



**EUCLID CHEMICAL**

# **BLOCKTITE SYSTEM**

## For Water Repellent Concrete Masonry

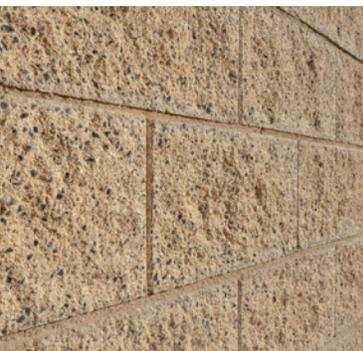


RESISTS RAINWATER INTRUSION & ABSORPTION

PROVIDES FULL-THICKNESS PROTECTION

SUSTAINS OVERALL VISUAL APPEAL

PERMANENTLY EFFECTIVE



# BLOCKTITE SYSTEM

## FOR CONCRETE MASONRY CONSTRUCTION

**The BLOCKTITE SYSTEM** consists of two individually-formulated admixtures used to prevent water penetration, leakage, and related damage in masonry construction. One type is used in the manufacture of concrete masonry units (CMU), while the other is either site-added to the masonry mortar during mixing or dry-blended into bagged or bulk-delivered masonry mortar. Properly constructed building envelopes incorporating the BLOCKTITE SYSTEM of polymeric admixtures effectively resist rainwater intrusion and moisture migration throughout their mass. Therefore, the BLOCKTITE SYSTEM is particularly well-suited for single-wythe designs since the structural walls are fully exposed to the elements.

Given the wide range of materials in use, Euclid Chemical offers two different classes or base chemical compositions of admixtures for CMU production. These are branded as BLOCKTITE and HYDRAPEL. Both types provide the same end result and may be used interchangeably.

## MECHANISM

**Concrete block, mortar, and most cement-based materials have a natural tendency to absorb moisture.** Unprotected, concrete masonry walls can allow a variety of undesirable, destructive, and even unhealthy conditions to develop and linger. The BLOCKTITE SYSTEM imparts water penetration resistance, promotes efficient drainage, and results in faster drying of exterior walls. Capillary pores that would otherwise be highly absorptive become “non-wicking,” while strong chemical bonds assure permanent protection. Other benefits of the BLOCKTITE SYSTEM include resistance to common surface staining, control of unsightly efflorescence, and extended coverage of sealers and coatings due to the reduced rate of initial absorption.

## COMPLIANCE

**When the BLOCKTITE SYSTEM was first developed over a decade ago, both admixture-treated and non-treated block walls were constructed and evaluated in accordance with ASTM E514, Standard Test Method for Water Penetration and Leakage Through Masonry.**

This procedure subjects wall panels to the equivalent of a 5.5 in (14 cm)/hour rain accompanied by a 62.5 mph (100km/h) wind force – for a period of 72 hours. Walls incorporating the BLOCKTITE SYSTEM achieved the highest rating of this test method (“E” for excellent), while the duplicate walls not utilizing the system performed poorly. As other admixtures were developed as part of the BLOCKTITE SYSTEM, they too were scrutinized by this standard as well as others including:

- ASTM C109
- ASTM C1072
- ASTM C1403
- ASTM C140
- ASTM C1314
- ASTM D96
- ASTM C952
- ASTM C1384

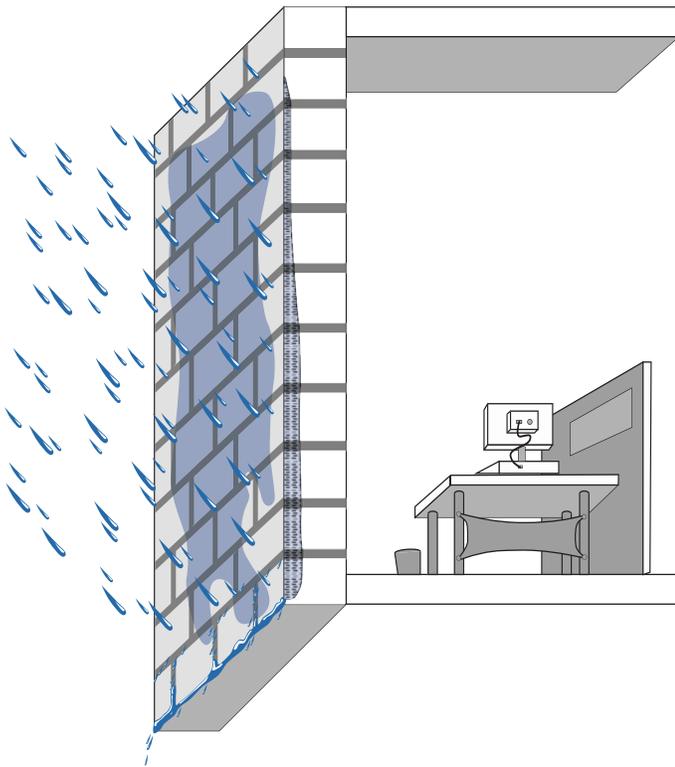
## IMPLEMENTATION

**Concrete Block** production is highly automated and tightly-controlled. All ingredients (aggregates, cement, pigments, water, and admixtures) are accurately proportioned using calibrated weigh scales and other metering devices so that overall quality and batch-to-batch consistency is maintained. BLOCKTITE CERTIFICATION procedures determine optimal water repellent admixture dosage rates, and Euclid Chemical dispenser service technicians ensure the accuracy and sequence of addition. The batches are mixed for a set period of time, then the concrete is machined into the various sizes, colors, and shapes. Afterwards they are cured, cubed (packaged), and inventoried prior to delivery.

**Mortar Applications** use a fixed dosage rate of **BLOCKTITE MORTAR ADMIXTURE by volume**. Material proportioning and mixing are dictated by ASTM C270 (Standard Specification for Mortar for Unit Masonry), and performance requirements are covered by this standard as well as other codes and specifications. On site, the mason contractor simply adds BLOCKTITE MORTAR ADMIXTURE to each batch. Where BLOCKTITE-D MORTAR ADMIXTURE (or an approved dry-powdered equivalent) has been pre-blended into the cement or mortar, only water is added during on-site mixing.

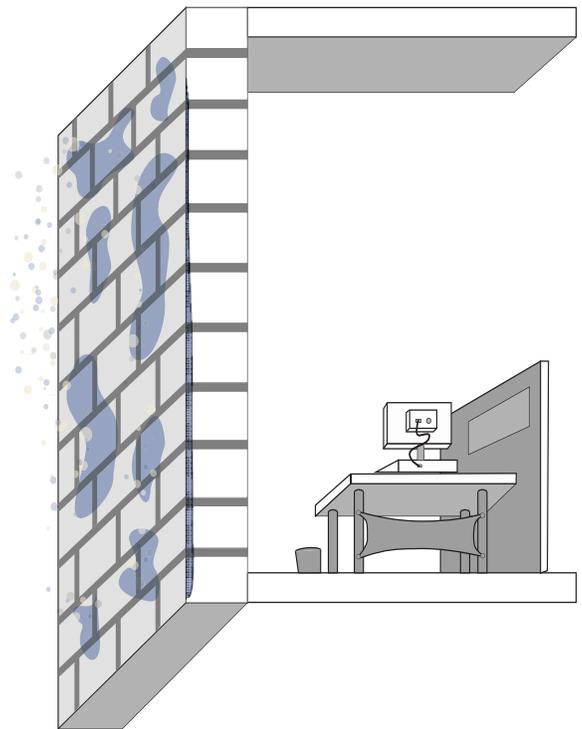
### DURING RAIN

- Water repellency
- Efficient drainage



### AFTER RAIN

- Breathable
- Fast drying

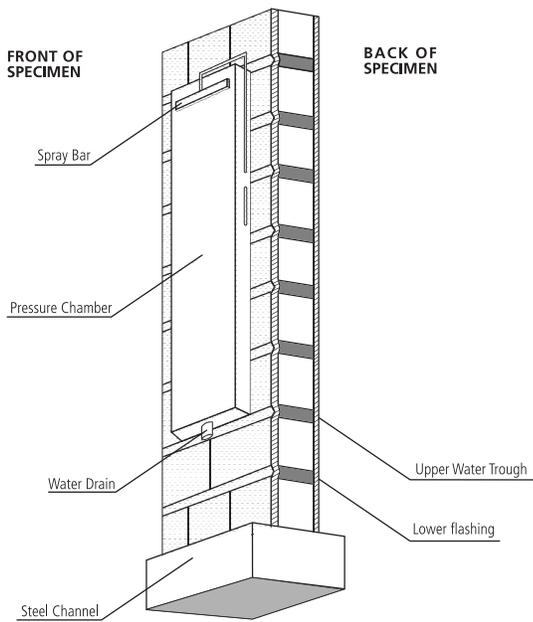


By appreciably altering the *normal* wetting and drying cycle, the BLOCKTITE SYSTEM reduces humidity within walls, helps maintain aesthetic appeal and contributes to long-term durability.

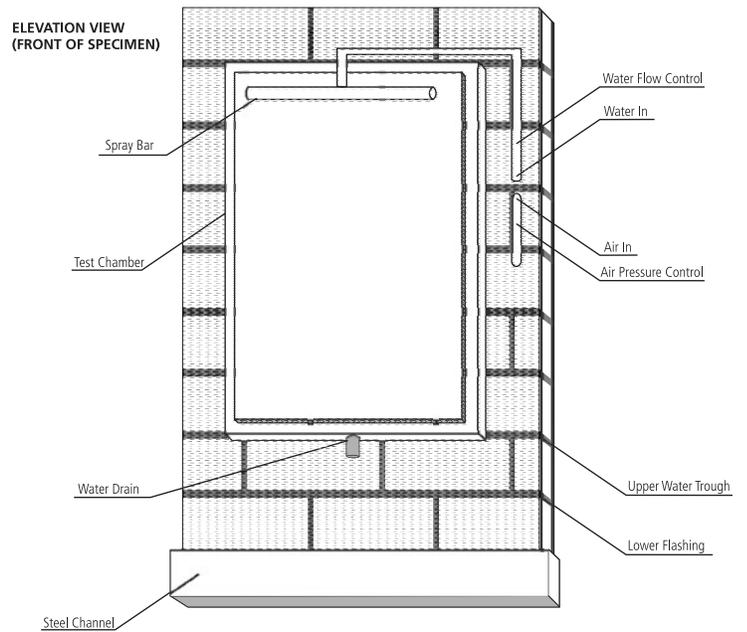


Commonly referred to as "the wind-driven rain test," ASTM E514 is the industry's proving ground for water repellent admixtures. Both BLOCKTITE SYSTEM (CMU) options dramatically reduced water penetration and moisture migration in wall panels constructed with BLOCKTITE MORTAR ADMIXTURE.

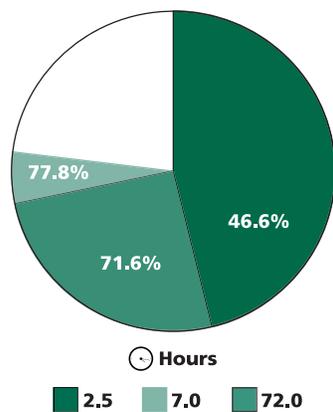
### CROSS-SECTION OF TEST SETUP



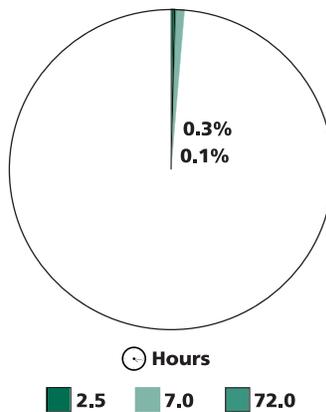
### ELEVATION VIEW OF FRONT OF TEST SPECIMEN



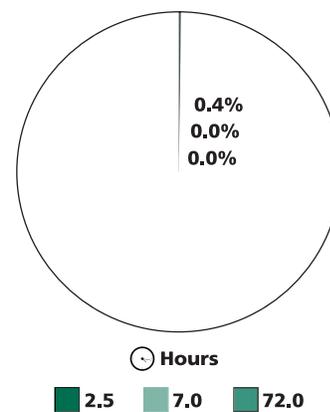
#### NO ADMIXTURE % Dampness, Back Face



#### BLOCKTITE - TREATED % Dampness, Back Face



#### HYDRAPEL - TREATED % Dampness, Back Face



# SPECIFY WITH CONFIDENCE

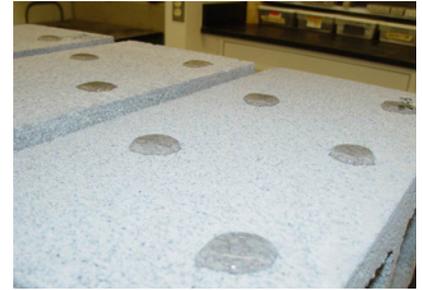
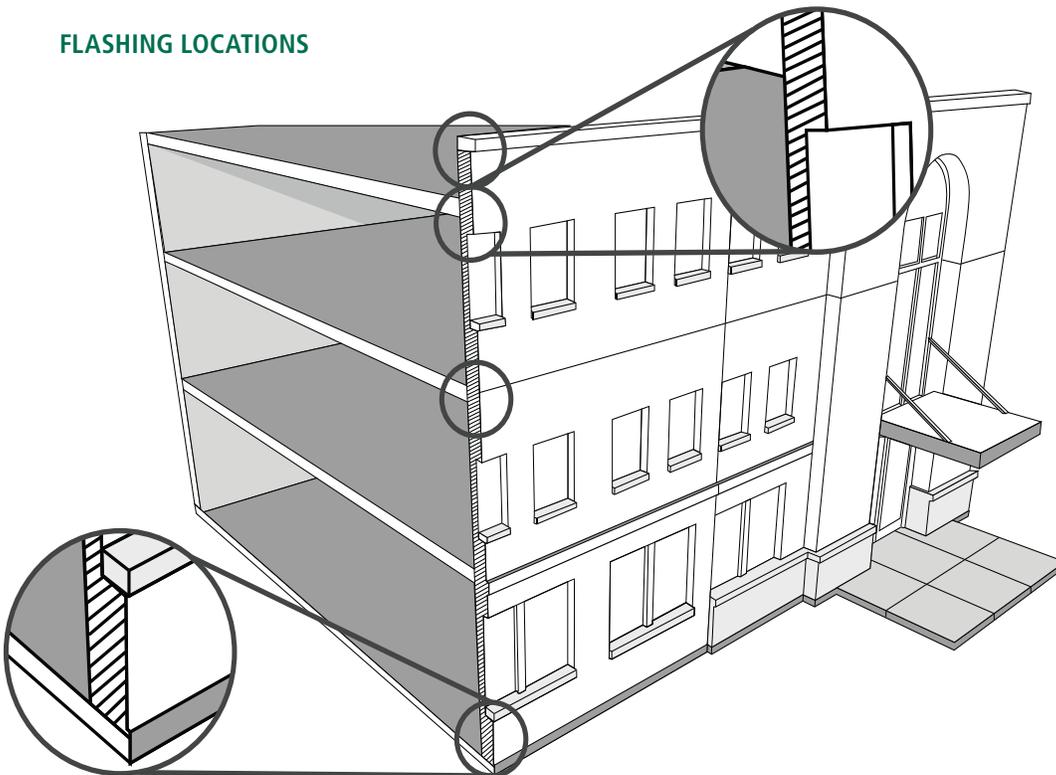
## PARTNERSHIP

Laboratory testing of one manufacturer's product only loosely translates to other production sites and their material sets, mix designs, and equipment. For this reason, The Euclid Chemical Company collaborates with its customers to optimize their end products. The process begins with mix design and aggregate-blend analysis followed by production trials using varying water-repellent admixture dosage rates. Samples of each production run are then sent to The Euclid Chemical Technical Center, Cleveland OH. Here, they are evaluated by industry-certified technicians using standardized methods, including water spray-bar testing, water-droplet testing, and water-uptake testing. Each method has stringent pass/fail criteria, and the dosage rate meeting all targets is "certified" for that producer, plant location, and product classification such as normal weight, medium weight, or lightweight block. This process is repeated annually and kept on file by Euclid Chemical and its customers as part of the BLOCKTITE CERTIFICATION PROGRAM. On a regular basis and for each project, random samples are "spot checked" and compared to these initial results. Should substandard performance be detected, the batch can be isolated before shipment. Precautions are taken at every step to ensure reliability.

## REQUIREMENTS

Masonry construction demands proper design and execution. Special attention to flashing details at all vertical core disruptions (bond beams, doors, windows, base course, etc.) is a must. At these flashed areas, drainage provision is necessary (weeps), and wall vents are highly recommended. Only concave or V-tooled mortar joints are allowable, because all others are deemed deficient (from a leakage-prevention standpoint) by both the National Concrete Masonry Association (NCMA) and the Brick Institute of America (BIA). Proper guidelines, TEK notes, and CAD details can be obtained from NCMA and other sources.

### FLASHING LOCATIONS



WATER BEAD TEST



SPRAY BAR TEST

## OPTION

As an added measure of protection, our CHEMSTOP WB/HEAVY DUTY is recommended. This water-based silane/siloxane, penetrating sealer increases the wall surface's ability to "shed" water efficiently and may be helpful in resisting water ingress at hairline cracks should they develop. Other properties such as stain resistance, efflorescence control, and reduced potential for mold/mildew are also enhanced.

The BLOCKTITE SYSTEM assures long-lasting protection from water leakage through masonry, and its use in single-wythe construction provides an economical alternative to cavity-wall designs. Hundreds of projects have benefitted from its use and will continue to do so for the life of these buildings. For cavity-wall construction, the structural block (back-up) walls can be integrally damp proofed using BLOCKTITE or HYDRAPEL admixtures.

## INDUSTRY LEADERSHIP

For more than a century, The Euclid Chemical Company has served as a leading supplier to the concrete and masonry industry offering a full line of engineered concrete admixture and construction products marketed under the EUCCO brand name. These products include concrete admixtures, block and masonry additives, curing and sealing compounds, epoxy adhesives, floor and wall coatings, structural grouts for columns, equipment and machinery, joint fillers and repair products. The Euclid Chemical Company strives to bring innovative technologies and products to the concrete market with industry leading customer service.

## CUSTOMER SOLUTIONS

The Euclid Chemical Company is unique in our offering of superior products, unparalleled customer service and industry support. The Euclid Chemical team delivers a range of value-added resources and in-depth industry experience to architects, designers, engineers, building contractors and owners. Our experts are highly-trained professionals who are available in local offices across the Americas, and are active members on industry technical committees including American Concrete Institute (ACI), International Concrete Repair Institute (ICRI) and American Society for Testing and Materials (ASTM). Our experienced field team is available to support you and your projects using Euclid Chemical solutions and products manufactured under the stringent standards of our ISO 9000:2008 certified quality system. The Euclid Chemical Company works hand-in-hand with customers:

- supplying field evaluations, recommendations and application problem solving on a project-by-project and technology basis.
- assisting in product selection, specification, installation and related technology.
- attending pre-design meetings, assisting in clarifying specifications, and recommending product selection.
- supporting you by providing proper pre-installation instructions and methods for achieving quality results.

## LABORATORY SERVICES

Our world class Cement and Concrete Reference Laboratory (CCRL) inspected facilities are equipped with state-of-the-art technologies and staffed by an exceptional team of professional, ACI certified technicians. These outstanding resources provide The Euclid Chemical Company with the capability to offer comprehensive analytic and petrographic evaluation and testing services via programs that conform to the standards prescribed by the American Society for Testing and Materials, the U.S. Army Corps of Engineers (USACE), the American Concrete Institute, and the International Concrete Repair Institute.

## TRAINING

The Euclid Chemical Company generously shares product information and technical knowledge through training and seminars conducted for project owners, contractors, distributors and design professionals. Many programs are AIA/CEU registered, allowing eligible attendees to earn professional development hours. Euclid Chemical is proud to sponsor these opportunities for our associates and colleagues as part of our ongoing commitment to the concrete construction industry.

## BUILDING GREEN

The Euclid Chemical Company offers an extensive line of green products that are specific to LEED guidelines. The LEED (Leadership in Energy & Environmental Design) Green Building Rating System provides a national standard for defining an environmentally friendly, sustainable "green" building. Points are awarded to building projects based on water savings, energy efficiency, materials and indoor environmental quality.



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