

EUCLID CHEMICAL

HYDRAPEL SYSTEM

For Water Repellent Concrete Masonry

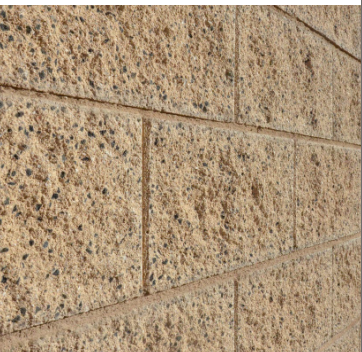


RESISTS RAINWATER INTRUSION & ABSORPTION

PROVIDES FULL-THICKNESS PROTECTION

SUSTAINS OVERALL VISUAL APPEAL

PERMANENTLY EFFECTIVE



HYDRAPEL SYSTEM

FOR CONCRETE MASONRY CONSTRUCTION

The HYDRAPEL SYSTEM consists of two individually formulated admixtures - one type used in the production of concrete masonry units (CMU), the other used in the associated masonry mortar. Properly constructed, buildings incorporating the HYDRAPEL SYSTEM of polymeric admixtures permanently resist rainwater intrusion and moisture migration. Therefore, the HYDRAPEL SYSTEM is ideally suited for single-wythe construction.

MECHANISM

The HYDRAPEL SYSTEM resists moisture penetration and transmission through concrete masonry and mortar. By altering the surface tension within the capillary pores they become non-wicking rather than “sponge-like”. This promotes efficient drainage and quicker drying of masonry structures and prevents damaging/unhealthy conditions from developing. The HYDRAPEL SYSTEM was developed with user friendliness, reliability, and true system performance in mind. In block production, HYDRAPEL admixtures add production efficiency, visual appeal, and overall product consistency.

HYDRAPEL MORTAR ADMIXTURE provides other key benefits. For instance, the same product is used whether bagged, bulk, or site-prepared masonry mortar is used. This is not true of other systems. HYDRAPEL MORTAR ADMIXTURE does not impose mixing/construction challenges or timing delays either. Lastly, HYDRAPEL MORTAR ADMIXTURE provides increased bond strength for optimal system performance.

COMPLIANCE

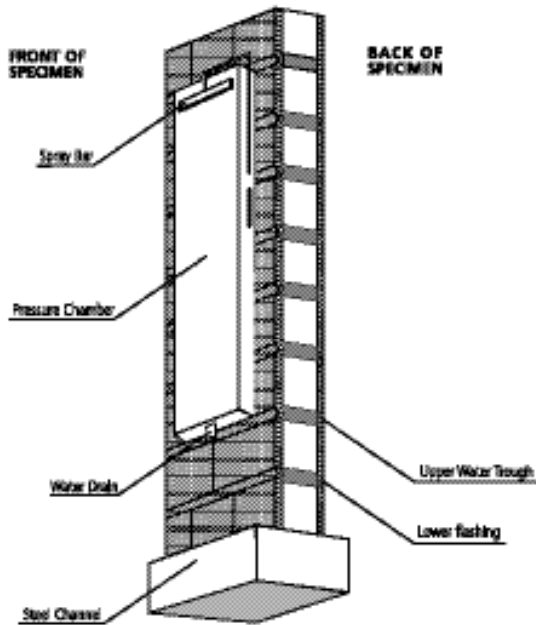
The HYDRAPEL SYSTEM provides unsurpassed levels of water penetration resistance as evidenced by lab and field performance. Both HYDRAPEL SYSTEM-treated and duplicate non-treated wall panels were tested per ASTM E514-74, Standard Test Method for water penetration and leakage through masonry. Here, a simulated 5.5” (14cm)/hour rain is accompanied by a 62.5 mph (100km/h) wind force. Walls incorporating the HYDRAPEL SYSTEM achieved “E” Rated (Excellent) performance after 72 hours exposure to these conditions. Companion wall panels not incorporating The HYDRAPEL SYSTEM were rated “P” (poor). HYDRAPEL MORTAR ADMIXTURE complies with ASTM C1384, Standard Specification for Admixtures for Masonry Mortars and meets the performance criteria for both water repellent and bond enhancing types. As a result, engineered properties are maintained, moisture intrusion is prevented, and crack-induced water leakage is minimized. The HYDRAPEL SYSTEM has also been evaluated for grout bond strength following the guidelines of the California Code of Regulations, (CCR) state chapter 2405(c) 3.C. Here, grouted prisms incorporating the HYDRAPEL SYSTEM showed increased bond strength (vs. reference). Other test methods used to evaluate and qualify admixture performance include:

- ASTM C109
- ASTM C1072
- ASTM C1403
- ASTM C780
- ASTM C1314
- ASTM C1437
- ASTM C952
- ASTM C1384
- ASTM E96

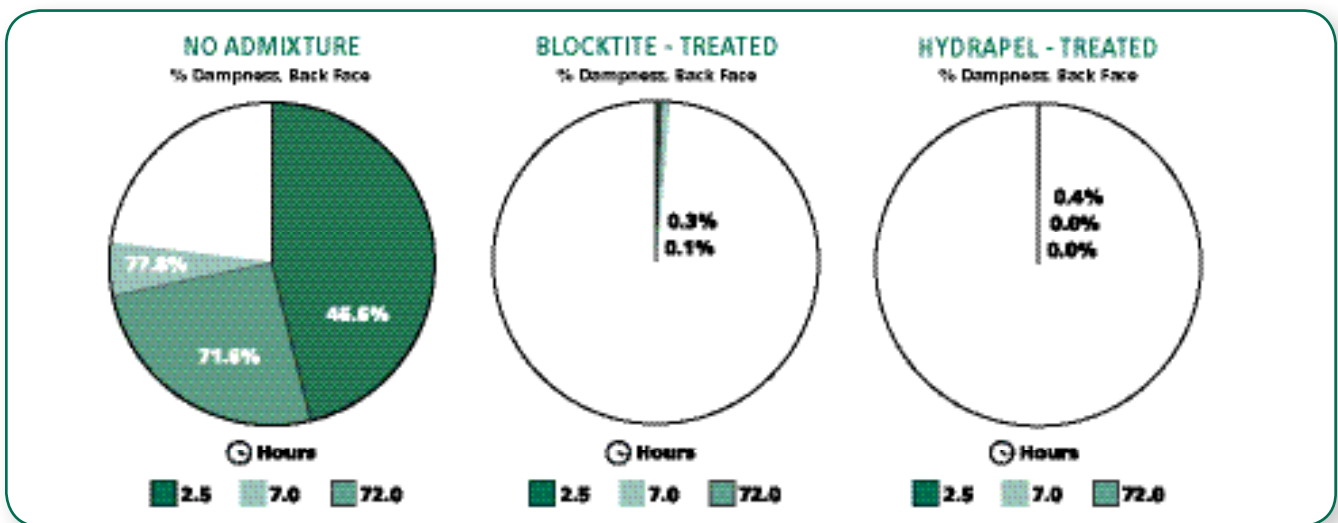
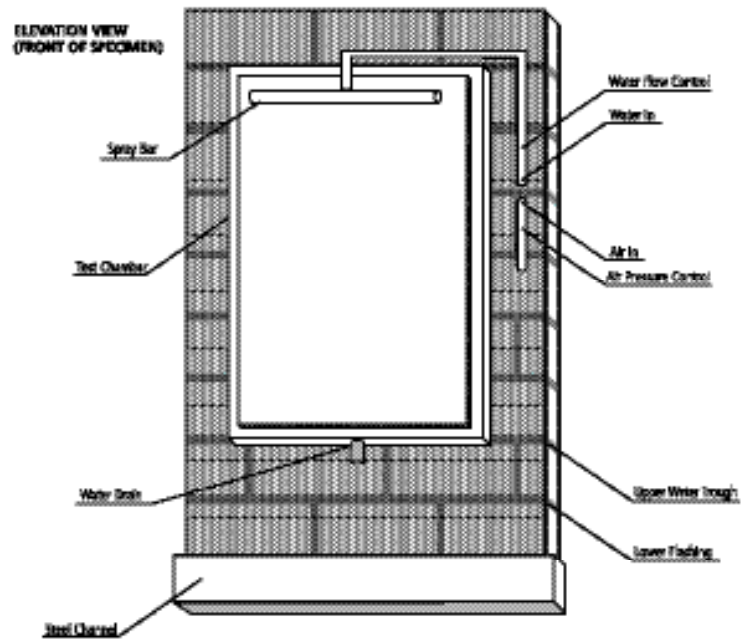


Commonly referred to as "the wind-driven rain test," ASTM E514 is the industry's proving ground for water repellent admixtures. Both HYDRAPEL SYSTEM (CMU) options dramatically reduced water penetration and moisture migration in wall panels constructed with HYDRAPEL MORTAR ADMIXTURE.

CROSS-SECTION OF TEST SETUP



ELEVATION VIEW OF FRONT OF TEST SPECIMEN



SPECIFY WITH CONFIDENCE

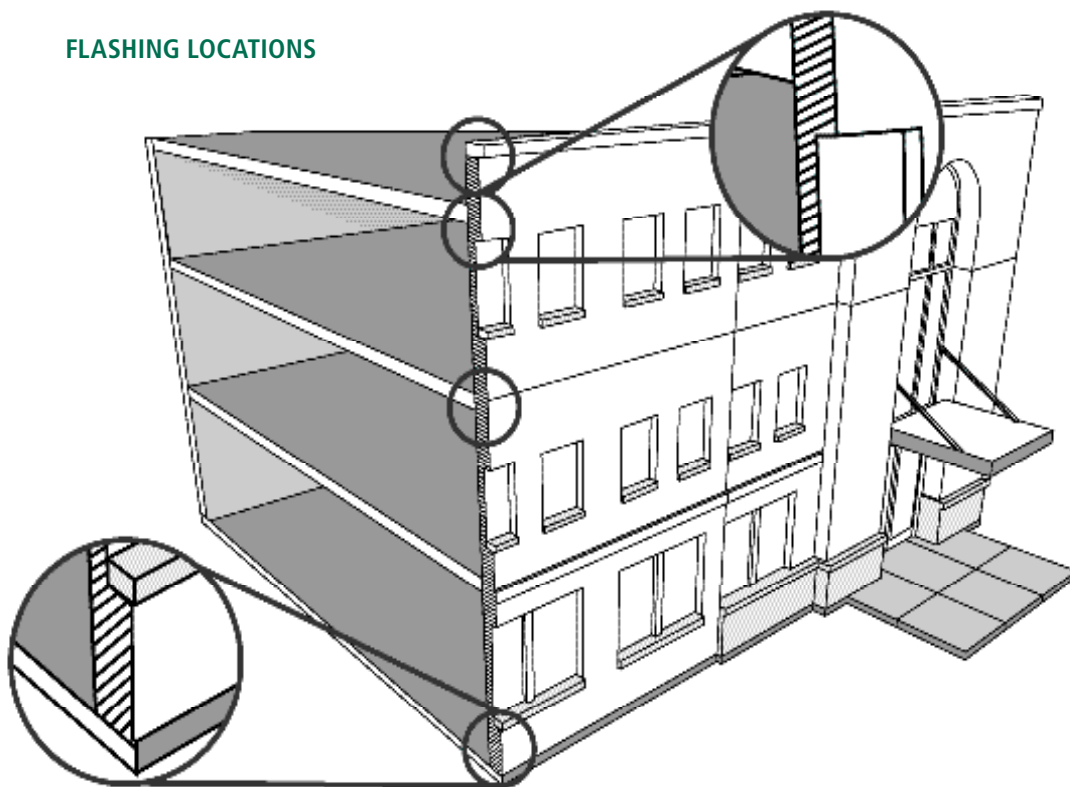
PARTNERSHIP

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 plant location and mix design. This process is repeated periodically and kept on file as part of the HYDRAPEL 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 (weepers), 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 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 HYDRAPEL 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 HYDRAPEL or BLOCKTITE admixtures.

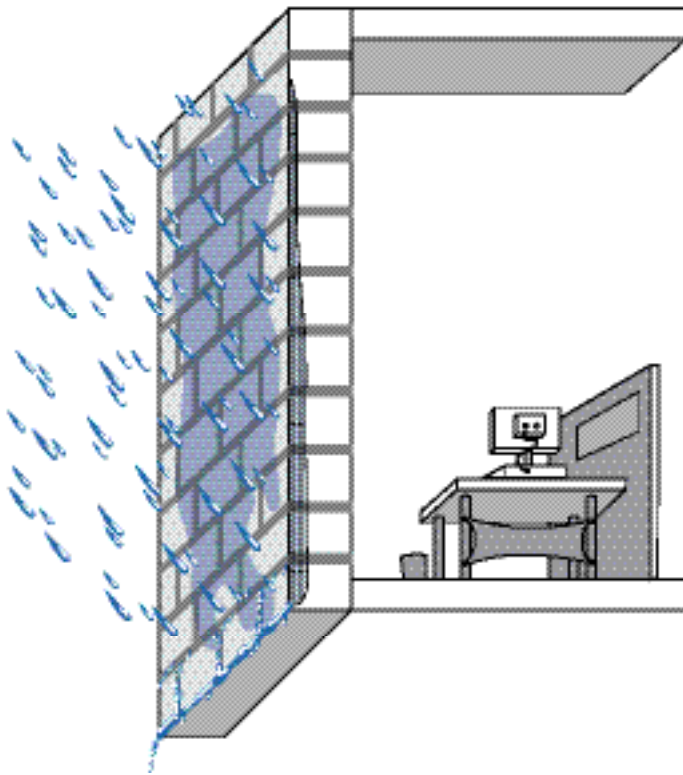
IMPLEMENTATION

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. INDUSTRY STANDARDIZED 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 **HYDRAPEL 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 HYDRAPEL MORTAR ADMIXTURE to each batch. HYDRAPEL MORTAR ADMIXTURE may also be pre-blended into the packaged cement or mortar.

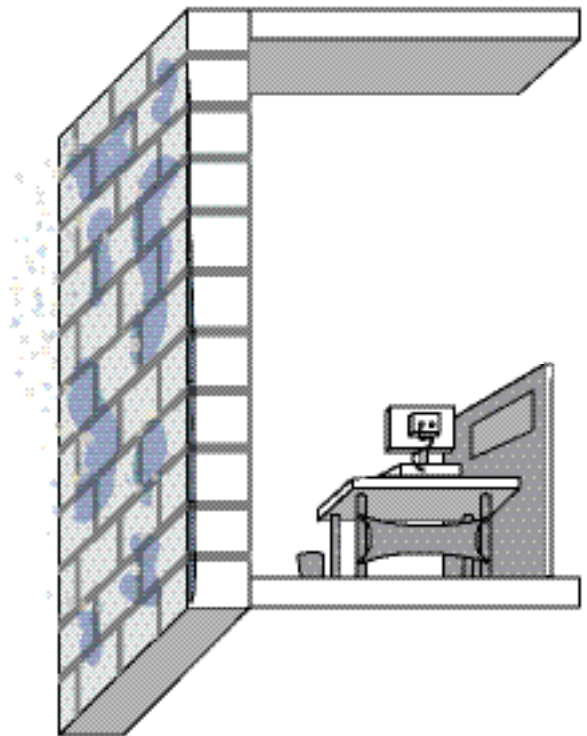
DURING RAIN

- Water repellency
- Efficient drainage



AFTER RAIN

- Breathable
- Fast drying



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

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 EUACO 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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