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

GB/T 47553-2026

**Calculation method of energy balance value for glass in
building**

建筑玻璃能量平衡值计算方法

(English Translation)

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Foreword

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 is modified to adopt ISO 14438:2002 "Methods for determination and calculation of energy balance values of architectural glass".

Compared with ISO 14438:2002, this document has undergone many structural adjustments. A table comparing the changes in structural numbering between the two documents is provided.

See Appendix A.

This document differs significantly from ISO 14438:2002. The relevant clauses are indicated in the margin with a hanging line.

Straight lines (|) are marked. A summary of these technical differences and their reasons can be found in Appendix B.

Compared with ISO 14438:2002, this document has made the following main editorial changes.

--The standard name has been changed to "Calculation Method for Energy Balance Value of Building Glass";

--Informative reference to EN 832 (see 5.2) has been removed;

--Use GB 50176 as an informative reference instead of Annex A of ISO 14438:2002 (see 5.6);

--The data source for heating degree days has been changed (see 5.6);

--Appendix A, "Comparison of this document with ISO 14438:2002 structural numbering," has been added;

--Added Appendix B "Technical Differences between this Document and ISO 14438:2002 and Their Reasons";

--The "Energy Balance Value Calculation Example" has been modified (see Appendix C);

--Added "Examples of Climate Data" (see Appendix D);

--The references have been changed.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China Building Materials Federation.

This document is under the jurisdiction of the National Technical Committee on Standardization of Architectural Glass (SAC/TC 255).

1 Scope

This document specifies the calculation method, basic parameters, numerical values, and representation methods for the energy balance value of architectural glass.

This document applies to the calculation of energy balance values for light-transmitting materials such as architectural glass during the heating season. The energy balance values in this document are applicable to products...

The performance comparison is not applicable to the calculation of the actual heating capacity of a building.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are listed below.

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

This document.

GB/T 2680 Visible light transmittance, direct solar transmittance, total solar transmittance, ultraviolet transmittance and other properties of architectural glass Measurement of window glass parameters when closed GB/T 22476 Calculation and determination of steady-state U-value (heat transfer coefficient) of insulating glass JGJ/T 151 Code for Thermal Calculation of Building Doors, Windows and Glass Curtain Walls

3 Terms and Definitions

The terms and definitions defined in GB/T 2680 and GB/T 22476, as well as the following terms and definitions, apply to this document.

energy balance value During the heating season, the difference between heat loss due to temperature difference from indoors to outdoors through glass and heat gain from solar radiation entering the building.

Note: The unit is $W/(m^2 \cdot K)$.

4 Calculation Method

The energy balance value E during the heating season is calculated according to formula (1). See Appendix C for a calculation example.

$E = U - \eta \cdot g \cdot f \cdot H_p D_p$ (1) in the formula.

E -- Energy balance value, measured in watts per square kWh $[W/(m^2 \cdot K)]$;

U -- heat transfer coefficient of glass, in watts per square kJ $[W/(m^2 \cdot K)]$;

η -- utilization coefficient;

g -- Total solar transmittance;

f -- cleanliness coefficient;

H_p -- Unobstructed solar radiation during the heating season, expressed in kilowatt-hours per square meter ($kW \cdot h/m^2$).

D_p -- Heating degree-days, in degrees Celsius-days ($^{\circ}C \cdot d$). When calculating, $1^{\circ}C \cdot d = 24 K \cdot h$.