**DRY-BLOCK® Mortar Admixture**

Water-Repellent Admixture for Concrete Masonry Mortar

Short-form Specification Insert

[Specifier: The DRY-BLOCK System is comprised of DRY-BLOCK Mortar Admixture, specified in this short-form specification, which is added to the mortar, 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 two admixtures when used together provide effective water-repellency in typical masonry construction.

In addition to this short-form specification for the mortar admixture, the short-form specification for GCP Applied Technologies’ integral water-repellent CMU admixture, DRY-BLOCK Block Admixture, must be incorporated into your project specification in Section 04 20 00 UNIT MASONRY. If Section 04 20 00 UNIT MASONRY includes the mortar specification, this short-form specification should be incorporated in the mortar portions of the section. You may also elect to use Section 04 05 13 MASONRY MORTARING or Section 04 05 00 COMMON WORK RESULTS FOR MASONRY for mortar materials. Both admixtures are required in your project specifications to achieve a water-repellent masonry wall.

It is important to understand that the DRY-BLOCK System greatly enhances the water-resistant properties of the masonry, but it should not be considered a substitute for good design practices and quality construction procedures (workmanship). Proper flashing details and control joint spacing should also be included in your project specifications. Refer to information in National Concrete Masonry Association (NCMA) TEK 19-2B, 19-4A and 19-5A for flashing details, as well as NCMA TEK 10-1A and 10-2C 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."]

[Specifier: Incorporate the following information in Part 1 – GENERAL]

* + - * 1. GENERAL

SUMMARY

Section includes water-repellent mortar admixture for concrete masonry.

[Specifier: If choosing to retain optional "Related Sections" paragraph below, edit to correspond to sections used in Project.]

Related Sections:

Section 04 20 00 UNIT MASONRY for water-repellent admixture for concrete masonry units [and masonry mortar].

[Specifier: Related section reference below refers to GCP Applied Technologies’ Infiniseal DB Sealer.]

Section 07 19 00 WATER REPELLENTS for water-repellent treatment for concrete unit masonry.

[Specifier: Optional "References" Article below is included here for information purposes.]

REFERENCES

ASTM C109/C109M Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50 mm] Cube Specimens)

ASTM C1072 Standard Test Method for Measurement of Masonry Flexural Bond Strength

ASTM C1148 Standard Test Method for Measuring the Drying Shrinkage of Masonry Mortar

ASTM C1314 Standard Test Method for Constructing and Testing Masonry Prisms Used to Determine Compliance with Specified Compressive Strength of Masonry

ASTM C1384 Standard Specification for Admixtures for Masonry Mortars

ASTM C1403 Standard Test Method for Rate of Water Absorption of Masonry Mortars

ASTM E514 Standard Test method for Water Penetration and Leakage through Masonry

National Concrete Masonry Association (NCMA): NCMA TEK 08-04A Cleaning Concrete Masonry

[Specifier: If using this guide specification as a closed proprietary specification written around GCP Applied Technologies’ DRY-BLOCK, consider retaining reference below:]

GCP Technical Bulletin TB-13: Cleaning Masonry Containing DRY-BLOCK

SUBMITTALS

Product Data: Submit for specified products.

Certificate: From masonry Installer, stating that only mortar containing specified water-repellent admixture has been placed where required.

Test and Evaluation Reports: Prepared by qualified independent laboratory, indicating compliance with performance requirements for water-repellent mortar admixture.

QUALITY ASSURANCE

[Specifier: Sample panel is recommended for Architect and Owner approval of finished masonry appearance.]

Sample Panel: Construct sample masonry panel to verify compatibility of materials and effects of materials and construction procedures on final appearance of masonry work. Incorporate range of CMU textures and mortar colors permissible.

Construct sample panel using jobsite materials, including specified water-repellent CMU and mortar containing water-repellent mortar admixture.

Prepare minimum [three] sample batches of mortar to illustrate acceptable visual and performance characteristics.

Perform specified construction procedures on sample panel, including cleaning of one-half of panel, and application of specified coatings, if any, and joint sealants.

Construct additional sample panels as necessary to obtain Architect approval.

Retain approved 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 in writing by the Architect.

[Specifier: The pre-installation conference can help in enforcing the requirements for water-repellency, proper flashing techniques, and the use of weeps; it is often utilized on larger scale projects. Coordinate with Division 01 Section "Project Management and Coordination."]

Preinstallation Conference: Prior to commencing masonry work, schedule pre-installation conference at the jobsite. Attendees shall include Contractor, masonry installer, flashing installer, CMU supplier, integral water repellent admixture manufacturer's representative, and related subcontractors. Include as agenda items the following:

Interface of flashing, waterproofing, and air barrier work with masonry installation.

Preparation of mortar mix including water-repellent mortar admixture.

Mortar handling and tooling techniques to increase water resistance of completed masonry work.

DELIVERY, STORAGE, AND HANDLING

Store water-repellent mortar admixture where temperature is maintained between 40 to 100 deg F (4 to 38 deg C).

Do not allow water-repellent mortar admixture to freeze; discard any frozen admixture.

[Specifier: Incorporate the following in Part 2 – PRODUCTS]

* + - * 1. PRODUCTS

MORTAR ADMIXTURES

Water-Repellent Mortar Admixture for Masonry Construction: Mortar admixture complying with ASTM C1384, formulated by manufacturer to repel water, minimize efflorescence, and enhance mortar and concrete masonry unit bonding.

[Specifier: Delete the following subparagraph if proprietary specification method is not allowed.]

Product: Provide the following: **GCP Applied Technologies, (800) 558‑7066, DRY‑BLOCK Mortar Admixture**.

PERFORMANCE REQUIREMENTS

Water-Repellent Mortar Admixture: Provide water-repellent mortar admixture with the following characteristics:

[Specifier: See \* footnote following section text for explanation.]

Water Permeance of Masonry, ASTM E514: Capable of achieving a Class E Rating when evaluated using ASTM E514 with the test extended to 72 hours, using the rating criteria specified in ASTM E514-74.

Rate of Water Absorption, ASTM C1403: Reduce minimum 50 percent compared to untreated specimen.

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

Flexural Bond Strength of Masonry, ASTM C1072: Increase minimum 10 percent when compared to reference specimen.

Compressive Strength of Masonry Mortar, ASTM C109: Minimum 80 percent measure compared to reference specimen.

Compressive Strength of Masonry Prisms, ASTM C1314: Minimum 95 percent measure compared to reference specimen.

Drying Shrinkage of Mortar, ASTM C1148: Maximum 5 percent increase when compared to reference specimen.

MORTAR MIXES

Water-Repellent Mortar Admixture: Mix mortar incorporating water-repellent mortar admixture at manufacturer’s recommended dosage rate and mixed according to manufacturer’s written instructions.

[Specifier: Incorporate the following in Part 3 – Execution]

* + - * 1. EXECUTION

MORTAR BEDDING AND JOINTING

Water-Repellent Concrete Masonry: Install concrete masonry using mortar containing water-repellent admixture using mortar containing water-repellent admixture in manufacturer's recommend proportion. Mix and handle mortar according to manufacturer's written instructions.

Laying Units: Lay concrete masonry units with completely filled bed and head joints. Butter ends of units with sufficient mortar to completely fill head joints.

[Specifier: Requirement in "In-Progress Cleaning" Paragraph is important, since standard methods for removing hardened mortar involving the use of methods or materials such as strong acid, sandblasting, and high-pressure cleaning are harmful to masonry units and are not recommended by GCP Applied Technologies.]

In-Progress Cleaning: Promptly remove excess wet mortar from face of masonry as work progresses by dry brushing.

Protection of Work: Cover top of unfinished masonry work to protect it from the weather and to prevent accumulation of water in CMU cores.

[Specifier: GCP Applied Technologies recommends requiring tooling of mortar joints to concave or V-profile to provide greatest resistance to water penetration. Do not use raked, flush, extruded, struck, beaded, weathered, or other joint profiles due to their reduced water-resistance.]

[Specifier: GCP Applied Technologies recommends requiring tooling of mortar joints when thumbprint hard to provide greatest resistance to water-penetration and to minimize hairline cracks between mortar and concrete masonry unit.]

Tooling: Tool mortar joints to [concave] [V-profile] when thumbprint hard.

CLEANING

Final Cleaning: Clean masonry work once mortar is set and cured.

Test cleaning methods on one-half of sample panel prior to cleaning masonry work.

Remove dirt or stains from masonry walls exposed in the finished work using bucket-and-brush hand cleaning method in accordance with the manufacturer’s written instructions.

[Specifier: If using this guide specification as a closed proprietary specification for GCP Applied Technologies’ DRY-BLOCK, retain reference to GCP publication below:]

Comply with requirements in GCP Technical Bulletin 13.

Comply with recommendations in NCMA TEK 08-04A.

Do not clean using strong acids, sandblasting, or high-pressure cleaning methods.

Comply with environmental laws and restrictions of authorities having jurisdiction.

END OF SECTION INSERT

\*[Specifier – ASTM E514 Modification Clarification: Note that this guide specification recommends modifying the current ASTM E514 standard by extending the test period to 72 hours and applying the Rating Scale found in ASTM E514-74, 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 E514 the minimum 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 as the previous version and does not provide the same level of performance required by the 1974 version. If you want the kind of performance the DRY-BLOCK System can achieve for your project, 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 E514-74 to the results.]

Visit our web site at: [www.gcpat.com](http://www.graceconstruction.com)

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