Structural timber — Strength classes
National foreword

This British Standard is the UK implementation of EN 338:2016. It supersedes BS EN 338:2009 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/518, Structural timber.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2016.
Published by BSI Standards Limited 2016

ISBN 978 0 580 83526 1

ICS 79.040

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2016.

Amendments/corrigenda issued since publication

Date Text affected
Structural timber - Strength classes

Bois de structure - Classes de résistance
Bauholz für tragende Zwecke - Festigkeitsklassen

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.

CEN members are the national standards bodies of 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 United Kingdom.
Content

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>European foreword</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Introduction</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>Scope</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Normative references</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>Terms and definitions</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>Symbols and abbreviations</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Classification of structural timber</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>Allocation of a population to a strength class</td>
<td>10</td>
</tr>
<tr>
<td>6.1</td>
<td>Grading</td>
<td>10</td>
</tr>
<tr>
<td>6.1.1</td>
<td>Visual graded timber</td>
<td>10</td>
</tr>
<tr>
<td>6.1.2</td>
<td>Machine graded timber</td>
<td>10</td>
</tr>
<tr>
<td>6.2</td>
<td>Classification</td>
<td>10</td>
</tr>
<tr>
<td>6.2.1</td>
<td>Characteristic values</td>
<td>10</td>
</tr>
<tr>
<td>6.2.2</td>
<td>Allocation to a strength class</td>
<td>10</td>
</tr>
<tr>
<td>Bibliography</td>
<td></td>
<td>11</td>
</tr>
</tbody>
</table>
European foreword

This document (EN 338:2016) 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 October 2016, and conflicting national standards shall be withdrawn at the latest by October 2016.

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 338:2009.

Compared to EN 338:2009, the following modifications have been made:

— new table of strength classes for softwood species based on tension tests;

— extension with new classes in the table of strength classes for hardwood species based on edgewise bending tests;

— modification of some characteristic values for strength, stiffness and density;

— equations to determine the characteristic values of other strength properties from the grade determining properties has been transferred to EN 384.

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

A strength class system groups together grades, species and sources 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.
1 Scope

This European Standard establishes a system of strength classes for general use in design codes. It gives characteristic strength and stiffness properties and density values for each class to which EN 14081-1 refers.

This standard is applicable to all softwood and hardwood timber for structural use, within the scope of EN 14081-1.

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 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 term and definition apply.

3.1 population
timber of one species or species combination and one source for which the strength, stiffness and density properties apply

4 Symbols and abbreviations

\[ E_{m,0,\text{mean}} \] mean characteristic value of modulus of elasticity in bending parallel to grain (in kN/mm\(^2\));

\[ E_{t,0,\text{mean}} \] mean characteristic value of modulus of elasticity in tension parallel to grain (in kN/mm\(^2\));

\[ E_{m,0,k} \] 5-percentile characteristic value of modulus of elasticity in bending parallel to grain (in kN/mm\(^2\));

\[ E_{t,0,k} \] 5-percentile characteristic value of modulus of elasticity in tension parallel to grain (in kN/mm\(^2\));

\[ E_{m,90,\text{mean}} \] mean characteristic value of modulus of elasticity in bending perpendicular to grain (in kN/mm\(^2\));

\[ E_{t,90,\text{mean}} \] mean characteristic value of modulus of elasticity in tension perpendicular to grain (in kN/mm\(^2\));

\[ f_{c,0,k} \] 5-percentile characteristic value of compressive strength parallel to grain (in N/mm\(^2\));

\[ f_{c,90,k} \] 5-percentile characteristic value of compressive strength perpendicular to grain (in N/mm\(^2\));

\[ f_{m,k} \] 5-percentile characteristic value of bending strength (in N/mm\(^2\));

\[ f_{t,0,k} \] 5-percentile characteristic value of tensile strength parallel to grain (in N/mm\(^2\));

\[ f_{t,90,k} \] 5-percentile characteristic value of tensile strength perpendicular to grain (in N/mm\(^2\));

\[ f_{v,k} \] 5-percentile characteristic value of shear strength (in N/mm\(^2\));