

1714.5 Exterior window and door assemblies. This section defines performance and construction requirements for exterior window and door assemblies installed in wall systems. Waterproofing, sealing and flashing systems are not included in the scope of this section.

1714.5.1 The design pressure for window and door assemblies shall be calculated in accordance with component and cladding wind loads in Section 1609.

1714.5.2 Exterior windows, sliding and patio glass doors.

1714.5.2.1 Testing and labeling. Exterior windows and glass doors shall be tested by an approved independent testing laboratory, and shall be labeled to indicate compliance with the requirements of one of the following specifications:

ANSI/AAMA/NWDA 101/I.S. 2 or ANSI/AAMA/WDMA/101/I.S. 2/NAFS or AAMA/WDMA/CSA 101/I.S. 2/A440 or TAS 202 (HVHZ shall comply with TAS 202 utilizing ASTM E 1300-98 or ASTM E 1300-04 or Section 2404).

Exterior windows and sliding glass doors shall be labeled with a permanent label, marking, or etching providing traceability to the manufacturer and product. The following shall also be required either on a permanent label or on a temporary supplemental label applied by the manufacturer: information identifying the manufacturer, the product model/series number, positive and negative design pressure rating, product maximum size, glazing thickness, impact resistance rating if applicable, Florida Product Approval number or Miami-Dade Product Approval number, applicable test standard(s), and approved product certification agency, testing laboratory, evaluation entity or Miami-Dade Product Approval.

The labels are limited to one design pressure rating per reference standard. The temporary supplemental label shall remain on the window or door until final approval by the building official

Exceptions:

1. Door assemblies installed in nonhabitable areas where the door assembly and area are designed to accept water infiltration need not be tested for water infiltration.
2. Door assemblies installed where the overhang (OH) ratio is equal to or more than 1 need not be tested for water infiltration. The overhang ratio shall be calculated by the following equation:

$$\text{OH ratio} = \text{OH Length} / \text{OH Height}$$

Where:

OH length = The horizontal measure of how far an overhang over a door projects out from door surface.

OH height = The vertical measure of the distance from the door sill to the bottom of the overhang over a door.

3. Pass-through windows for serving from a single-family kitchen, where protected by a roof overhang of 5 feet (1.5 m) or more shall be exempted from the requirements of the water infiltration test.

The permanent label is limited to only one design pressure rating per reference standard per label.

Glass Strength: Products tested and labeled as conforming to ANSI/AAMA/NWDA 101/I.S. 2 or ANSI/AAMA/WDMA/101/I.S. 2/NAFS or AAMA/WDMA/CSA 101/I.S. 2/A440 or TAS 202 shall not be subject to the requirements of Sections 2403.2 or 2403.3 or 2404.1.

Determination of load resistance of glass for specific loads of products not tested and certified in accordance with Section 1714.5.2.1 shall be designed to comply with ASTM E 1300 in accordance with Section 2404. The temporary supplemental label shall designate the type and thickness of glass or glazing material.

1714.5.2.1.1 Testing and labeling of skylights. Exterior skylights shall be tested by an approved independent testing laboratory, and shall be labeled to indicate compliance with the requirements of one of the following specification:

ANSI/AAMA/WDMA 101/I.S.2/NAFS or AAMA/WDMA/CSA 101/I.S.2/A440, or TAS 202 (HVHZ shall comply with TAS 202).

Exterior skylights shall be labeled with a permanent label, marking, or etching providing traceability to the manufacturer and product. The following shall also be required either on a permanent label or on a temporary supplemental label applied by the manufacturer: information identifying the manufacturer, the product model/series number, positive and negative design pressure rating, product maximum size, type and thickness of glass or glazing material, impact resistance rating if applicable, Florida Product Approval number or Miami-Dade Product Approval number, applicable test standard(s), and approved product certification agency, testing laboratory, evaluation entity or Miami-Dade Product Approval.

Labels are limited to one design pressure rating per reference standard. The temporary supplemental label shall remain on the skylight until final approval by the building official.

1714.5.2.2 Comparative Analysis Label. A temporary supplemental label conforming to AAMA 203, Procedural Guide for the Window Inspection and Notification System, shall be acceptable for establishing and communicating the calculated allowable design pressures higher than indicated on the label required by Section 1714.5.2.1 for window or door sizes smaller than that required by the ANSI/AAMA/NWDA 101/I.S.2 or ANSI/AAMA/WDMA/101/I.S. 2/NAFS or AAMA/WDMA/CSA 101/I.S.2/A440 test requirements. This temporary supplemental label shall be applied by the manufacturer and remain on the window or door until final approval by the building official.

Exception 1:

Comparative analysis of operative windows and glazed doors may be made, provided the proposed unit complies with the following:

1. Shall always be compared with a tested and currently approved unit.
2. Varies only in width, height and/or load requirements.
3. Shall not exceed 100 percent of the proportional deflection for fiber stress of the intermediate members of the approved unit.
4. Shall conform as to extruded members, reinforcement and in all other ways with the tested approved unit.
5. Shall not exceed 100 percent of the concentrated load at the juncture of the intermediate members and the frame of the approved unit.
6. Shall not permit more air and water infiltration than the approved unit based on the height above grade.
7. Compared unit shall not exceed the maximum cyclic pressure when tested per TAS 203 or ASTM E 1886 and ASTM E 1996.

Exception 2:

Comparative analysis of fixed glass windows may be made provided the proposed unit complies with the following:

1. Shall always be compared with a tested and currently approved unit.
2. Varies only in width, height and/or load requirements.
3. The design is identical in all respects. e.g., extrusions, glazing system, joinery, fasteners, etc.
4. Shall not permit more air and water infiltration than the approved unit based on height above grade.
5. The maximum uniform load distribution (ULD) of any side is equal to the uniform load carried by the side divided by the length of the side.
6. The ULD of any member must not exceed the ULD of the corresponding member of the tested window.

7. The uniform load distribution on each member shall be calculated in accordance to Section 2, Engineering Design Rules, of the AAMA 103.3 Procedural Guide.

8. Compared unit shall not exceed the maximum cyclic pressure when tested per TAS 201, TAS 202 and TAS 203 or ASTM E 1886 and ASTM E 1996.

1714.5.3 Exterior door assemblies. Exterior door assemblies not covered by Section 1714.5.2 or Section 1714.5.3.1 shall be tested for structural integrity in accordance with ASTM E 330 Procedure A, at a load of 1.5 times the required design pressure load. The load shall be sustained for 10 seconds with no permanent deformation of any main frame or panel member in excess of 0.4 percent of its span after the load is removed. High-velocity hurricane zones shall comply with TAS 202. After each specified loading, there shall be no glass breakage, permanent damage to fasteners, hardware parts, or any other damage which causes the door to be inoperable.

The minimum test sizes and minimum design pressures shall be as indicated in Table 1714.5.3.

The unit size tested shall qualify all units smaller in width and/or height of the same operation type and be limited to cases where frame, panels and structural members maintain the same profile as tested.

TABLE 1714.5.3 MINIMUM TEST SIZES, INCLUDING FRAMING

PERFORMANCE CLASS ¹	WIDTH X HEIGHT (mm)	WIDTH X HEIGHT (IN.)	MINIMUM PERFORMANCE GRADE (DESIGN PRESSURE)
Residential (R)	900 × 2000	(36 × 79)	720 Pa (15 psf)
Light Commercial (LC)	900 × 2100	(36 × 83)	1200 Pa (25 psf)
Commercial (C)	1000 × 2100	(40 × 83)	1440 Pa (25 psf)
Heavy Commercial (HC)	1200 × 2400	(48 × 95)	1920 Pa (40 psf)
Architectural (AW)	1200 × 2400	(48 × 95)	1920 Pa (40 psf)

1. Performance Class and Performance Grade per ANSI/AAMA/NWWDA 101/I.S.2.

1714.5.3.1 Sectional garage doors and rolling doors shall be tested for determination of structural performance under uniform static air pressure difference in accordance with ANSI/DASMA 108, ASTM E 330 Procedure A, or TAS 202. For products tested in accordance with ASTM E 330, testing shall include a load of 1.5 times the required design pressure load sustained for 10 seconds, and acceptance criteria shall be in accordance with ANSI/DASMA 108 (HVHZ shall comply with TAS 202).

1714.5.3.2 Custom doors. Custom (one of a kind) exterior door assemblies shall be tested by an approved testing laboratory or be engineered in accordance with accepted engineering practices.

1714.5.3.3 Door components evaluated by an approved product evaluation entity, certification agency, testing laboratory or engineer may be interchangeable in exterior door assemblies provided that the door component(s) provide equal or greater structural performance as demonstrated by accepted engineering practices.

1714.5.3.3.1 Glazed curtain wall, window wall and storefront systems shall be tested in accordance with the requirements of this section and the Laboratory Test requirements of the American Architectural Manufacturers Association (AAMA) Standard 501; HVHZ shall comply with Section 2411.3.2.1.1.

Exceptions:

1. Door assemblies installed in nonhabitable areas where the door assembly and area are designed to accept water infiltration need not be tested for water infiltration.
2. Door assemblies installed where the overhang (OH) ratio is equal to or more than 1 need not be tested for water infiltration. The overhang ratio shall be calculated by the following equation:

$$\text{OH ratio} = \text{OH Length} / \text{OH Height}$$

where:

OH Length = The horizontal measure of how far an overhang over a door projects out from door surface.

OH Height = The vertical measure of the distance from the door sill to the bottom of the overhang over a door.

1714.5.3.3.2 Optional exterior door component testing. With the exception of HVHZ, exterior side-hinged door assemblies not covered by Section 1714.5.2 shall have the option to have the components of the assembly tested and rated for structural integrity in accordance with the following specification:

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Following the structural testing of exterior door components, there shall be no permanent deformation of any perimeter frame or panel member in excess of 0.4 percent of its span after the load is removed. After each specified loading, there shall be no glass breakage, permanent damage to fasteners, hardware parts, or any other damage that causes the door to be inoperable, as applicable.

1714.5.3.4 Garage door labeling. Garage doors shall be labeled with a permanent label provided by the manufacturer. The label shall identify the manufacturer, the garage door model/series number, the positive and negative design pressure rating, indicate impact rated if applicable, the installation instruction drawing reference number, the Florida Product Approval or Miami-Dade Product Approval number if applicable, and the applicable test standards.

The required garage door components for an approved garage door assembly may be indicated using a checklist format on the label. If a checklist format is used on the label, the installer or manufacturer shall mark the selected components on the checklist that are required to assemble an approved garage door system.

The installation instructions shall be provided and available on the job site.

1714.5.4 Anchorage methods. The methods cited in this section apply only to anchorage of window and door assemblies to the main wind force resisting system.

1714.5.4.1 Anchoring requirements. Window and door assemblies shall be anchored in accordance with the published manufacturer's recommendations to achieve the design pressure specified. Substitute anchoring systems used for substrates not specified by the fenestration manufacturer shall provide equal or greater anchoring performance as demonstrated by accepted engineering practice.

1714.5.4.2 Masonry, concrete or other structural substrate. Where the wood shim or buck thickness is less than 1 1/2 inches (38 mm), window and door assemblies shall be anchored through the main frame or by jamb clip or subframe system, in accordance with the manufacturer's published installation instructions. Anchors shall be securely fastened directly into the masonry, concrete or other structural substrate material. Unless otherwise tested, bucks shall extend beyond the interior face of the window or door frame such that full support of the frame is provided. Shims shall be made from materials capable of sustaining applicable loads, located and applied in a thickness capable of sustaining applicable loads. Anchors shall be provided to transfer load from the window or door frame to the rough opening substrate.

Where the wood buck thickness is 1 1/4 inches (38 mm) or greater, the buck shall be securely fastened to transfer load to the masonry, concrete or other structural substrate and the buck shall extend beyond the interior face of the window or door frame. Window and door assemblies shall be anchored through the main frame or by jamb clip or subframe system or through the flange to the secured wood buck in accordance with the manufacturer's published installation instructions. Unless otherwise tested, bucks shall extend beyond the interior face of the window or door frame such that full support of the frame is provided. Shims shall be made from materials capable of sustaining applicable loads, located and applied in a thickness capable of sustaining applicable loads. Anchors shall be provided to transfer load from the window or door frame assembly to the secured wood buck.

1714.5.4.3 Wood or other approved framing materials. Where the framing material is wood or other approved framing material, window and glass door assemblies shall be anchored through the main frame or by jamb clip or subframe system or through the flange in accordance with the

manufacturer's published installation instructions. Shims shall be made from materials capable of sustaining applicable loads, located and applied in a thickness capable of sustaining applicable loads. Anchors shall be provided to transfer load from the window or door frame to the rough opening substrate.

1714.5.5 Mullions occurring between individual window and glass door assemblies.

1714.5.5.1 Mullions. Mullions or mullioned fenestration assemblies shall be tested by an approved testing laboratory in accordance with either AAMA 450, ASTM E 330, or TAS 202 (HVHZ shall comply with TAS 202), or shall be engineered in accordance with AAMA 450 using accepted engineering practice. Mullions tested as stand-alone units or qualified by engineering shall use performance criteria cited in Sections 1714.5.5.2, 1714.5.5.3 and 1714.5.5.4. Mullions qualified by an actual test of an entire assembly shall comply with Section 1714.5.5.4, except that mullions in assemblies requiring a deflection limitation, as defined in AAMA/WDMA/CSA 101/I.S.2/A440, shall meet Sections 1714.5.5.2 and 1714.5.5.3. Products not included within the scope of Section 1714.5.5.1 shall comply with Sections 1714.5.5.3 and 1714.5.5.4.

1714.5.5.2 Load transfer. Mullions shall be designed to transfer the design pressure loads applied by the window and door assemblies to the rough opening substrate.

1714.5.5.3 Deflection. Mullions shall be capable of resisting the design pressure loads applied by the window and door assemblies to be supported without deflecting more than $L/175$, where L is the span of the mullion in inches.

1714.5.5.4 Structural safety factor. Mullions that are tested by an approved testing laboratory shall be capable of resisting a load of 1.5 times the design pressure loads applied by the window and door assemblies to be supported. The 1.5 times the design pressure load shall be sustained for 10 seconds, and the permanent deformation shall not exceed 0.2 percent of the mullion span for assemblies requiring deflection limitations, as defined in AAMA/WDMA/CSA 101/I.S.2/A440 and 0.4 percent of the mullion span for all other assemblies after the 1.5 times design pressure load is removed. Mullions that are qualified by engineering shall be capable of resisting the design pressure loads applied by the window and door assemblies to be supported without exceeding the allowable stress of the mullion elements.