

ICS 91.060.50

CCS P 32



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 7106-2019

**Test methods of air permeability, watertightness and wind load
resistance performance for building external windows and
doors**

建筑外门窗气密、水密、抗风压性能检测方法

Issued on: December 10, 2019

Implemented on: November 1, 2020

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Detection principle	3
5 Detection device	3
6 Test preparation	5
7 Airtight performance test	6
8 Watertight performance test	9
9 Wind pressure resistance test	11
10 Repeated airtight performance test	17
11 Repeated watertight performance test	17
23 Appendix D (informative) Sample test report	26

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard replaces GB/T 7106-2008 "Classification and Test Method for Wind Pressure Resistance of Building Exterior Windows", which is in line with GB/T 7106-2008. The main technical changes are as follows:

- Deleted the definition of severe leakage (see 3.4.1 of the 2008 version);
- Added definition of analog static pressure box method (see 3.8);
- Deleted the classification of air tightness, water tightness and wind pressure resistance (see Chapter 4 of the 2008 edition);
- Adjusted the schematic diagram of the detection device (see 5.1, 5.1 of the 2008 version);
- Modified the detection order of grading testing and engineering testing (see 6.5.1 and 6.5.2, 6.4 of the 2008 version);
- Airtight performance is tested by air collection box method, and the pressure detection

sequence of the rating test of airtight performance is adjusted (see 7.1.1, 2008 version 7.1);

--- Increased engineering testing and judgment methods for airtight performance (see 7.1.2 and 7.4.2);

--- Adjust the water leakage of the engineering test for watertight performance (see 8.3.2,

1 Scope

China's national test methods for the air permeability, watertightness and wind load resistance of external windows and doors. These three performances are what an external window is for, and all three are tested on the same rig because they are all responses to a pressure difference across the opening. Air permeability determines how much heat the building loses through gaps rather than through glass, which in a well insulated building is the larger share. Watertightness is measured as the pressure at which driven rain penetrates, and its failure is the one that damages the building rather than merely costing energy. Wind load resistance is a safety test, taken to the pressure the window must survive without its glass or its frame failing - the load case being a typhoon on a high floor. The standard specifies the terms and definitions, test principles, apparatus, preparation, the three tests and the repeat air and water tests, and reporting. It tests the window or door itself, not the joints between it and the surrounding wall.

This standard specifies the terms and definitions of air-tight, water-tight, and wind-resistant performance of external doors and windows of buildings, testing principles, testing devices, testing preparation, Airtight performance test, watertight performance test, wind pressure resistance test, repeated airtight performance test, repeated watertight performance test and test report. This standard applies to the testing of airtight, watertight, and wind pressure resistance performance of building exterior doors and windows. Detection objects are limited to doors and windows or Framed doors and windows do not involve joints between them and other structures such as building walls.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this article Pieces. For undated references, the latest version (including all amendments) applies to this document.

GB/T 5823 terminology for building doors and windows

GB/T 31433 General technical requirements for building curtain walls, doors and windows

GB 50009 Load Code for Building Structures

GB 50178 Standard for Building Climate Zoning

3 Terms and definitions

GB/T 5823 and the following terms and definitions apply to this document.

3.1 External windows and doors A collective term for the exterior doors and windows of a building.

3.2 Pressure difference The difference between the absolute pressure of air on the exterior and interior surfaces of doors and windows.

Note. When the pressure on the outdoor surface is higher than the pressure on the indoor surface, the pressure difference is positive; otherwise it is negative.

3.3 Air permeability performance The ability of the outer doors and windows to prevent air penetration when the openable part is in a normal locked state.

3.3.1 Standard condition Test with air temperature of 293K (20 ° C), atmospheric pressure of 101.3kPa (760mmHg), and air density of 1.202kg/m³ condition.

3.3.2 Air permeability volume of air leakage The amount of air passing through the test unit per unit time.