



SLOVENSKI STANDARD
oSIST prEN ISO 10077-2:2009
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Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Part 2: Numerical method for frames (ISO/DIS 10077-2:2009)

Wärmetechnisches Verhalten von Fenstern, Türen und Abschlüssen - Berechnung des Wärmedurchgangskoeffizienten - Teil 2: Numerisches Verfahren für Rahmen (ISO/DIS 10077-2:2009)

Performance thermique des fenêtres, portes et fermetures - Calcul du coefficient de transmission thermique - Partie 2: Méthode numérique pour les encadrements (ISO/DIS 10077-2:2009)

Ta slovenski standard je istoveten z: prEN ISO 10077-2

ICS:

91.060.50	Vrata in okna	Doors and windows
91.120.10	Toplotna izolacija stavb	Thermal insulation

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June 2009

ICS 91.060.50; 91.120.10

Will supersede EN ISO 10077-2:2003

English Version

**Thermal performance of windows, doors and shutters -
Calculation of thermal transmittance - Part 2: Numerical method
for frames (ISO/DIS 10077-2:2009)**

Performance thermique des fenêtres, portes et fermetures -
Calcul du coefficient de transmission thermique - Partie 2:
Méthode numérique pour les encadrements (ISO/DIS
10077-2:2009)

Wärmetechnisches Verhalten von Fenstern, Türen und
Abschlüssen - Berechnung des
Wärmedurchgangskoeffizienten - Teil 2: Numerisches
Verfahren für Rahmen (ISO/DIS 10077-2:2009)

This draft European Standard is submitted to CEN members for parallel enquiry. It has been drawn up by the Technical Committee CEN/TC 89.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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COMITÉ EUROPÉEN DE NORMALISATION
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Contents	Page
Foreword.....	3

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Foreword

This document (prEN ISO 10077-2:2009) has been prepared by Technical Committee ISO/TC 163 "Thermal performance and energy use in the built environment" in collaboration with Technical Committee CEN/TC 89 "Thermal performance of buildings and building components" the secretariat of which is held by SIS.

This document is currently submitted to the parallel Enquiry.

This document will supersede EN ISO 10077-2:2003.

Endorsement notice

The text of ISO/DIS 10077-2:2009 has been approved by CEN as a prEN ISO 10077-2:2009 without any modification.

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DRAFT INTERNATIONAL STANDARD ISO/DIS 10077-2

ISO/TC 163/SC 2

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Thermal performance of windows, doors and shutters — Calculation of thermal transmittance —

Part 2: Numerical method for frames

Performance thermique des fenêtres, portes et fermetures — Calcul du coefficient de transmission thermique —

Partie 2: Méthode numérique pour les encadrements

[Revision of first edition (ISO 10077-2:2003)]

ICS 91.060.50; 91.120.10

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ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO-lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five-month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

In accordance with the provisions of Council Resolution 15/1993 this document is circulated in the English language only.

Conformément aux dispositions de la Résolution du Conseil 15/1993, ce document est distribué en version anglaise seulement.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

Pour accélérer la distribution, le présent document est distribué tel qu'il est parvenu du secrétariat du comité. Le travail de rédaction et de composition de texte sera effectué au Secrétariat central de l'ISO au stade de publication.

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ISO/DIS 10077-2

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Contents

Page

1	Scope	1
2	Normative references	1
3	Terms, definitions, symbols and units	2
4	Calculation method	3
4.1	General principle.....	3
4.2	Validation of the calculation program.....	3
4.3	Determination of the thermal transmittance.....	3
5	Treatment of solid sections and boundaries	3
5.1	Solid materials.....	3
5.2	Boundaries.....	4
5.3	Roller shutter boxes.....	4
5.4	Extensions of window frame profiles.....	6
6	Treatment of cavities	6
6.1	General.....	6
6.2	Cavities in glazing.....	6
6.3	Unventilated air cavities in frames and roller shutter boxes.....	6
6.3.1	Definition.....	6
6.3.2	Unventilated rectangular cavities.....	7
6.3.3	Unventilated non-rectangular air cavities.....	10
6.4	Ventilated air cavities and grooves.....	11
6.4.1	Slightly ventilated cavities and grooves with small cross section.....	11
6.4.2	Well ventilated cavities and grooves with large cross section.....	12
7	Report	12
7.1	General.....	12
7.2	Geometrical data.....	12
7.3	Thermal data.....	13
7.3.1	Thermal conductivity.....	13
7.3.2	Emissivity.....	13
7.3.3	Boundary conditions.....	13
7.4	Results.....	13
Annex A (informative) Thermal conductivity of selected materials		14
Annex B (normative) Surface resistances		17
Annex C (normative) Determination of the thermal transmittance		19
C.1	Thermal transmittance of the frame section.....	19
C.2	Linear thermal transmittance of the junction with the glazing or opaque panel.....	20
Annex D (normative) Examples for the validation of the calculation programs		22
D.1	General.....	22
D.2	Figures.....	22
D.3	Results.....	32

ISO/DIS 10077-2

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 10077-2 was prepared by Technical Committee ISO/TC 163, *Thermal performance and energy use in the built environment*, Subcommittee SC 2, *Calculation methods*, in cooperation with CEN/TC 89, Thermal performance of buildings and building components.

This second edition cancels and replaces the first edition (ISO 10077-2:2003), which has been technically revised.

ISO 10077 consists of the following parts, under the general title *Thermal performance of windows, doors and shutters — Calculation of thermal transmittance*:

— Part 1: *General*

— Part 2: *Numerical method for frames*

Introduction

ISO 10077 Thermal performance of windows, doors and shutters – Calculation of thermal transmittance consists of two parts. The method in Part 2 Numerical method for frames is intended to provide calculated values of the thermal characteristics of frame profiles, suitable to be used as input data in the calculation method of the thermal transmittance of windows, doors and shutters given in Part 1 "General". It is an alternative to the test method specified in EN 12412-2 (see Bibliography). In some cases, the hot box method can be preferred, especially if physical and geometrical data are not available or if the profile is of complicated geometrical shape.

Although the method in this Part 2 basically applies to vertical frame profiles, it is an acceptable approximation for horizontal frame profiles (e.g. sill and head sections) and for products used in sloped positions (e.g. roof windows). For calculations made with the glazing units in place, the heat flow pattern and the temperature field within the frame are useful by-products of this calculation.

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Thermal performance of windows, doors and shutters — Calculation of thermal transmittance — Part 2: Numerical method for frames

1 Scope

This International Standard specifies a method and gives reference input data for the calculation of the thermal transmittance of frame profiles and of the linear thermal transmittance of their junction with glazing or opaque panels.

The method can also be used to evaluate the thermal resistance of shutter profiles and the thermal characteristics of roller shutter boxes.

This standard also gives criteria for the validation of numerical methods used for the calculation.

This standard does not include effects of solar radiation, heat transfer caused by air leakage or three-dimensional heat transfer such as pin point metallic connections. Thermal bridge effects between the frame and the building structure are not included.

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 — Calculation of thermal transmittance (U-value) — Calculation Method*

EN 12519, *Windows and pedestrian doors — Terminology*

EN 13556, *Round and sawn timber – Nomenclature of timbers used in Europe*

ISO 6946, *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*

ISO 7345, *Thermal insulation — Physical quantities and definitions*

ISO 10211, *Thermal bridges in building construction — Heat flows and surface temperatures — Detailed calculations*

ISO 10456, *Building materials and products — Hygrothermal properties — Tabulated design values and procedures for determining declared and design thermal values*

ISO 12567-2:2005, *Thermal performance of windows and doors — Determination of thermal transmittance by hot box method — Part 2: Roof windows and other projecting windows*

ISO 17025, *General requirements for the competence of testing and calibration laboratories*