



# Verifying Patio Door Performance

It's Possible through the NAFS Standard

BY DEAN LEWIS

**W**hile much has been written by various organizations regarding evolving window standards, testing and certification, little attention has been paid to their cousins, sliding glass doors. Fortunately, sliding doors have been along for the ride toward state-of-the-art performance quality.

The linchpin is the recently updated and soon-to-be code-recognized *NAFS - North American Fenestration Standard for windows, doors, and skylights AAMA/WDMA/CSA 101/I.S.2/A440-08*, which defines requirements for four performance classes: R (for products typically used in one- and two-family dwellings), LC (generally for low- and mid-rise multi-family dwellings and "light" commercial buildings), CW (usually for commercial buildings subjected to heavier use) and AW (commonly used in high- and mid-rise buildings subject to more extreme loading conditions).

These classes are linked to quantified minimum performance grades, which are defined by design wind pressures (DP) in pounds of pressure per square foot. The minimum Performance Grades are 15 psf (720 Pa) for R class, 25 psf (1200 Pa) for LC class, 30 psf (1440 Pa) for CW class and 40 psf (1,920 Pa) for AW class. The minimum structural loading capability is 150 percent of the DP for windows and doors (200 percent of the DP for unit skylights), and water penetration resistance is tested at 15 percent (2.9 psf minimum) of the DP for R, LC and CW classes - 20 percent of the DP for AW class products.

To qualify for a given performance grade, a specimen of the product must pass ASTM-defined tests to verify that all performance requirements are met. Each test specimen must be a completely assembled, glazed and functional unit (including hardware), mounted in the test apparatus per the manufacturer's documented instructions.

In addition to the basic structural and water resistance requirements, sliding doors must also pass prescribed tests for air infiltration, operating force, forced entry resistance, corner weld integrity (for thermoplastic [e.g., vinyl] framed products) and resistance to deglazing.

## Third-Party Certification

Since 1962, AAMA's ANSI-accredited certification program has brought the credibility of independent third-party inspection and testing to the task of ensuring that products meet the current NAFS standard and its predecessors.

Under this program, actual testing of a sample of the product may be carried out at any AAMA-accredited independent laboratory of the manufacturer's choosing. The laboratory submits test reports to an AAMA-contracted administrator, who reviews them to verify completion of test procedures and conformance with requirements. Once approved, the manufacturer may apply AAMA certification labels to production line units that conform to the design as tested. The administrator subsequently conducts at least two unannounced inspections per year at the manufacturer's factory to verify that production

line units are equivalent to the tested sample.

## Component Requirements

The NAFS standard and AAMA product certification go beyond basic quality assurance for completed fenestration units by recognizing that a patio door is a complex system of components—extrusions, as well as finishes, glazing system, screening, weatherstrip, sealants and hardware—that must perform properly and continuously over a long service life.

For example, to be deemed as conforming to the NAFS standard, and therefore certifiable under the AAMA certification program, vinyl-framed products must be made from extrusions that comply with AAMA 303. This document specifies minimum requirements for impact resistance, weatherability, dimensional stability, heat resistance, weight tolerance, heat buildup and lead compound content of rigid PVC.

It is the specifier's task to first determine the trade-off between performance and cost that is acceptable for the job at hand. Demonstrated compliance with the requirements of AAMA/WDMA/CSA 101/I.S.2/A440-08 as shown by AAMA Certification is the easiest way to promote customer and end-user satisfaction. **I**

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