

## CONTROL-BLOK<sup>®</sup> WATER LEAKAGE-CONTROLLING CONCRETE MASONRY UNIT

Water leakage is the most common construction problem in the field of masonry construction.

**Control-Blok** is a patented concrete block design and total quality concept for single-wythe wall construction that effectively resists water penetration and interior moisture migration.

Concrete block can be porous and highly absorptive and still meet ASTM C 90, Standard Specification for Loadbearing Concrete Masonry Units. Architectural split-face block, commonly used in single-wythe commercial construction is sometimes challenging for the masonry profession to install. Because of its irregular shape, architectural block is difficult to join with masonry mortar in a watertight fashion. Mortar joint workmanship only accounts for 7% of the wall surface but it is disproportionately critical to water-leakage potential. To avoid these problems many buildings are constructed of expensive cavity wall designs – a block structure with exterior veneer of block or brick with a cavity space and drainage provision between them. While effective, this is a costly and time-consuming practice that puts the economy of masonry construction at a disadvantage.

**Control-Blok** integrates water leakage prevention features and heightened performance standards into the block design and, thus, differs significantly from conventional masonry units. As shown in the attached figure, the face-shell design has a beveled edge that facilitates improved joint tooling and provides water-shedding benefits at the block-mortar interface. Similar advantages are provided by the use of chamfered vertical edges for head joint access. Additionally, **Control-Blok's** interior web design effectively prevents the “bridging” of any crack-induced water leakage toward the building's interior.

Comparative tests conducted in 1996 by the National Concrete Masonry Association in Herndon, Virginia, confirmed the superiority of the **Control-Blok** system in preventing moisture intrusion. In two consecutive series of ASTM E 514 simulated wind-driven rain procedures, **Control-Blok** displayed 0% dampness on the interior (opposite) face shell, and reduced the volume of water collected inside the cores of the test panel by over 99%. Interestingly, this improvement was observed when compared to conventional split-face constructed walls made of the same mix design, admixture type, and dosage, and accompanying (water-repellent treated) masonry mortar.

**Control-Blok** was developed by Newblock Corporation of Belle River, Ontario, Canada. Nearly 500 commercial and industrial buildings have been constructed of **Control-Blok** without a known product-related failure. The level of quality enhancement afforded by Control-Blok enables the use of single-wythe construction for all applications, even where expensive cavity walls had been previously used, resulting in a cost savings of approximately 25%.

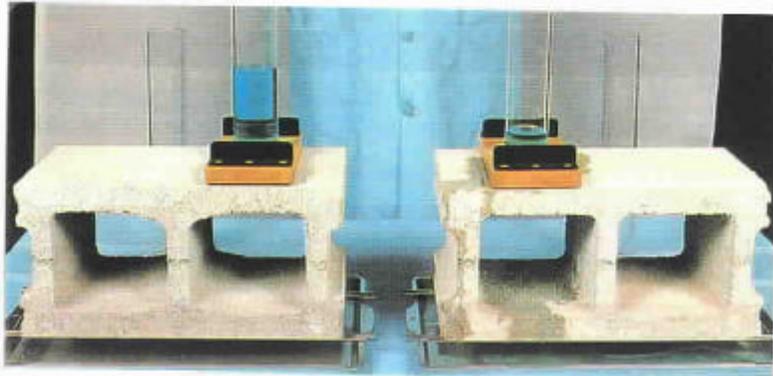
In 1998, **Control-Blok** was used in the construction of Daniel Boone High School, a 148,000 ft<sup>2</sup> structure located in Birdsboro, PA. The school's architect, with over 40 years of experience in building design, took a particular interest in **Control-Blok's** ability to limit and control water transport within the wall structures. Using **Control-Blok** he was able to design an attractive facility at a substantial savings to the school district due to material and labor cost reductions vs. cavity wall construction. Birdsboro school officials are very satisfied and believe that this design may be a model for other schools. Since then, **Control-Blok** construction was chosen for Kennesaw College in the Atlanta, Georgia area and for Colonial High School in the Orlando, Florida area.

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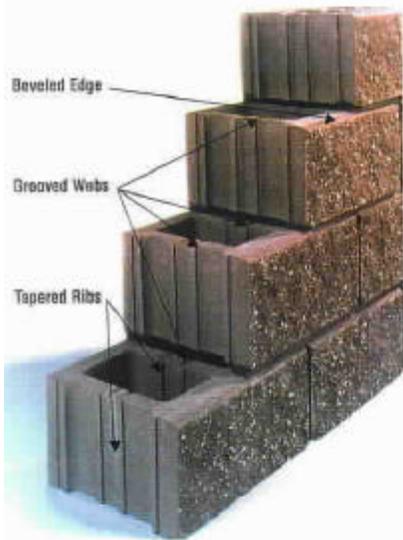


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PERMEABILITY TEST METHOD



CONTROL-BLOK  
DESIGN FEATURES



DANIEL BOONE HIGH SCHOOL