

Structural timber - Determination of characteristic values of mechanical properties and density

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 384:2016 sisaldab Euroopa standardi EN 384:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 384:2016 consists of the English text of the European standard EN 384:2016.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 31.08.2016.	Date of Availability of the European standard is 31.08.2016.
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ICS 79.040

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English Version

Structural timber - Determination of characteristic values of mechanical properties and density

Bois de structure - Détermination des valeurs
caractéristiques des propriétés mécaniques et de la
masse volumique

Bauholz für tragende Zwecke - Bestimmung
charakteristischer Werte für mechanische
Eigenschaften und Rohdichte

This European Standard was approved by CEN on 30 January 2016.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists 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-CENELEC Management Centre has the same status as the official versions.

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European foreword

This document (EN 384:2016) has been prepared by Technical Committee CEN/TC 124 “Timber structures”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by February 2017, and conflicting national standards shall be withdrawn at the latest by February 2017.

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 384:2010.

Compared to EN 384:2010, the following modifications have been made:

- the definitions have been revised;
- the adjustments of test results to the reference moisture content are presented as equations;
- the equations for determining other properties from properties derived by testing have been changed;
- regarding the determination of 5 %-percentiles the standard has been adopted to the revised EN 14358;
- the procedure for verification of a lot has been transferred to EN 14358.

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, Former Yugoslav Republic of Macedonia, 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

Structural design codes can only function effectively if standard methods of determining the mechanical and physical properties exist. The aim of the procedures given in this standard is to derive characteristic values that are comparable in terms of the populations they represent. The standard permits the use of as much existing test data as possible from various sampling and testing techniques.

Where methods are given to permit characteristic values to be determined from a less than ideal amount of structural size test data, reduction factors to reflect a lower degree of confidence are employed.

1 Scope

This European Standard gives a method for determining characteristic values of mechanical properties and density, for defined populations of visual grades and/or strength classes of machine graded structural timber. Additionally it covers the stages of sampling, testing, analysis and presentation of the data.

The standard provides methods to derive strength, stiffness and density properties for structural timber from tests with defect-free specimen.

The values determined in accordance with this standard for mechanical properties and density are suitable for assigning grades and species to the strength classes of EN 338.

NOTE 1 For assigning grades and species to the strength classes in EN 338 only three properties, i.e. bending or tension strength, modulus of elasticity parallel to grain in bending or tension and density need to be determined from test data, other properties can be calculated according to Table 2.

NOTE 2 EN 1912 gives examples of established visual grades assigned to strength classes.

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 338, *Structural timber — Strength classes*

EN 408, *Timber structures — Structural timber and glued laminated timber — Determination of some physical and mechanical properties*

EN 13183-2, *Moisture content of a piece of sawn timber — Part 2: Estimation by electrical resistance method*

EN 13183-3, *Moisture content of a piece of sawn timber — Part 3: Estimation by capacitance method*

EN 14081-1:2016, *Timber structures — Strength graded structural timber with rectangular cross section — Part 1: General requirements*

EN 14081-2, *Timber structures — Strength graded structural timber with rectangular cross section — Part 2: Machine grading; additional requirements for initial type testing*

EN 14081-3, *Timber structures — Strength graded structural timber with rectangular cross section — Part 3: Machine grading; additional requirements for factory production control*

EN 14358:2016, *Timber structures — Calculation and verification of characteristic values*

3 Terms and definitions

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

3.1

characteristic value

representative value of a material property used for design, which is based either on 5-percentile values (e.g. strength properties and density) or mean values (e.g. modulus of elasticity)