

**CHAPTER 17
STRUCTURAL TESTS AND SPECIAL INSPECTIONS**

**SECTION 1715
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**SECTION 1715
PRECONSTRUCTION LOAD TESTS**

1715.1 General. In evaluating the physical properties of materials and methods of construction that are not capable of being designed by approved engineering analysis or do not comply with applicable material design standards listed in Chapter 35, the structural adequacy shall be predetermined based on the load test criteria established in this section.

1715.5 Exterior window and door assemblies. The design pressure rating of exterior windows and doors in buildings shall be determined in accordance with Section 1715.5.1 or 1715.5.2.

Exception: Structural wind load design pressures for window units smaller than the size tested in accordance with Section 1715.5.1 or 1715.5.2 shall be permitted to be higher than the design value of the tested unit provided such higher pressures are determined by accepted engineering analysis. All components of the small unit shall be the same as the tested unit. Where such calculated design pressures are used, they shall be validated by an additional test of the window unit having the highest allowable design pressure.

1715.5.1 Exterior windows and doors. Exterior windows and sliding doors shall be tested and labeled as conforming to AAMA/WDMA/CSA101/I.S.2/A440. The label shall state the name of the manufacturer, the approved labeling agency and the product designation as specified in AAMA/WDMA/CSA101/I.S.2/A440. Exterior side-hinged doors shall be tested and labeled as conforming to AAMA/WDMA/CSA101/I.S.2/A440 or comply with Section 1715.5.2. Products tested and labeled as conforming to AAMA/WDMA/CSA 101/I.S.2/A440 shall not be subject to the requirements of Sections 2403.2 and 2403.3.

1715.5.2 Exterior windows and door assemblies not provided for in Section 1715.5.1. Exterior window and door assemblies shall be tested in accordance with ASTM E 330. Structural performance of garage doors shall be determined in accordance with either ASTM E 330 or ANSI/DASMA 108, and shall meet the acceptance criteria of ANSI/DASMA 108. Exterior window and door assemblies containing glass shall comply with Section 2403. The design pressure for testing shall be calculated in accordance with Chapter 16. Each assembly shall be tested for 10 seconds at a load equal to 1.5 times the design pressure.

REFERENCED SECTION:

**CHAPTER 14
EXTERIOR WALLS**

1405.13 Exterior windows and doors. Windows and doors installed in exterior walls shall conform to the testing and performance requirements of Section 1715.5.



Q: Is it the intent of the code that all exterior door and window assemblies be tested per Section 1715?

A: Yes, specifically Section 1715.5. However, the exception to 1715.5 allows window units smaller than the size tested to have higher design pressures, provided the higher pressures are determined by accepted engineering analysis, all components of the smaller unit are the same as the tested unit and an additional test of the smaller unit having the highest calculated design pressure is performed in accordance with Section 1715.5.1 or 1715.5.2.

Section 1715.5 provides two methods of load tests for exterior window and door assemblies.

The first method, provided for in Section 1715.5.1, allows products to be tested and labeled as conforming to AAMA/WMDA/CSA 101/I.S.2/A440.

The second method, provided for in Section 1715.5.2, allows products to be tested in accordance with ASTM E 330 and the glazing must comply with Section 2403.

Chapter 14 contains provisions that establish the minimum requirements for exterior walls; exterior wall coverings; exterior wall openings; exterior windows and doors; architectural trim; balconies and similar projections; and bay and oriel windows.

Section 1405.13 requires windows and doors installed in exterior walls to conform to the testing and performance requirements of Section 1715.5. The windows and doors that are part of the exterior envelope are to be installed in accordance with the method in which they were tested (as specified in Section 1715.5) and the window and door manufacturer's installation instructions.

It is important to note that Section 1405.13 specifically references Section 1715.5 and not entire Section 1715.

Section 1715.1 requires the preconstruction loads tests in Section 1715 to evaluate the physical properties of material and methods of construction that are not capable of being designed by approved engineering analysis.

Even though the physical properties and method of construction of an exterior door or window assembly may be capable of being designed by approved engineering analysis, the specific reference to Section 1715.5 is applicable instead of the general requirement in Section 1715.1.

However, Section 104.11 permits the building official to approve alternative materials, design and method of construction. The alternative material, design or method of construction can be approved where the building official finds that the proposed design is satisfactory and complies with the intent and provisions of the code and the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in the code.
