

Müüritis ja müüritooted. Soojusväärtuste määramise meetodid

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

Masonry and masonry products - Methods for determining thermal properties

Maçonnerie et éléments de maçonnerie - Méthodes pour la détermination des propriétés thermiques

Mauerwerk und Mauerwerksprodukte - Verfahren zur Bestimmung von wärmeschutztechnischen Eigenschaften

This European Standard was approved by CEN on 9 March 2012.

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Foreword

This document (EN 1745:2012) has been prepared by Technical Committee CEN/TC 125 "Masonry", the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by October 2012, and conflicting national standards shall be withdrawn at the latest by October 2012.

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 1745:2002.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

The following is a list of significant technical changes since the last edition:

- addition of Figure 1 to show the procedures and calculation possibilities;
- editorial improvement;
- extension of Annex B;
- adaption of Annex E;
- addition of Annex F;
- deletion of Annex ZA.

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, Turkey and the United Kingdom.

Introduction

This European Standard provides rules for the determination of dry and design thermal conductivity and thermal resistance values of masonry products and masonry.

It describes how dry thermal values are determined. It also describes the correction methods to derive design values from a dry value. The dry value is a characteristic of a masonry material, masonry unit or of masonry. On the basis of dry thermal conductivity values determination methods of design thermal values are given.

Three procedures (model S1 – S3) for the determination of dry thermal conductivity ($\lambda_{10,dry,unit}$) of solid masonry units are described and five procedures (model P1 – P5) for the determination of equivalent dry thermal conductivity ($\lambda_{10,dry,unit}$) of masonry units with formed voids and composite masonry units are described, see Figure 1.

For mortars according to EN 998-1 and EN 998-2, the models S1 – S2 can be used.

Additionally three procedures for the determination of thermal resistance are described. These procedures are:

- the use of tabulated R -values;
- the measurement of R -value;
- the numerical calculation of R -value.

The following major types of masonry units are covered by this European Standard:

- solid masonry units;
- masonry units with formed voids;
- composite masonry units.

In Figure 1, the different models and procedures are illustrated.

The design value of a product characteristic is the value determined for a specific application and for use in calculations.

Design thermal values are determined, according to the procedure given in this European Standard according to the intended application, environmental and climatic conditions, bearing in mind the purpose of this determination, such as:

- energy consumption;
- design of heating and cooling equipment;
- surface temperature determination;
- compliance with national building regulations;
- consideration of non-steady state thermal conditions in buildings.

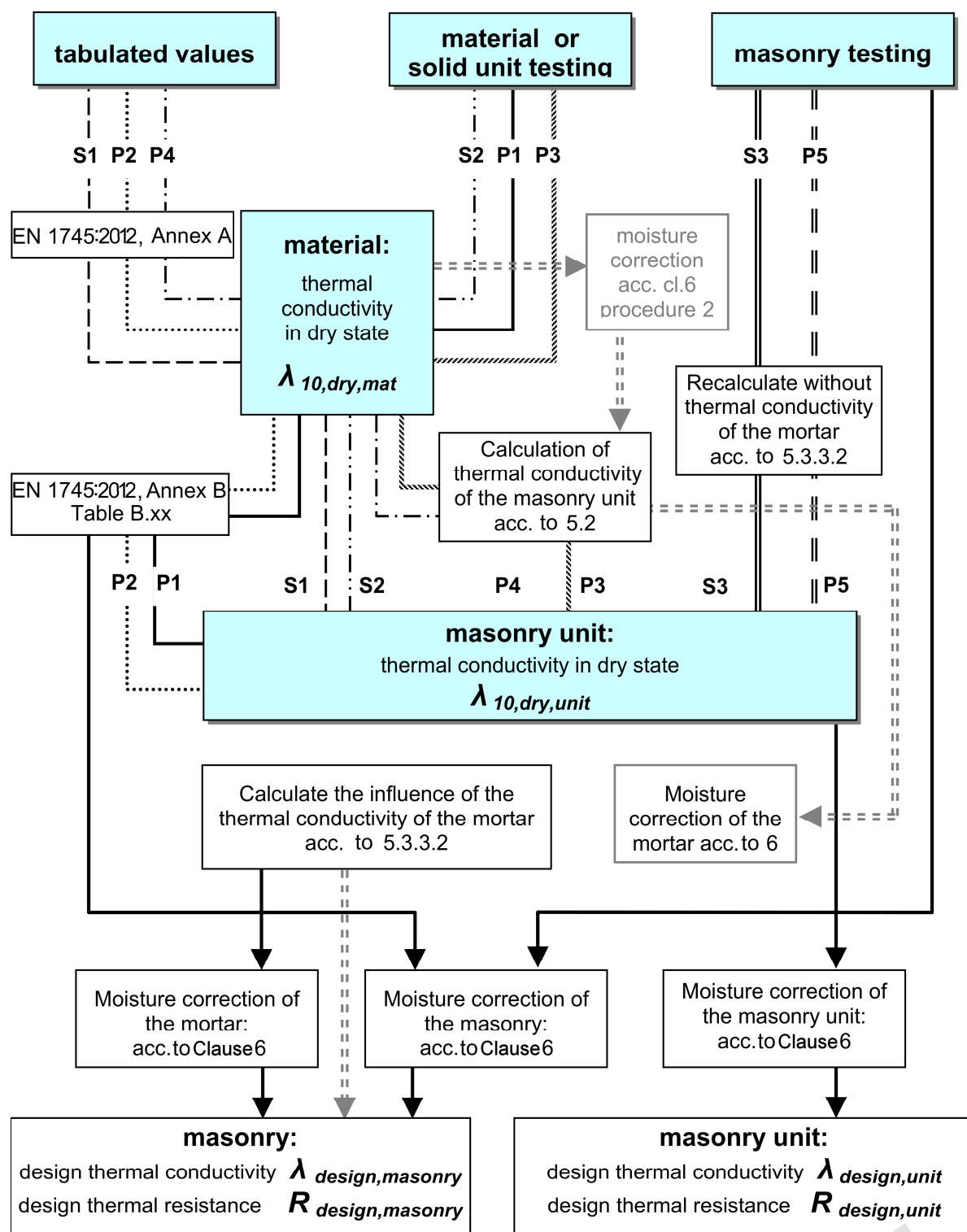


Figure 1 — Determination of thermal properties of masonry units and masonry

1 Scope

This European Standard specifies procedures for the determination of thermal properties of masonry and masonry products.

2 Normative references

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

EN 772-4, *Methods of test for masonry units — Part 4: Determination of real and bulk density and of total and open porosity for natural stone masonry units*

EN 772-13, *Methods of test for masonry units — Part 13: Determination of net and gross dry density of masonry units (except for natural stone)*

EN 1015-10, *Methods of test for mortar for masonry — Part 10: Determination of dry bulk density of hardened mortar*

EN 1934, *Thermal performance of buildings — Determination of thermal resistance by hot box method using heat flow meter — Masonry*

EN 1936, *Natural stone test methods — Determination of real density and apparent density, and of total and open porosity*

EN 12664, *Thermal performances of building materials and products — Determination of thermal resistance by means of guarded hot plate and heat flow meter methods — Dry and moist products of medium and low thermal resistance*

EN ISO 6946:2007, *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method (ISO 6946:2007)*

EN ISO 7345:1995, *Thermal insulation — Physical quantities and definitions (ISO 7345:1987)*

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

EN ISO 10456, *Building materials and products — Hydrothermal properties — Tabulated design values and procedures for determining declared and design thermal values (ISO 10456)*

3 Terms, definitions and symbols

For the purposes of this document, the following terms, definitions and symbols and those given in EN ISO 7345:1995 apply.

3.1 Terms and definitions

3.1.1

masonry

assemblage of masonry units laid in a specified pattern and joined together with masonry mortar