**DRY-BLOCK® Block Admixture**

Integral Water-Repellent Admixture for Concrete Masonry Units

Short-form Specification for inclusion in Section 04 20 00 UNIT MASONRY

[Specifier: The DRY-BLOCK System is comprised of DRY-BLOCK Mortar Admixture which is added to the mortar, and DRY-BLOCK Block admixture, specified in this short-form specification, 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.

In addition to this short-form specification for the CMU admixture, the short-form specification for GCP Applied Technologies’ integral water-repellent DRY-BLOCK Mortar Admixture must be incorporated into your project mortar specification, either in Section 04 20 00 UNIT MASONRY, or in a separate Section 04 05 13 MASONRY MORTARING or Section 04 05 00 COMMON WORK RESULTS FOR MASONRY for mortar materials. Both the masonry unit and the mortar 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 as a substitute for good design practices and quality construction procedures and 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
   * + 1. SUMMARY
          1. Section includes integral water-repellent admixture for concrete masonry units.

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

* + - * 1. Related Sections:

Section 04 05 00 COMMON WORK RESULTS FOR MASONRY for water-repellent admixture for masonry mortar.

Section 04 05 13 MASONRY MORTARING for water-repellent admixture for masonry mortar.

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

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

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

* + - 1. REFERENCES
         1. ASTM C426 Standard Test Method for Linear Drying Shrinkage of Concrete Masonry Units
         2. ASTM C1072 Standard Test Methods for Measurement of Masonry Flexural Bond Strength
         3. ASTM C1314 Standard Test Method for Constructing and Testing Masonry Prisms Used to Determine Compliance with Specified Compressive Strength of Masonry
         4. ASTM C1403 Standard Test Method for Rate of Water Absorption of Masonry Mortars
         5. ASTM E514 Standard Test Method for Water Penetration and Leakage through Masonry
         6. 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:]

* + - * 1. GCP Technical Bulletin TB-13: Cleaning Masonry Containing DRY-BLOCK
      1. SUBMITTALS
         1. Product Data: Submit for specified products.
         2. Certificate: From CMU producer stating that concrete masonry units supplied to Project for construction of exterior walls comply with requirements.
         3. Certificate: From Installer stating that only CMUs containing integral CMU water-repellent admixture have been placed where required.
         4. Test and Evaluation Reports: Prepared by qualified independent laboratory indicating compliance with performance requirements for water-repellent CMU admixture.
      2. QUALITY ASSURANCE
         1. 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 by the Architect in writing.

[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."]

* + - * 1. Preinstallation Conference: Prior to commencing above-grade masonry work, schedule pre-installation conference at the jobsite. Attendees shall include Contractor, masonry installer, flashing installer, concrete masonry unit supplier, integral water repellent 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.

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

1. PRODUCTS
   * + 1. MANUFACTURERS
          1. Water-Repellent Admixture: Concrete masonry unit integral water repellent admixture 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 Block Admixture**.

* + - 1. PERFORMANCE REQUIREMENTS
         1. Water-Repellent CMU Admixture:

[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.

[Specifier: The following criterion for increase in flexural bond strength is important for achieving an adequate margin of safety in structural design and to maximize water-resistance of masonry. In no case should 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 units.

Compressive Strength of Masonry Prisms, ASTM C1314: Maximum 5 decrease compared to reference units.

Drying Shrinkage of CMU, ASTM C426: Maximum 5 percent increase when compared to reference units.

[Specifier: Retain subparagraph below if work includes grouted (reinforced) masonry.]

Grout Shear Bond Strength, California State Chapter 2405(c)3.C test for Grout Shear Bond Strength: Maximum 5 percent decrease when compared to reference units.

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

1. EXECUTION
   * + 1. MORTAR BEDDING AND JOINTING
          1. Water-Repellent CMU Masonry: Install CMU made with integral water-repellent admixture using mortar containing water-repellent admixture in manufacturer's recommend proportion. Mix and handle mortar according to manufacturer's written instructions.
          2. Laying Units: Lay CMUs fully bedded in mortar with completely filled bed and head joints. Butter ends of CMUs 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.]

* + - * 1. In-Progress Cleaning: Promptly remove excess wet mortar from face of masonry as work progresses by dry brushing.
        2. 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 CMU.]

* + - * 1. Tooling: Tool mortar joints to [concave] [V-profile] when thumbprint hard.

[Specifier: The following is important, since standard methods for removing hardened mortar involve the use of methods or materials such as strong acid, sandblasting, and high-pressure cleaning, which are harmful to masonry units and are not recommended by GCP Applied Technologies.]

* + - 1. CLEANING
         1. 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 Applied Technologies 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 ASTME 514 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.]

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GCP Applied Technologies, 62 Whittemore Avenue, Cambridge, MA 02140

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