

Using Flashing and Weeps and Water Control Technology in Single Wythe Walls



Installing flashing and weeps is an essential feature in the weather protection design of partially grouted single wythe walls. In this note, we are going to focus on how to build flashing and weep systems at bond beam locations with WCT™ (short for “Water Control Technology”) masonry units from the Concrete Product Group. The use of flashing and weeps is a key element of how to build a wall that performs well and meets Code.

Weather Protection for Single Wythe Walls

Partially grouted masonry walls are uniquely suited for drainage. When the concrete masonry units are placed, their cores line up to create vertical paths that can be used for structural reinforcement or serve as drainage paths. If any water should reach the interior of the wall, it will drain via these paths until it reaches a horizontal interruption. When this happens, we need to make sure water can immediately drain to the exterior. That is the role of flashing and weeps.

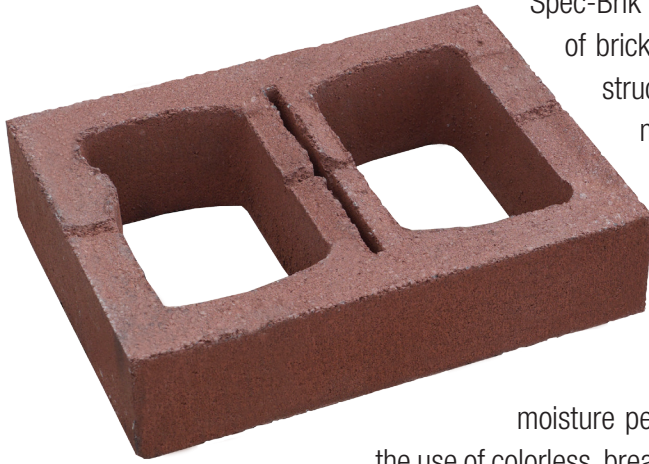
Where would an interruption in the path occur? Commonly there will be interruptions at bond beams or lintels that are in the wall for structural reasons.

These horizontal reinforced structural elements are located at the base of the wall, at wall openings such as windows or doors, and at the locations where the wall supports floors or roof structures.

QUICK POINTS

- Flashing and Weeps are essential to weather protection for partially grouted single wythe walls.
- Spec-Brik WCT units, Flashing and Weeps and the use of post-applied breathable sealants provide a comprehensive moisture control system.
- Flashing should be placed at any horizontal interruption in vertical drainage paths in the wall so that moisture can drain to the exterior of the wall instead of collecting at these locations.
- Horizontal interruptions include bond beams or lintels.

Comprehensive Moisture Control System



Spec-Brik WCT units from the Concrete Products Group provide the look of brick but with the economy of single wythe concrete masonry construction. WCT, or Water Control Technology, offers some enhanced moisture control features. It is available on all types of concrete masonry units, including Spec-Brik.

The moisture control features of WCT units are one component of a total wall system that resists moisture penetration. First, the units and mortar in Spec-Brik WCT walls have integral water repellent in the mix design, which drastically limits moisture penetration through the units or mortar. Second, we recommend the use of colorless, breathable post-applied water repellent, which will address the slight chance of moisture penetration if there are any small voids in the wall.

Normally, the protection of the exterior face of the wall will prevent moisture from reaching the interior of the wall. The integral water repellent in the block and mortar prevents moisture from penetrating the block and mortar, and even if with hairline cracks, the post applied sealant will normally prevent moisture penetration.

If any moisture is able get past these barriers to reach the interior of the wall, the WCT blocks have a patented design that features sloping top surfaces to the webs. These sloped surfaces direct water to immediately drop off of, rather than cross, the webs in the block so that the moisture drops down through the cores of the wall to collect on the flashing and then drain out of the wall via the weeps.

Combining these features creates a comprehensive approach to weather protection.

The nice thing about the WCT design is that the WCT drainage features are invisible from the exterior of the wall, so you can use them to build ends or corners. They are no more difficult to lay than a traditional concrete masonry unit.

Building a Flashing and Weep System above a Bond Beam

A typical bond beam in a Spec-Brik WCT wall is built by placing horizontal rebar in bond beam units, which are then filled with grout. This structural element provides strength to the wall but will become a collection point for any moisture that drops through the wall's cores unless we provide a path to allow it to drain, which is the role of the flashing and weeps.

To construct a flashing and weep system in a Spec-Brik WCT wall, the first step will be to lay the first course of Spec-Brik WCT above the bond beam. The cells in this first course are filled with grout. Before laying the next course of units, we will build the flashing and weep system. There are a variety of good approaches to building flashing and weeps in masonry walls. One system that is often used is the BlockFlash® pan flashing and weep system.



BlockFlash® is a combined flashing and weep system. It includes a pan that covers each block cell, a bridge that spans to the next unit, and a weep spout that allows the water to drain to the exterior of the wall.



These units are available to fit 8, 10, or 12" deep CMU sizes. In addition to the pan and weep piece, we also use a mesh piece that protects the flashing and weeps from being plugged by mortar droppings during construction.

BlockFlash® is easy to install. The units are placed above the cells of the blocks below. If you reach a cell where reinforcement is placed, the bridge on the adjacent BlockFlash® unit can be removed so that the unit will fit. The BlockFlash® units are centered over the cells in the blocks below so that there is room for the bed joint of mortar.

The BlockFlash® flashing and weep system is designed so that a full 1" joint can be used for the mortar bed joint at the flashing layer, which preserves the flexural strength of the wall at the flashing position.

The mortar joints on this course and succeeding courses are tooled to have a concave shape, which minimizes ledges that might otherwise be collection points for moisture on the exterior of the wall. Of course, it is also important to assure that the weep spout is clear and functioning.

Conclusion

Water Control Technology units from the Concrete Products Group and flashing and weeps are designed to provide an integrated and efficient drainage system to address any moisture that reaches the interior of the wall. The use of these components in a properly detailed wall will result in a wall that provides excellent weather protection.

Water Control Technology™ and WCT™ (U.S. Patent Nos. D673,301, D673,302, D673,303, D673,304. Other patents pending) are registered trademarks of the Concrete Products Group, LLC.

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Questions?

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