

Playing Catchup

Multi-Panel Doors Outsize NAFS Testing

by Jason Seals

One of the tenets of green design includes recognizing the health benefits and energy savings of natural light and fresh air. Multi-panel doors achieve this in dramatic fashion and with those new oversized doors have come some equally large issues in testing for the North American Fenestration Standard (NAFS).

As with all fenestration products, multi-panel door assemblies must be tested, rated and certified to meet requirements for various performance attributes, such as structural integrity, resistance to air leakage, and prevention of water penetration. However, thorough testing in the manner prescribed for traditional door and window products—based primarily on frame size—poses a potential problem for these behemoths.

NAFS limits products qualified by a test to those smaller than the frame and sash size of the tested product. Applied to sliding doors, this means the door frame of the certified product cannot exceed the frame size of the tested product.

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This can be a problem for manufacturers offering multi-panel doors, which can be as much as 30 feet long—sometimes even longer. The costs of testing a 30-foot by 10-foot sliding door can be prohibitive, because it typically involves building a custom chamber or test fixture.

An AAMA task group aims to mitigate this issue by developing a procedure to be added to NAFS. There’s precedence already in NAFS in the way folding doors (“FLD”) are treated.

For guidance on how to proceed, the group took a closer look at the Florida market, where manufacturers of sliding doors can qualify products based on the panel size of the product, not the frame size. Manufacturers test a four- or five-panel-wide door, that also uses the maximum number of tracks to be offered, for air, water, and structural performance in accordance with NAFS or Testing Application Standard



Photo: Marvin

Marvin’s Modern series includes large, multi-panel sliding doors.

(TAS) 202. The test sample also includes all of the conditions to be qualified for the product line, such as astragals, interlocking panels, locking conditions, etc. A professional engineer then uses this test report to extrapolate design pressures for doors with frames greater than the size tested.

The current proposal calls for testing air-water-structural (AWS) performance per NAFS using the largest panel size. The largest product would use a three-track frame (maximum) and the test unit would include all the sash and frame interlocking conditions that will be offered in the product line. An additional air and water test using the smallest panel size and maximum number of tracks offered would be used to qualify frames deeper than the number of tracks used in the initial test unit. The results of these tests would be used to generate ratings using engineering analysis. As currently drafted, a matrix representation of the testing plan shows several configurations of sliding door systems contained in a single frame, mounted in varying numbers of tracks ranging from two to six. Accompanying qualification rules are also being drafted.

For makers of multi-panel doors, relief is on the way. The group is aiming for completion of the task and integration of new testing procedures into the next edition of NAFS.

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