



**Stucco doesn't leak...holes do.
Liquid Applied Barriers (LABs) for Stucco**

It seems as though the entire world is blaming stucco as the cause of water intrusion into homes, offices or whatever. This has been the mantra of homeowners, insurance companies and even some contractors since the storm season of 2004. In reality, it is not the stucco that has leaked. It is the lack of sealant around penetrations through walls (windows, doors, hose bibs, dryer vents and others) that have caused the greatest majority of these leaks.

The cement industry has always maintained that stucco was water-resistant but not water-proof. Beginning in 2005, the Stucco Task Force of the Florida Concrete and Products Association (FCPA) decided to prove their claims. With the aid of a grant, the NCMA was contracted to run a series of tests on masonry walls for water tightness under storm conditions. There is an ASTM Standard, E514, for testing wind-driven rain penetration of wall assemblies which we followed and increased. The results of those tests showed virtually no leakage through the stucco in walls without penetrations. Due to the constraints of a column of this nature, I won't go further into this test. Those of you who wish to read the entire report may do so at www.ncma.org/foundation/programs. The document number is 2005.002.

Then the University of Florida, Hurricane Research Center began a series of tests on both masonry and wood frame walls with windows of different profiles installed. Both the Fenestration Manufacturers Association (FMA) and the FCPA were closely involved with each providing product and labor to build and plaster the samples. In these tests, the window openings were tested by negative pressure from the back or representatively the indoor side while applying water in a spray to the outside. Additionally, these same walls were then exposed to a simulated hurricane driven rain force while installed in a mock house wall. This simulator could provide approximately a 140mph wind to the exterior face of the wall. Again, the water penetration was measured. Many of these installations, both masonry and frame, performed well and many failed. The final report is still in draft form but should be out in a month or two.

Some of the masonry wall test samples at UF required the use of a Liquid Applied Barrier on the jamb return, the sill and on the face of the masonry surface to 9 inches out from the opening. It was thought that these LABs would prevent water penetration through the masonry. The FMA, to their credit, had decided that they need to do something to standardize window installations to provide for a more water-tight installation practice. The first step in doing so was to amend the current guidelines, AAMA Liquid Applied Flashings, and the initial draft included this 9 inch surface application. The FCPA was very concerned about this proposed new requirement due to a history of delamination of stucco at locations where LABs were used. As it turned out, this had little or no effect on the performance of stucco over masonry at window openings.

A second round of tests were then undertaken by the FMA and conducted in Tampa with the assistance of Titan America, LLC. Four more masonry walls were built and plastered (by our own Greg Herndon) with four different window installation types. These were then subjected to the FMA's standard water penetration tests. No LAB was applied to the block face. Again, there were no leaks through the masonry. This test satisfied the FMA that LABs were not necessary over the masonry.

I was asked to address the Installation Committee of the FMA at their annual meeting at Marco Island in October. I presented the results of all these tests and asked the FMA to remove the LAB requirement. A compromise was proposed in which the LAB need only be applied to the return and sill of masonry openings. They have asked the FCPA's Stucco Task Force (STF) to comment prior to their final vote, which is still in draft form. The position of the STF is that LABs are not necessary at all over masonry openings. However, we may approve new proposal provided that the bond of stucco to the cmu is not hampered. In other words, we are asking that language be included in the new guidelines that LABs must be tested for bondability to stucco. The following is the current draft version of that text:

7.2 Surface applied façade: Stucco— In the southeast US region, it is common for exterior stucco façade be directly applied to CMU walls without the use of a drainage cavity (surface barrier wall system). In this case, it is essential to have a strong bond between the stucco and the CMU wall. Liquid applied flashing used in this application shall not act as a bond break to the stucco, such that provisions are made either in the formulation of the liquid applied flashing or with a secondary application of an adhesion promoting substance for the direct applied stucco.

The adhesive bond strength to various substrates is defined as follows:

5.1 ADHESIVE BOND STRENGTH TO SUBSTRATES: The liquid applied flashing must have adequate bond strength to the various sheathing substrates in order to maintain the water resistant seal. This test evaluates the joint where the liquid applied flashing is applied to sheathing substrates.

Test a minimum of three liquid applied flashing specimens for tensile bond strength according to ASTM C 794 as applied onto various substrates...

While this issue has yet to be settled, I believe we are getting closer to a better, more consistent and water-tight installation standard for windows that will work well with stucco in both frame and solid substrate conditions.

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