



Industry Entities Reach Viable Compromise for Door Component Substitution



Side-hinged entry doors are special beasts in the fenestration menagerie in terms of both the functionality and the makeup of the final installed product.

In terms of functionality, side-hinged doors pose distinct functional differences and application realities, stemming primarily from accessibility requirements, water penetration and hardware durability, based largely on operating frequency. This has been addressed, at least in part, through the evolution of the “Limited Water” rating concept in the North American Fenestration Standard/Specification for windows, doors and skylights. The NAFS Limited Water rating recognizes that entry doors are commonly installed in weather-protected areas, i.e. under a porch or opening into a garage. This is in addition to requirements based on AAMA standards for operating cycle performance, vertical load resistance, hardware load and forced entry resistance.

In-field substitution of components is a common practice for jobbers, distributors

and door pre-hangers, but one that can change the performance of the overall door assembly. Verifying the performance of each ad hoc assemblage of components poses a problem. If NAFS requirements were enforced literally, each complete door configuration with different components would have to be separately tested, certified and labeled—what seems to be a burdensome approach.

Further, summing the performance ratings of individual components and extrapolating the performance of the complete door assembly without any test of the overall structure at any point doesn’t ensure the performance of the assembled door. This would result in erroneous ratings. The minute a component is changed, all that careful testing is, if you will, out the window.

After years of work, however, with the World Millwork Alliance, worldmillworkalliance.com, the Builders Hardware Manufacturers Association (BHMA), buildershardware.com, and others, AAMA 111, Procedure for Limited

Component Substitution in AAMA-Certified Exterior Side-Hinged Doors, reached a viable compromise.

Evaluating the elusive

First issued in 2009, AAMA 111 provides a procedure for limited substitution of components within a SHED assembly that has been qualified for certification via a complete system test. In essence, the approach mirrors the “waiver of retest” option utilized for window certification in the AAMA Certification Program. This option allows for an engineering evaluation of minor design changes, as well as substitutions of components that meet the underlying component standards. It is permitted on a case-by-case basis without requiring retest of the entire finished product.

Each instance of component substitution from the tested door assembly must be approved by submitting an AAMA Certification Program Request for Waiver of Retest (Form RWR-1), found in AAMA 103, Procedural Guide for Certification of Window, Door and Skylight Assemblies. A maximum of three components may be substituted before an additional base test is required. In any case, the use of substituted components must not compromise the complete product’s ability to meet the performance achieved by the originally tested system.

In general, components may be substituted without re-testing of the full assembly if they are made of the same or equivalent material and can be shown, through engineering analysis or component-level test results, to perform the same or better than the originally tested version.

AAMA 111 specifically covers the substitution of astragals, door leaves, frames, glass assemblies, hardware (hinges and single-point locks), mullions, sills/thresholds, and weatherstripping. For each type of component, a number of performance factors critical to that component are listed. These must be met if the

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component can be used without an engineering evaluation or complete retest of the assembled door.

For example, single-point locks can be substituted so long as the new lock is of the same type (cylindrical, mortise, surface or flush mount) as the original and has an equivalent or greater grade per the applicable ANSI/BHMA standard (such as ANSI/BHMA 156.13 for mortise locks and latches). Also, the strike projection beyond the strike plate must be the same or greater, the strike must be of the same material with an equivalent or greater cross-section, and the mounting screws must be the same or greater in quantity, size, material and length.

The most recent version of the standard, AAMA 111-19, was recently released and is available through the Publication Store at aamanet.org/store.

Although SHEDs have presented a unique and somewhat elusive case for component verification and product certification, they also represent a case study of how industry cooperation can devise a means for specifiers to evaluate them on a level and meaningful playing field. ☐

Steven Saffell serves as AAMA’s technical director. With 32 years of experience, Saffell previously worked with Simonton Windows and Ply Gem.