# Ehituspuit. Tugevusklassid

Structural timber - Strength classes

EESTI STANDARDIKESKUS
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## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

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| Käesolev Eesti standard EVS-EN 338:2009 sisaldab Euroopa standardi EN 338:2009 ingliskeelset teksti. | This Estonian standard EVS-EN 338:2009 consists of the English text of the European standard EN 338:2009. |
| Standard on kinnitatud Eesti Standardikeskuse 31.12.2009 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas. | This standard is ratified with the order of Estonian Centre for Standardisation dated 31.12.2009 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation. |
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English Version

# Structural timber - Strength classes

Bois de structure - Classes de résistance

Bauholz für tragende Zwecke - Festigkeitsklassen

This European Standard was approved by CEN on 29 September 2009.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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# Content

## Foreword

This document (EN 338:2009) has been prepared by Technical Committee CEN/TC 124 “Timber structures”, the secretariat of which is held by SFS.

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of an identical text or by endorsement, at the latest by April 2010, and conflicting national standards shall be withdrawn at the latest by April 2010.

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# Introduction

This European Standard has additional strength classes which are more suitable to the characteristic values of temperate hardwoods. It also has modified characteristic values for the softwood classes for shear strength and tension strength perpendicular to grain. The equations given for these two properties in Annex A have been modified accordingly.

Due to variations in the type and quality of timber available, the variety of end uses and the size of production output of the local timber industry, many different combinations of species and strength grade exist with different strength properties, which therefore complicate the design and specification of timber structures.

A strength class system groups together grades and species with similar strength properties thus making them interchangeable. This then permits an engineer to specify a chosen strength class and use the characteristic strength values of that class in design calculations.

Advantages of the strength class system are:

a) Additional species/grades can be incorporated into the system at any time without affecting existing specifications for structural timber.

b) At the time of carrying out design calculations, an engineer need not be aware of the costs and availability of alternative species and grades. He can simply design using the strength, stiffness and density values of a particular class and then specify that class; he can then use the tenders to select the most suitable and economic species/grade on offer. Note that, where a particular species is not acceptable (e.g. for reasons of durability) for a project, the specification needs to make this clear.

c) Suppliers can offer their material to meet more specifications than would be possible if species and grades were specified.

## 1 Scope

This European Standard establishes a system of strength classes for general use in structural codes.

It gives characteristic strength and stiffness properties and density values for each class and the rules for the allocation of timber populations (i.e. combinations of species, source and grade) to the classes.

This standard is applicable to all softwood and hardwood timber for structural use.

## 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 384, *Structural timber – Determination of characteristic values of mechanical properties and density*

EN 14081 (all parts), *Timber structures – Strength graded structural timber with rectangular cross section*

## 3 Terms and definitions

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

**3.1**
**timber population**
timber for which the characteristic values are relevant

NOTE The timber population is defined by parameters such as species or species grouping (combination of species), source and strength grade.

## 4 Symbols and abbreviations

$E_{0,mean}$ mean characteristic value of modulus of elasticity parallel to grain (in kN/mm$^2$)

$E_{0,05}$ 5-percentile characteristic value of modulus of elasticity parallel to grain (in kN/mm$^2$)

$E_{90,mean}$ mean characteristic value of modulus of elasticity perpendicular to grain (in kN/mm$^2$)

$f_{c,0,k}$ characteristic value of compressive strength parallel to grain (in N/mm$^2$)

$f_{c,90,k}$ characteristic value of compressive strength perpendicular to grain (in N/mm$^2$)

$f_{m,k}$ characteristic value of bending strength (in N/mm$^2$)

$f_{t,0,k}$ characteristic value of tensile strength parallel to grain (in N/mm$^2$)

$f_{t,90,k}$ characteristic value of tensile strength perpendicular to grain (in N/mm$^2$)

$f_{v,k}$ characteristic value of shear strength (in N/mm$^2$)

$G_{mean}$ mean characteristic value of shear modulus (in kN/mm$^2$)

$\rho_k$ characteristic value of density (in kg/m$^3$)

$\rho_{mean}$ mean value of density (in kg/m$^3$)