

## Codes Column

### UPPING THE STANDARD



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# Part is Not Enough Requiring Whole-Unit Performance for Side-Hinged Exterior Doors

*In 2003, the California state legislature passed a construction defects bill (SB800) that provided builders with the "right to cure" alleged construction defects before lawsuits could proceed. This bill was introduced in response to the liability insurance crisis that all but ended multi-family construction in California. Part of this comprehensive bill included standards for water penetration resistance of doors and windows. Until recently, California's building codes did not contain any requirement that doors and windows meet water penetration tests. After SB800 was enacted, the California law stated that "with respect to water issues... a door shall not allow unintended water to pass beyond, around, or through the door, or its designed or actual moisture barriers, if any."*

*The University of Florida (UF) College of Engineering is working on comparative testing of the various water penetration tests applicable to fenestration products. One of the test methods currently under development will be based on the UF hurricane simulator project. This project utilizes eight hydraulically driven axial fans powered by heavy-duty marine diesel engines that apply a spray of wind-driven water to test door, window and building system performance. One of the goals of the comparative test project is to determine if current regulatory requirements for water penetration testing are adequate.*

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The International Building Code (IBC), government regulations and local codes govern many entrance/exit door requirements pertaining to life safety and accessibility. Advocates for efficiency and energy conservation currently are introducing energy legislation on many levels, and it is safe to assume all fenestration products eventually will be held to certain efficiency

standards in the future. Side-hinged exterior doors and related components are an important element of the building envelope, and the Window and Door Manufacturers Association (WDMA) is committed to attaining achievable and workable solutions for our industry in the development of industry standards, codes and performance validation through certification.

### What NAFS Says

The AAMA/WDMA/CSA 101/I.S.2/A440-05, *North American Fenestration Standard/Specification for Windows, Doors and Skylights* (NAFS-05), is the current standard that is referenced in the I-codes requiring glass doors, windows and skylight products to be tested and labeled for air, water and structural performance. NAFS-05 incorporated language to include side-hinged exterior doors to whole-unit performance testing and labeling in order to be rated consistently and comparably with all other fenestration products. WDMA believes that, from the perspective of the code official, building owner or consumer, all fenestration products are part of the entire building envelope and should show compliance to air, water and structural performance.

Currently, the ICC requires certain side-hinged exterior doors to whole-unit structural performance requirements via ASTM E330, *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference* testing, but these products are exempt from whole-unit air infiltration or water penetration testing requirements. ASTM E330 testing has been a critical part of previous versions of NAFS-02 requirements, but current side-hinged exterior doors that do not demonstrate compliance to either of the current specifications must meet the code requirement for testing to ASTM E 330 for structural wind load resistance.

WDMA and the American Architectural Manufacturers Association (AAMA), through the Joint Code Council, authored code proposal S213 for the 2006 IRC and IBC code development cycle. S213 revised the 2006 IRC to require doors and windows to be tested, certified and labeled as conforming to NAFS-05. At this time, the inclusion of side-hinged exterior doors was opposed and the exception was written into the 2006 International Codes. The Association of Millwork Distributors (AMD) had lobbied for excluding these types of doors from any testing or labeling requirements because such doors often combine components from multiple suppliers, and testing and labeling all the potential combinations could be problematic.

### Clarifying a Complicated Issue for Officials

To clarify the exterior side-hinged door issue to building code officials, WDMA and AAMA jointly authored the “Technical Position Statement regarding Exterior Side-Hinged Door Systems,” which recommends that state and local code agencies interpret existing code requirements as follows:

All window, skylight and sliding glass door fenestration products within the scope of either NAFS-97 or NAFS-02 shall comply with one of those specifications.

Exterior side-hinged door systems shall be tested in accordance with ASTM E330 or shall comply with either NAFS-97 or NAFS-02. Testing to ASTM E330 shall include a 10-second period at a load equal to 1.5 times the design pressure.

The provisions that were approved in the 2006 IRC required glass doors and windows to comply with NAFS-02. The “glass doors” were considered by many in the fenestration industry to include sliding doors and hinged patio doors, so windows and sliding doors were required to comply with NAFS-02. This language removed the

ambiguity of glass doors but excluded side-hinged patio doors and side-hinged exterior doors from whole-unit air and water infiltration testing.

### Seeking a Resolution

At the February 2008 ICC code committee hearings, WDMA submitted proposal S141 to require whole-unit performance testing of side-hinged exterior door systems. Under S141, the code language is modified to remove the exception for side-hinged exterior door assemblies, and to include these products to be tested beyond structural testing. AAMA submitted FS 170-04/05, which includes a modified NAFS-08 reference for side-hinged exterior doors. Both the WDMA and AAMA proposals were disapproved, and WDMA, in presenting S141, acknowledged that additional work was needed to resolve the certification issues.

WDMA believes it is in the industry’s best interest to support performance and energy efficiency standards and include side-hinged exterior doors to whole unit performance testing. In the absence of performance requirements in the code, legislators may take matters into their own hands and require more stringent standards than those in the model codes. WDMA believes that proposal S141 is a pro-active approach to an unresolved aspect of NAFS-05. The significant environmental impact of buildings should be driving our industry to require performance testing for all fenestration products.

During committee discussion on S141 in the IRC Building and Energy committee hearings, Tom Meyers, a code official from Colorado, acknowledged the expectation that all exterior doors meet minimum water resistance requirements. “It is hypocritical to require flashing of door openings to resist water but not require the door itself to be tested to water resistance standards,” Meyers said. 