



THE AAMA CERTIFICATION PROGRAM

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Since 1962, AAMA Certification, the original third-party window performance program, has provided manufacturers with the means to independently demonstrate product performance to their customers. The program went on to raise the bar even higher by earning ANSI-accreditation in 1972 – a credential still maintained today.

The AAMA Certification Label tells customers that a sample of the product has been verified as conforming to the standards' requirements through independent laboratory testing and follow-up on-site inspection of the manufacturer's production line. Products authorized for certification and their manufacturers are also listed in the online AAMA Certified Products Directory, the industry's preeminent resource for window and door products.



THE FOUNDATION: BASIC PERFORMANCE STANDARDS

For decades, AAMA performance standards have been recognized and required by federal, state and local regulatory and purchasing agencies. Today, AAMA/WDMA/CSA 101/I.S.2/A440-08, NAFS – North American Fenestration Standard/Specification for windows, doors, and skylights and its predecessors serve as the cornerstone for the interlocking system of third-party product performance certification and quality control to establish the uniquely credible total quality management system offered by the AAMA Certification Program.

AAMA/WDMA/CSA 101/I.S.2/A440-08 standard is applicable for use in testing and rating windows, doors, tubular daylighting devices (TDDs), and unit skylights, and represents the continuing development of an internationally accepted performance standard/specification for all of these products.

Given its performance (versus prescriptive) orientation and its material neutrality, AAMA /WDMA /CSA 101/I.S.2/A440 offers a true basis for comparing the key characteristics and quality attributes of window and door products. Recognizing that these products are complex systems, AAMA has developed and requires compliance with a variety of other performance standards for components that address total product quality – an approach that was pioneered within the AAMA Certification Program.

HOW THE STANDARD WORKS

AAMA/WDMA/CSA 101/I.S.2/A440 rates all window and door types from a material-neutral, performance-oriented point of view. The standard is based on the essential performance characteristics of a completely fabricated window or door: structural performance under wind loading, resistance to air leakage and water penetration, and forced entry resistance.



Additional performance requirements are established for specific window operator types, as well as for optional criteria such as thermal performance, condensation resistance, impact resistance and mulled assemblies, against which the manufacturer may elect to have products evaluated for specific markets or job requirements.

THE DESIGNATION SYSTEM

Nomenclature under the AAMA/WDMA/CSA 101/I.S.2/A440 standard and its predecessors directly provides a number of meaningful facts about the product. It's important to note that the format of the designation system was modified in the 2008 edition of the standard, but the same data is available in all existing formats.

The designation system begins with the product's performance class which, in the 2008 edition of the standard, is keyed to four levels of performance (R, LC, CW, and AW). Previous editions of the standard included five levels of performance (R, LC, C, HC, and AW).

The next component of the designation system is the Performance Grade (PG). The PG rating is achieved only after the product has complied with all performance requirements of the AAMA/WDMA/CSA 101/I.S.2/A440 standard. This means that not only does the product have to comply with the structural loading performance requirement, but it also must comply with the other performance requirements such as air leakage resistance, water penetration resistance, ease of operation and resistance to forced entry. It's important to recognize that the Performance Grade is more than just design pressure – it represents overall performance to a comprehensive battery of tests.

In addition, a deflection limit of 1/175 of the length of an individual framing member under the uniform load test has been established for CW and AW Class products. AW products are also required to pass life cycle testing based on the AAMA 910 document.



The designation system is also keyed to a minimum test size for each window type. This provides a uniform basis for comparing the performance of different manufacturers' windows of the same class, grade and type – a valuable equalizer when evaluating various suppliers. These designations can be quickly and easily used to specify windows and doors.

Examples of a primary designator for a casement window include:

Class R – PG25: Size tested 760 x 1520 mm (30 x 60 in)

Class R – PG25: Size tested 29.9 x 59.8 in

Class R – PG1200 (metric): Size tested 760 x 1520 mm

For all designators, there is an option to add the product type at the end of the designator at the manufacturer's discretion as follows:

Class R – PG25: Size tested 760 x 1520 mm (30 x 60 in) – Casement
or

Class R – PG25: Size tested 760 x 1520 mm (30 x 60 in) – Type C

OPTIONAL HIGHER PERFORMANCE

AAMA/WDMA/CSA 101/I.S.2/A440 and its predecessors make it possible to specify higher uniform load structural testing and water penetration resistance test pressures, such as in cases where the installed product will be subject to severe weather conditions or excessive wind loadings. In all cases, the standards provide for specification of optional higher performance grades for more demanding applications. The design pressure and structural test pressure become progressively more stringent from one Performance Class to the next, as do the performance requirements for resistance to water penetration and air leakage.

After complying with all minimum requirements, a product is permitted to be tested in any test size for conformance to an optional performance grade (PG), within the same performance class, in multiple increments of 240 Pa (5.0 psf). An asterisk (*) added to the primary designator indicates that the tested specimen size was smaller, in either width or height, than the gateway test size.

THE AAMA CERTIFICATION PROCESS

The basic window standard and component verification system provide a strong foundation for the nationally-recognized, ANSI-accredited AAMA Certification Program. This program brings the force and the credibility of independent third-party inspection and testing to window and door quality assurance.

Under the AAMA Certification Program, the "third party" is an independent organization acting under contract with AAMA to serve as the program's Administrator/Validator. The Administrator/Validator provides two functions: 1) to verify that the samples of products authorized for certification do, in fact, meet the requirements of the applicable standard and 2) to conduct general administration and record keeping.

Actual testing of the product sample may be carried out at an AAMA-accredited independent laboratory of the manufacturer's choosing. The laboratory conducts the tests on prototype samples of the particular product type, class and grade according to methods specified in AAMA/WDMA/CSA 101/I.S.2/A440 and other applicable standards. Upon completion, the test report is submitted by the lab directly to the Administrator/Validator, who reviews it to verify that the proper procedures were followed and that all testing and performance information is included.

THE AAMA GOLD LABEL

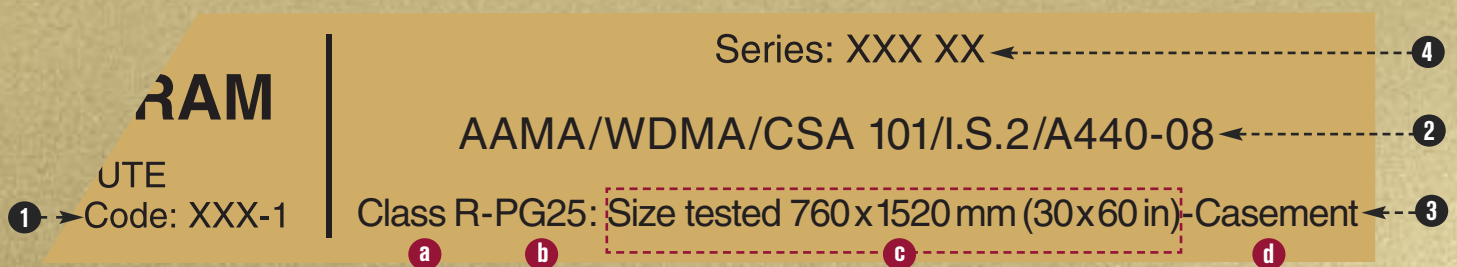
Once all tests and conformance to requirements are verified, the Administrator/Validator initiates an Authorization for Product Certification (with final authorizing signature by the AAMA Product Certification Manager) to the manufacturer, who may then purchase AAMA Gold Certification Labels for application to production line units that conform to the tested design. By applying the authorized AAMA Label to the product, the manufacturer certifies that the product meets or exceeds the product rating. Once authorized, the product is listed in the online AAMA Certified Products Directory, widely recognized by industry professionals as the definitive resource for window and door products.

UNDERSTANDING The AAMA Certification Gold Label.

- 1** Manufacturer's Code
- 2** Specification Identification
- 3** Primary Designator
- 4** Manufacturer's Series Number

Using the key elements of product type, performance class, performance grade, and size tested, a performance rating is provided. The rating consists of a four-part designation.

- a** **Performance Class** Historically, there have been 5 different performance classes (R, LC, C, HC, AW). Beginning in 2008, performance classes are R, LC, CW, and AW.
- b** **Performance Grade** A numerical designator that defines the performance of a product. It signifies that a product has passed all required performance tests at specific pressures for operating force (if applicable), air leakage resistance, water penetration resistance, uniform load deflection test, uniform load structural test, and forced-entry resistance (if applicable).
- c** **Maximum Size Tested** First measurement reflects millimeters. The second measurement (in parenthesis) reflects inches.
- d** **Product Operator Type** Optional, according to the 2008 edition of the standard. This designates the construction of the window as it relates to usage.





VERIFICATION

To verify that production line units are equivalent to the tested prototype, the Administrator/Validator conducts two unannounced inspections per year at the manufacturer's factory.

At least once every four years, the manufacturer must retest the product to verify that the design continues to comply with the standard's requirements.

The painstaking, consistent and carefully-documented testing and inspection procedure carried out by accredited independent laboratories and the Administrator/Validator is the reason the AAMA Gold Certification Label has earned a reputation throughout the construction industry as a credible indicator of product quality and documented performance.

THE AAMA SILVER LABEL

Manufacturers may certify product thermal performance to either the AAMA 1503 test method or to the National Fenestration Rating Council (NFRC) requirements (NFRC-100) without the prerequisite of certification for basic structural, air and water performance requirements specified in AAMA/WDMA/CSA 101/I.S.2/A440. Products tested for thermal performance only are authorized to bear the AAMA Silver Certification Label.

In cases where the product has been authorized for certification for basic structural, air and water performance as well as thermal performance, an AAMA Gold Label with an additional tab indicating thermal certification is used.



TESTING VS. CERTIFICATION

Use of the AAMA label is authorized only to licensee manufacturers who comply with AAMA Certification Program rules and regulations and whose products fulfill the requirements of the underlying standards. For those not licensed pursuant to the Certification Program, conformance with AAMA/WDMA/CSA 101/I.S.2/A440 must not be claimed or implied unless such products meet all of the descriptive safety performance and rating requirements.

Any manufacturer may have product prototypes or samples independently tested for conformance to AAMA standards and may claim such conformance based on these test results. AAMA membership is not required.

However, unless the manufacturer participates as a licensee in the official AAMA Certification Program, there is not independent verification of test results and no follow-up inspection to verify that the actual production-line units continue to meet the requirements of the standard.

AAMA/WDMA/CSA 101/I.S.2/A440 and AAMA certification go beyond basic quality assurance for completed windows and doors by recognizing that these products are complex systems of components – profiles, finishes, glass, screening, weatherstripping, sealants and hardware – that must perform properly and continuously over a long service life. Therefore, any effective definition of product quality must encompass the performance of these components as well as the way they interact to make a completed unit.

Accordingly, the AAMA Certification Program includes a system of verification and documentation of components' compliance with their individual applicable standards. Lists of verified components and certified profile producers are available on the AAMA Web site.



PROFILE CERTIFICATION

To be deemed as conforming to AAMA/WDMA/CSA 101/I.S.2/A440 and therefore certifiable under the AAMA Certification Program, windows made of polymeric (vinyl, fiberglass, ABS, composite) sash and frame materials must be made from profiles that comply with applicable AAMA specifications for those materials.

Profiles must be certified for compliance through the AAMA Profile Certification Program in which randomly-selected production line samples of extrusions are tested by an accredited third-party laboratory for conformance with the appropriate AAMA profile specification. The requirements include impact resistance, dimensional stability, heat resistance, weight tolerance, and color retention as determined from years of actual outdoor weathering tests. The profile producer must also prepare a Quality Control Manual setting forth the procedures used to assure ongoing conformance of the product with the AAMA specifications. At least two unannounced in-plant inspections are conducted annually by third-party inspectors to determine continued compliance with the program.

ALUMINUM PROFILE REQUIREMENTS

While not subject to separate certification (as are vinyl, fiberglass, ABS and composite profiles), aluminum extrusions must meet the requirements for alloy composition, tensile strength and yield strength specified in AAMA/WDMA/CSA 101/I.S.2/A440.



WOOD REQUIREMENTS

Wood parts (including wood framing members that are aluminum- or vinyl-clad) must comply with AAMA/WDMA/CSA 101/I.S.2/A440 specifications for maximum moisture content and treatment with water-repellant preservatives, and with referenced ASTM requirements for adhesives.

VERIFIED COMPONENTS

To establish a total quality management system tying together the network of component suppliers and window system fabricators, key component suppliers must assure window manufacturers that their products meet appropriate AAMA standards for painted finishes, weatherstrip, sealants, and hardware as referenced in AAMA/WDMA/CSA 101/I.S.2/A440. To do this, they must have product samples tested for compliance with the appropriate standard at an AAMA-accredited laboratory at least every 18 months and supply a documented test report indicating compliance.

If a component supplier cannot demonstrate that its product complies with applicable AAMA standards via testing at an accredited laboratory, the component may not be used in products approved to bear the AAMA Gold Certification Label.



LIFE CYCLE TESTING VERIFIES AW PRODUCT DURABILITY

One criterion of product quality is its ability to maintain required or expected performance levels throughout a reasonably long service life.

Life cycle tests, described in AAMA 910, employ accelerated testing methods to model the normal wear that can be expected due to the typical number of basic operating cycles and locking hardware opening/closing cycles experienced during the life of a typical AW class product. Loading conditions expected during washing, maintenance and the occasional, predictable misuse (such as improper operation or maintenance and excessive operating force) are also simulated.

Air leakage and water penetration tests are conducted both before and after life-cycling and simulated misuse to evaluate any performance changes. In addition, there must be no damage to hardware and other components that would render the window inoperable.

These life cycle tests are required of all AW class product samples for them to be authorized for certification under the AAMA Gold Label program. Life cycle tests may optionally be applied to other Performance Classes as well.



THE AAMA LABEL: A RELIABLE INDICATOR OF PRODUCT PERFORMANCE

More than ever before, the AAMA Gold Certification Label is a meaningful way for specifiers, builders and remodelers, consumers and homeowners, as well as building code and government agencies to evaluate product performance quality on a level playing field.

AAMA product certification and gold labeling, based on AAMA/WDMA/GSA 101/1.S.2/A440, and the underlying network of component verification provide window manufacturers an added selling edge to position themselves as offering their customers products with proven performance based on a total quality management system.

ACTION

For more information on AAMA standards, certification and other programs, go to www.aamanet.org.



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