



Water Testing on the Small Project

Do the windows leak? How about the doors? Does it matter if they do? Sometimes there is evidence of leaks and sometimes there is none.

Suppose that you are asked to review a Single Family Residence (SFR) that has had some construction problems, unrelated to the windows or doors. The Owner has called and asked for help because "my retaining wall is leaning." You get to the home and find that indeed the retaining wall is leaning. When you look up at the house, you notice that the roof ridge was never completed. You ask to use the restroom. Upon entering, you find that when you flip the light switch to the five-bulb light nothing happens and you also can't help but notice that the toilet was not bolted down. On your way out of the house, you notice that the Living Room floor has what feels like a 3" drop in plane over its 20' width.

What do you tell your client? Depending on your field of expertise and the time you have, you might suggest that a thoroughgoing investigation of the building be done by yourself and/or others.

When we see well-built structures with seemingly anomalous problems, we confine our investigation to what we can readily see as a problem - and how to correct it. When we find one thing after another that is not built well, we become suspicious of the entire project. In these cases we will often recommend that a more thoroughgoing inspection be undertaken. This often includes foundational (soils and site drainage), structural, utility (electrical, mechanical and plumbing), exterior coverings and penetrations from the roof to the earth, and, on the way, fenestration systems - the Windows and Doors.

Most of the serious problems that we see with buildings are related to ground conditions, structure, fire hazard or water. This is not to say that other issues are not important, but for the most part, those other issues are not building or life threatening.

In my opinion, it is very important to know whether or not water is getting to the structure of the building. When intermittent water gets past the building envelope at connections and penetrations, even steel- framed buildings can deteriorate over time. Wood, our very common building material, will deteriorate quickly if kept moist/wet, especially in tight places. Windows and doors are the most obvious and common form of penetration. It is fairly easy to make mistakes in these installations - so when we find that a structure has a variety of obvious problems, we become suspicious about the installations of the windows and doors.

How do we determine if there actually is a problem with the window and/or door

installations or Units? How do we know if the problem is widespread? One almost sure way to find out would be to strip the interior finishes on the exterior walls, wait until late in a major storm, and observe the interior of the frame. This is not practical. Another method is to choose certain openings and have ASTM or AAMA tests done. The findings from those tests can be extrapolated out across the entire building, depending on who the disputants are. Sometimes defendant teams want abundant sampling, sometimes a few samples will do.

We have found, over the 25+ years we have been diagnosing water intrusion problems, that no matter how the tests are done there can be consultants who argue that they were not properly done. We have also noted that the formal "standard tests" themselves leave consultants room to dispute. Finally, we know that such tests can be very expensive.

It's not just about saving money. There are other compelling reasons to opt for water testing other than via one of the standardized tests - always depending on the assembly's characteristics and environment. I will cover the basic formal tests, their costs and use, as well as when a simple test might better suit the project; I will include examples.

My talk is about testing windows and doors without the use of formal testing procedures. It has been my experience that Windows and Doors can be tested in simple ways that have no ASTM or AAMA backing but are, nevertheless, perfectly capable of determining if those openings have problems. These simple tests, if done carefully and well recorded, can provide solid, "nearly indisputable" (in this business I find that there is little that is indisputable) evidence.

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This article was published in MFC's Fall eNewsletter and was written for a presentation Myles F. Corcoran gave to the WESTCON meeting in October 2008.