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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 29043-2023

Test method for thermal insulating performance of curtain walls

建筑幕墙保温性能检测方法

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Foreword

This document was issued on 28 December 2023 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 July 2024.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

It is classified under ICS 91.060.10, Chinese classification P32.

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1. Structure and Drafting Rules of Standardization Documents"

Drafting.

This document replaces GB/T 29043-2012 "Classification and Testing Methods for Insulation Performance of Building Curtain Walls" and is consistent with GB/T 29043-2012

In addition to structural adjustments and editorial changes, the main technical changes are as follows.

---Deleted the term and definition of "curtain wall heat transfer coefficient" (see 3.1 of the.2012 edition);

---Added the term and definition of "building curtain wall" (see 3.1);

---Changed the definition of "anti-condensation factor" (see 3.2,.2012 version of 3.2);

---Changed the "heat transfer coefficient detection principle" (see 4.1, 5.1.1 of the.2012 edition);

---Changed the "Schematic diagram of the detection device for heat transfer coefficient and anti-condensation factor of building curtain wall" (see Figure 1, Figure 1 of the.2012 version);

---Changed the "Contents of related equipment configuration in the detection device" (see 5.2, 5.3, 5.4, 5.6, 5.7, 5.8,.2012 version of 5.2.2,

5.2.3, 5.2.4, 5.2.5, 5.2.6);

---Changed the "steady state determination method" (see 6.2.3, 5.3.1.3 of the.2012 version);

---Changed the "curtain wall heat transfer coefficient calculation formula" (see 6.2.4, 5.3.1.4 of the.2012 version);

---Added "heat flow coefficient calibration" (see Appendix A).

Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents.

This document is proposed by the Ministry of Housing and Urban-Rural Development of the People's Republic of China.

This document is under the jurisdiction of the National Standardization Technical Committee for Building Curtain Walls, Doors and Windows (SAC/TC448).

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This document was first published in 2012 and this is the first revision.

Testing methods for thermal insulation performance of building curtain walls

1 Scope

GB/T 29043-2023 specifies how the thermal performance of a curtain wall is measured. A curtain wall is the glazed skin of most commercial buildings, and it is the dominant heat path through the envelope - far more than the opaque construction it replaced. Its performance cannot be calculated from the glass alone, which is the mistake the industry keeps making: the frame is aluminium, a superb conductor, and unless the thermal break is continuous the assembly loses heat through the framing and around the glass edge at a rate the glass specification never suggested. Those weaknesses also concentrate condensation, which appears on the inside of the frame in winter and damages the interior. Only a test on a full assembled specimen reveals them. This document specifies the classification, the test principles, the test apparatus, the performance tests and the test report for the thermal insulation performance of building curtain walls. Under ICS 91.060.10 and CCS P32, it is written for curtain wall manufacturers and installers, for the architects and energy consultants who specify envelope performance, and for the testing laboratories and building authorities that verify it.

This document stipulates the classification, testing principles, testing devices, performance tests and testing reports for the thermal insulation performance of building curtain walls.

This document is suitable for testing the thermal insulation performance of building curtain walls.

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, the dated quotations

For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to

this document.

GB/T 4132 Thermal insulation materials and related terms

GB/T 10294 Determination of steady-state thermal resistance and related characteristics of thermal insulation materials - Protected hot plate method

GB/T 13475 Determination and calibration of adiabatic steady-state heat transfer properties and protective hot box method

GB/T 16839.1-2018 Thermocouples Part 1. Electromotive force specifications and tolerances

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

GB/T 34327-2017 Building Curtain Wall Terminology

GB/T 34336-2017 Nanoporous airgel composite thermal insulation products

GB 50736-2012 Design specifications for heating, ventilation and air conditioning in civil buildings

3 Terms and definitions

The following terms and definitions as defined in GB/T 4132 and GB/T 34327-2017 apply to this document.

3.1

building curtain wall curtainwal

It is composed of a panel and a supporting structure system. It has specified load-bearing capacity, deformation capacity and ability to adapt to the displacement of the main structure. It does not share the main load.

The building envelope on which the body structure is affected.

[Source. GB/T 34327-2017, 2.1, with modifications]

3.2

Parameters that characterize the surface condensation resistance of light-transmitting curtain walls.

Note. In a stable heat transfer state, the difference between the average temperature of the hot side surface of the specimen's light-transmitting panel (or specimen frame) and the average temperature of the air in the cold box and the average temperature of the air in the