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Standards

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I.S. EN 675:2011

Glass in building - Determination of thermal transmittance (U value) - Heat flow meter method

I.S. EN 675:2011

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English Version

Glass in building - Determination of thermal transmittance (U value) - Heat flow meter method

Verre dans la construction - Détermination du coefficient de transmission thermique, U - Méthode du fluxmètre

Glas im Bauwesen - Bestimmung des Wärmedurchgangskoeffizienten (U-Wert) - Wärmestrommesser-Verfahren

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Foreword

This document (EN 675:2011) has been prepared by Technical Committee CEN/TC 129 “Glass in building”, the secretariat of which is held by NBN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2011, and conflicting national standards shall be withdrawn at the latest by December 2011.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 675:1997.

The main change in this edition is that the internal and external heat transfer coefficients have been amended slightly to reflect changes to EN 673. Clarification is also given in the scope that the procedure specified in this European Standard should generally only be considered when the calculation method detailed in EN 673 is inappropriate or unsuitable.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

CEN/TC 129/WG 9 "Light and energy transmission, thermal insulation" prepared a working draft based on the document ISO/DIS 10293 "Glass in building - Determination of steady-state U values (thermal transmittance) of multiple glazing - Heat flow meter method", document that was prepared by ISO/TC 160, "Glass in building". This was published in 1997 as EN 675.

The document for the calculation of the overall U value of windows, doors and shutters (see [2]) gives normative reference to the U value evaluated for the glazing components according to this standard.

For the purposes of product comparison, a vertical position of the glazing is specified (see Clause 10).

U values evaluated according to the present standard are used for product comparison as well as for other purposes, in particular for predicting:

- heat loss through glazing;
- conduction heat gains in summer;
- condensation on glazing surfaces;
- the effects of the absorbed solar radiation in determining the solar factor (see [1]).

Reference should be made to [2], [3], [4] or other European Standards dealing with heat loss calculations for the application of glazing U values determined by this Standard.

1 Scope

This European Standard specifies a measurement procedure to determine the thermal transmittance of glazing with flat and parallel surfaces. For the purpose of this Standard, structured surfaces may be considered to be flat..

This European Standard applies to multiple glazing with outer panes which are not transparent to far infrared radiation (in the wavelength range 5µm to 50µm), which is the case for soda lime silicate glass products, borosilicate glass and glass ceramics. Internal elements can be far infrared transparent.

The procedure specified in this European Standard determines the U value (thermal transmittance) in the central area of glazing. The edge effects due to the thermal bridge through the spacer of an insulating glass unit or through the window frame are not included. Energy transfer due to solar radiation is also excluded.

The procedure specified in this European Standard should be considered only when the thermal transmittance of the glazing cannot be calculated in accordance with EN 673.

The determination of the thermal transmittance is performed for conditions which correspond to the average situation for glazing in practice.

NOTE Patterned glass is an example of a glass with a structured surface;

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 673, *Glass in building — Determination of thermal transmittance (U value) — Calculation method*

EN 12898, *Glass in building — Determination of the emissivity*

ISO 8301, *Thermal insulation — Determination of steady-state thermal resistance and related properties — Heat flow meter apparatus*

ISO 8302, *Thermal insulation — Determination of steady-state thermal resistance and related properties — Guarded hot plate apparatus*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply:

3.1

U value

parameter of glazing which characterizes the heat transfer through the central part of the glazing, i.e. without edge effects, and states the steady-state density of heat transfer rate per temperature difference between the environmental temperatures on each side.

NOTE The U value is given in watts per square metre Kelvin [$W/(m^2 \cdot K)$]

3.2

declared value

U value obtained under standardized boundary conditions.

NOTE See 11.2.

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