

TB-0014B — Compatibility of Post-Applied Coatings and DRY-BLOCK[®] Technical Bulletin

DRY-BLOCK[®] block and mortar admixtures are designed to give water-repellent properties to concrete masonry units (CMU) and mortar. DRY-BLOCK[®] is commonly used in colored smooth and split-face architectural CMU but, many architects also specify smooth or split-face grey CMU with DRY-BLOCK[®].

The DRY-BLOCK[®] Wall Saves Time and Money During Application

Regardless of CMU type, post-applied coatings may be used on the exterior and/or interior of the masonry wall. The most commonly used coatings include paints, clear penetrating sealers, pigmented penetrating sealers (or stains), and to a lesser degree, clear film-forming sealers.

Savings in material and labor costs often result when DRY-BLOCK[®] masonry is used as a substrate for post-applied coatings. Increased coverage and application rates are typically achieved, due to the lower absorptivity of DRY-BLOCK[®] masonry compared to regular masonry.

DRY-BLOCK[®] Walls Provide a Compatible Substrate for Coatings

This Technical Bulletin is designed to provide guidance in selecting post-applied coatings which have proved to be compatible with DRY-BLOCK[®] masonry. This bulletin does not address the effectiveness or longevity of the various coatings. Rather, it simply addresses the acceptability of using DRY-BLOCK[®] masonry as a substrate for the various coatings. The manufacturers of the various coatings should be contacted to determine the suitability of a particular coating for a given application. With all post-applied coatings, remember that quality coatings should always be used as no substrate can compensate for inferior products. Also note that DRY-BLOCK[®] CMU are not recommended as a substrate for stucco finishes. For further information on this topic, please see GCP Advanced Technologies Technical Bulletin 15, "DRY-BLOCK[®] and Stucco Applications."

Paints

Paint is the most common post-applied coating used on masonry to improve aesthetics and reduce permeability. Paint continues to be used widely for both interior and exterior applications. For porous CMU, block fillers are often used prior to paint application to close the pores and reduce paint application costs. In addition, primers are sometimes recommended for preparing the masonry substrate to accept the coat(s) of paint. Oil-base paints (alkyl paints) are not recommended for most masonry construction, especially exterior applications.

Clear Penetrating Sealers

As the description implies, these sealers penetrate the first 1/8 in. to 1/4 in. of the masonry surface, react with the concrete matrix, and create a hydrophobic surface to provide protection from water penetration. When used in conjunction with DRY-BLOCK®, these sealers provide additional protection at the surface which, when combined with the water repellent properties that DRY-BLOCK® provides throughout the thickness of the wall, creates a superior water repellent masonry wall. The most commonly used sealers on the market are silane and siloxane based with varying total solids content. These types of sealers have been successfully used on DRY-BLOCK® masonry.

Pigmented Penetrating Sealers (Stains)

Pigmented penetrating sealers or stains are similar to clear, penetrating sealers in that they create a hydrophobic surface to provide protection from water penetration. However, in addition to creating a hydrophobic surface, pigmented sealers “tint” grey masonry to a desired color or correct color variations within pigmented masonry. Binders are generally incorporated in stains to hold the pigment to the substrate and prevent fading or wash out. The binder is usually an acrylic. Again, the most common pigmented sealers on the market are silane and siloxane based, with varying total solids content. Silane and siloxane based stains have been successfully used on DRY-BLOCK® masonry.

Clear Film-Forming Sealers

Unlike clear, penetrating sealers; clear film-forming sealers form a film on the surface of the masonry to provide water-repellent properties. While clear, penetrating sealers have high water-vapor transmission rates, film-formers sometimes have low water-vapor transmission rates. The water-vapor transmission rate of the sealer should be evaluated for its effect on the overall wall system to ensure water is not trapped within the wall system. Water and solvent-borne acrylics, mineral gum waxes, urethanes and silicone resins are generally used as film-formers. From a chemical compatibility standpoint, film-formers are compatible with DRY-BLOCK® masonry. However, care and consideration should be given to the products' water-vapor transmission.

Summary

This Technical Bulletin is not intended to recommend one type of post-applied coating over another. Instead it is intended to describe the coatings that are typically used successfully with masonry that contains DRY-BLOCK® as a substrate. As a rule of thumb, if the coating can be applied to masonry without DRY-BLOCK®, then it can be applied to masonry with DRY-BLOCK®.

Of course, it is important to remember that quality coatings should always be used because no substrate can compensate for inferior products. It is also important for the specifier to be aware of each coating's water-vapor transmission rate and its effect on the whole wall system, to ensure the right product is selected for the right application. It is always recommended that the instruction of the selected product(s) be followed to ensure successful preparation of the substrate and application of the product(s).

Additional Information

For further information concerning post-applied coatings for masonry, the following references are recommended:

“Water Repellents For Concrete Masonry Walls.”

Tek Notes 19 Series, National Concrete Masonry Association, Herndon, VA, 1992.

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Last Updated: 2019-02-21

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