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Standards

Irish Standard
I.S. EN ISO 10456:2007

Building materials and products -
Hygrothermal properties - Tabulated
design values and procedures for
determining declared and design thermal
values (ISO 10456:2007)

I.S. EN ISO 10456:2007

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Building materials and products - Hygrothermal properties - Tabulated design values and procedures for determining declared and design thermal values - Technical Corrigendum 1 (ISO 10456:2007/Cor 1:2009)

Matériaux et produits pour le bâtiment - Propriétés hygrothermiques - Valeurs utiles tabulées et procédures pour la détermination des valeurs thermiques déclarées et utiles - Rectificatif technique 1 (ISO 10456:2007/Cor 1:2009)

Baustoffe und Bauprodukte - Wärme- und feuchtetechnische Eigenschaften - Tabellierte Bemessungswerte und Verfahren zur Bestimmung der wärmeschutztechnischen Nenn- und Bemessungswerte (ISO 10456:2007/Cor 1:2009)

This corrigendum becomes effective on 1 December 2009 for incorporation in the three official language versions of the EN.

Ce corrigendum prendra effet le 1 décembre 2009 pour incorporation dans les trois versions linguistiques officielles de la EN.

Die Berichtigung tritt am 1. Dezember 2009 zur Einarbeitung in die drei offiziellen Sprachfassungen der EN in Kraft.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN ISO 10456:2007/AC: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.

Endorsement notice

The text of ISO 10456:2007/Cor 1:2009 has been approved by CEN as a EN ISO 10456:2007/AC:2009 without any modification.

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INTERNATIONAL STANDARD ISO 10456:2007
TECHNICAL CORRIGENDUM 1

Published 2009-12-01

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Building materials and products — Hygrothermal properties — Tabulated design values and procedures for determining declared and design thermal values

TECHNICAL CORRIGENDUM 1

Matériaux et produits pour le bâtiment — Propriétés hygrothermiques — Valeurs utiles tabulées et procédures pour la détermination des valeurs thermiques déclarées et utiles

RECTIFICATIF TECHNIQUE 1

Technical Corrigendum 1 to ISO 10456:2007 was prepared by Technical Committee ISO/TC 163, *Thermal performance and energy use in the built environment*, Subcommittee SC 2, *Calculation methods*.

Page 12, Table 4, tenth line of data (Wood fibreboard):

In the third column from the left, replace “0,1” with “0,02” and in the fifth column from the left, replace “0,16” with “0,03”.

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I.S. EN ISO 10456:2007

EUROPEAN STANDARD

EN ISO 10456

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2007

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English Version

**Building materials and products - Hygrothermal properties -
Tabulated design values and procedures for determining
declared and design thermal values (ISO 10456:2007)**

Matériaux et produits pour le bâtiment - Propriétés
hygrothermiques - Valeurs utiles tabulées et procédures
pour la détermination des valeurs thermiques déclarées et
utiles (ISO 10456:2007)

Baustoffe und Bauprodukte - Wärme- und
feuchtetechnische Eigenschaften - Tabellierte
Bemessungswerte und Verfahren zur Bestimmung der
wärmeschutztechnischen Nenn- und Bemessungswerte
(ISO 10456:2007)

This European Standard was approved by CEN on 7 December 2007.

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Foreword

This document (EN ISO 10456:2007) 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 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 June 2008, and conflicting national standards shall be withdrawn at the latest by June 2008.

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Endorsement notice

The text of ISO 10456:2007 has been approved by CEN as a EN ISO 10456:2007 without any modification.

INTERNATIONAL STANDARD

ISO 10456

Third edition
2007-12-15

Building materials and products — Hygrothermal properties — Tabulated design values and procedures for determining declared and design thermal values

*Matériaux et produits pour le bâtiment — Propriétés hygrothermiques —
Valeurs utiles tabulées et procédures pour la détermination des valeurs
thermiques déclarées et utiles*



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ISO 10456:2007(E)

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ISO 10456:2007(E)

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.

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ISO 10456 was prepared by Technical Committee ISO/TC 163, *Thermal performance and energy use in the built environment*, Subcommittee SC 2, *Calculation methods*.

This third edition cancels and replaces the second edition (ISO 10456:1999), which has been technically revised.

The following changes have been made to the second edition:

- the Scope has been extended to include tabulated design values of thermal and moisture properties of materials, and the title has been modified accordingly;
- an Introduction has been added;
- the Scope specifies that moisture coefficients are valid only between 0 °C and 30 °C;
- 4.2 has been added as a new subclause on tests for moisture properties;
- 7.2 has been extended to contain general information about climates;
- 7.4 contains clarification that ageing factors are not applied if taken into account in declared values;
- 7.5 has been added as a new subclause dealing with convection in insulating materials;
- Clause 8 has been added, giving tabulated design values (in Tables 3, 4 and 5); the data, taken from EN 12524, have been reviewed and updated.
- Annex A contains data reviewed for extruded polystyrene (XPS) and polyurethane (PU).

Introduction

This International Standard provides the means (in part) to assess the contribution that building products and services make to energy conservation and to the overall energy performance of buildings.

Heat and moisture transfer calculations require design values of thermal and moisture properties for materials used in building applications.

Design values can be derived from declared values that are based on measured data on the product concerned, which is usually the case for thermal insulation materials. Where the design conditions differ from those of the declared value, the data needs to be converted to the applicable conditions. This International Standard provides the methods and data for making this conversion.

For materials for which measured values are not available, design values can be obtained from tables. This International Standard provides such tabulated information based on the compilation of existing data (see reference documents listed in the Bibliography).

Building materials and products — Hygrothermal properties — Tabulated design values and procedures for determining declared and design thermal values

1 Scope

This International Standard specifies methods for the determination of declared and design thermal values for thermally homogeneous building materials and products, together with procedures to convert values obtained under one set of conditions to those valid for another set of conditions. These procedures are valid for design ambient temperatures between -30 °C and $+60\text{ °C}$.

This International Standard provides conversion coefficients for temperature and for moisture. These coefficients are valid for mean temperatures between 0 °C and 30 °C .

This International Standard also provides design data in tabular form for use in heat and moisture transfer calculations, for thermally homogeneous materials and products commonly used in building construction.

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.

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

ISO 8990, *Thermal insulation — Determination of steady-state thermal transmission properties — Calibrated and guarded hot box*

ISO 12572, *Hygrothermal performance of building materials and products — Determination of water vapour transmission properties*

3 Terms, definitions, symbols and units

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 7345 and the following apply.

3.1.1

declared thermal value

expected value of a thermal property of a building material or product assessed from measured data at reference conditions of temperature and humidity, given for a stated fraction and confidence level, and corresponding to a reasonable expected service lifetime under normal conditions

3.1.2

design thermal value

design thermal conductivity or design thermal resistance

NOTE A given product can have more than one design value, for different applications or environmental conditions.

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