primary” efflorescence from masonry walls exposed in the finished work in accordance with the manufacturer’s recommendations and the NCMA TEK Bulletin #8-3A.
      b. Remove dirt or stains from masonry walls exposed in the finished work in accordance with the manufacturer’s recommendations and the NCMA TEK Bulletin #8-2A.
      c. Promptly remove excess wet mortar containing integral water-repellent mortar admixture from the face of the masonry as work progresses. Do not use strong acids, overaggressive sandblasting or high-pressure cleaning methods.
      d. Comply with applicable environmental laws and restrictions.

[Note to Specifier: Including the following in project specifications is important because standard methods for removing hardened mortar involve the use of methods and materials such as strong acid, overaggressive sandblasting, and high-pressure cleaning, which are harmful to masonry units and are not recommended by Grace Construction Products.]

[Note to Specifier: It is strongly recommended by Grace Construction Products that the following be included in Section 04060 or 04200 of your project specification. The pre-installation conference can establish your strong desire to enforce the requirements for water-repellency, proper flashing techniques, and the use of weeps. Coordinate with Section 01200.]

7. At least two weeks before starting above-grade masonry work, schedule a pre-installation conference at the jobsite in accordance with requirements of Section 01200 to discuss compliance with the requirements of the contract documents. Give two weeks advance notice to the participants, including the contractor, mason contractor, flashing installer, CMU producer and/or the manufacturer of the integral water-repellent mortar admixture. Advise the architect of the scheduled meeting date.

[Note to Specifier – ASTM E 514 Modification Clarification: Note that this guide specification recommends modifying the current standard by extending the test period to 72 hours, and applying the Rating Scale found in ASTM E 514-74, an earlier version of the test method. Both versions subject test specimens to a 140 mm (51/2 in.) per hour rainfall and a 100.6 km/hr (62.5 mph) wind.

Under the 1974 version of the test method:
• the test period lasted for 72 hours; and
• the laboratory was instructed to rate the wall on an objective Rating Scale in one of five categories from “L” (indicating leakage), to “E” (for Excellent).

Under the current version of the ASTM E 514:
• the test period is only 4 hours; and
• the laboratory is instructed only to record their observations on the specimen.

The current version of the standard is not as demanding, and it does not provide the same level of information that the 1974 version did. If you want the kind of performance the DRY-BLOCK System can give to your client, do not change the wording in this guide specification, which extends the test period to 72 hours and applies the rating criteria found in ASTM E 514-74 to the results.

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