



**NSAI**  
Standards

Irish Standard  
I.S. EN 14081-1:2016+A1:2019

# Timber structures - Strength graded structural timber with rectangular cross section - Part 1: General requirements

**I.S. EN 14081-1:2016+A1:2019**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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## National Foreword

I.S. EN 14081-1:2016+A1:2019 is the adopted Irish version of the European Document EN 14081-1:2016+A1:2019, Timber structures - Strength graded structural timber with rectangular cross section - Part 1: General requirements

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**EUROPEAN STANDARD**  
**NORME EUROPÉENNE**  
**EUROPÄISCHE NORM**

**EN 14081-1:2016+A1**

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ICS 79.040

Supersedes EN 14081-1:2016

English Version

**Timber structures - Strength graded structural timber  
with rectangular cross section - Part 1: General  
requirements**

Structures en bois - Bois de structure à section  
rectangulaire classé pour sa résistance - Partie 1 :  
Exigences générales

Holzbauwerke - Nach Festigkeit sortiertes Bauholz für  
tragende zwecke mit rechteckigem Querschnitt - Teil 1:  
Allgemeine Anforderungen

This European Standard was approved by CEN on 9 February 2016 and includes Amendment 1 approved by CEN on 14 May 2019.

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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<b>Contents</b>	<b>Page</b>
European foreword.....	4
Introduction .....	5
1 Scope .....	6
2 Normative references .....	6
3 Terms and definitions .....	7
4 Symbols.....	8
5 Requirements for structural timber .....	9
5.1 Mechanical resistance .....	9
5.1.1 General.....	9
5.1.2 Visual strength grading.....	9
5.1.3 Machine strength grading .....	9
5.2 Fire resistance (charring rate) .....	11
5.3 Reaction to fire.....	11
5.4 Release of dangerous substances.....	12
5.5 Biological durability.....	12
5.5.1 Structural timber without preservative treatment.....	12
5.5.2 Structural timber with preservative treatment.....	12
5.6 Geometrical data .....	12
6 Assessment and verification of constancy of performance –AVCP .....	13
6.1 General.....	13
6.2 Type testing.....	13
6.2.1 General.....	13
6.2.2 Test samples, testing and compliance criteria .....	13
6.2.3 Test reports.....	14
6.2.4 Shared other party results.....	15
6.3 Factory production control (FPC) .....	15
6.3.1 General.....	15
6.3.2 Requirements .....	15
6.3.3 Product specific requirements.....	19
6.3.4 Initial inspection of factory and of FPC .....	20
6.3.5 Continuous surveillance of FPC.....	20
6.3.6 Procedure for modifications .....	20
7 Marking.....	21
7.1 Marking methods .....	21
7.2 Information on the timber (method A) or on the package (method B).....	21
7.3 Information in the documents accompanying strength graded structural timber.....	22
8 Environmental issues .....	23
Annex A (normative) Requirements for strength reducing characteristics for visual grading standards .....	24
A.1 Limitations for strength-reducing characteristics.....	24
A.1.1 Knots .....	24
A.1.2 Slope of grain .....	24

<b>A.1.3</b>	<b>Density and rate of growth.....</b>	<b>24</b>
<b>A.1.4</b>	<b>Fissures .....</b>	<b>25</b>
<b>A.2</b>	<b>Limitations for geometrical characteristics.....</b>	<b>25</b>
<b>A.2.1</b>	<b>Wane.....</b>	<b>25</b>
<b>A.2.2</b>	<b>Warp .....</b>	<b>25</b>
<b>A.3</b>	<b>Limitations for biological characteristics .....</b>	<b>26</b>
<b>A.4</b>	<b>Other characteristics .....</b>	<b>26</b>
<b>A.4.1</b>	<b>Reaction wood .....</b>	<b>26</b>
<b>A.4.2</b>	<b>Other criteria.....</b>	<b>26</b>
<b>Annex B (normative)</b>	<b>Marking codes for species.....</b>	<b>27</b>
<b>B.1</b>	<b>Marking codes for single species .....</b>	<b>27</b>
<b>B.2</b>	<b>Marking codes for species combination .....</b>	<b>28</b>
<b>Annex C (normative)</b>	<b>Measurement of moisture content.....</b>	<b>30</b>
<b>C.1</b>	<b>General .....</b>	<b>30</b>
<b>C.2</b>	<b>Measurement of moisture content of timber during production.....</b>	<b>30</b>
<b>Annex ZA (informative)</b>	<b>Relationship of this European Standard with Regulation (EU)</b>	
	<b>No.305/2011 .....</b>	<b>31</b>
<b>ZA.1</b>	<b>Scope and relevant characteristics .....</b>	<b>31</b>
<b>ZA.2</b>	<b>System of Assessment and Verification of Constancy of Performance (AVCP) .....</b>	<b>33</b>
<b>ZA.3</b>	<b>Assignment of AVCP tasks .....</b>	<b>33</b>
<b>Bibliography</b>	<b>.....</b>	<b>36</b>

**EN 14081-1:2016+A1:2019 (E)****European foreword**

This document (EN 14081-1:2016) 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 2020, and conflicting national standards shall be withdrawn at the latest by May 2021.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document includes Amendment 1, approved by CEN on 2019-05-14.

This document supersedes A1 EN 14081-1:2016 A1.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Regulation n°305/2011.

For relationship with EU Regulation, see informative Annex ZA, which is an integral part of this document.

EN 14081-4:2009 will be withdrawn and replaced by 5.1.3, paragraph 2 of this document.

Compared to EN 14081-1:2005+A1:2011, the following modifications have been made:

- new Clause 6 for Assessment and Verification of Constancy of Performance linked to the CPR;
- Annex ZA has been adapted to the CPR;
- new clauses on Fire Resistance, release of dangerous substances, geometrical data and environmental issues have been added;
- marking codes for species combinations have been moved to Annex B;
- improvement of several definitions.

Other parts of the series of EN 14081 are:

- 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.

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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



## Introduction

There are basically two methods of strength grading: visual grading and machine grading.

Machine grading is in common use in a number of countries. The countries use two basic systems, referred to as 'output control' and 'machine control'. Both systems require a visual override inspection to cater for strength-reducing characteristics that are not automatically sensed by the machine.

Output control is suitable for use where the grading machines are situated in manufacturing units grading limited sizes, species and grades in repeated production runs. This enables the system to be controlled by testing timber specimens from the daily output. These tests, together with statistical procedures, are used to monitor and adjust the machine settings to maintain the required strength properties for each strength class. With this system it is permissible for machine approval requirements to be less demanding and for machines of the same type to have non-identical performance.

Machine control was developed in Europe. Because of the large number of sizes, species and grades used it was not possible to carry out quality control tests on timber specimens drawn from production. Machine control relies, therefore, on the machines being strictly assessed and controlled, and on considerable research effort to derive the machines settings, which remain constant for all machines of the same type.

Visual grading is also in common use in a number of countries. There are many different visual strength grading standards for timber in use in Europe. These have come into existence to allow for:

- different species or groups of species;
- geographic origin;
- different dimensional requirements;
- varying requirements for different uses;
- quality of material available;
- historic influences or traditions.

Because of the diversity of existing visual grading standards in use in different countries, it is currently impossible to lay down a single standard for all Member States.

The requirements given in this European Standard on visual strength grading are therefore basic principles, which should be followed when drawing up requirements for limits for some of the characteristics.

The assignments to strength classes are based on grading reports.

When these grading reports are evaluated and approved by CEN/TC 124/WG2/TG1, they become Approved Grading Reports (AGR) which are required for assigning visual grades to EN 1912 and for machine control.

**EN 14081-1:2016+A1:2019 (E)****1 Scope**

This European Standard specifies requirements for strength graded structural timber with rectangular cross-sections either visual or machine graded, shaped by sawing, planning or other methods and with cross-sectional dimensions complying with EN 336 (referred to as structural timber in the following clauses).

This European Standard includes provisions for test methods, Assessment and Verification of Constancy of Performance and marking of structural timber.

NOTE 1 For machine strength graded timber additional provisions for type testing (TT) are given in EN 14081-2 and for factory production control (FPC) in EN 14081-3.

NOTE 2 An acceptance procedure for verification of a lot is given in EN 14358 which may be used for a delivery of structural timber.

This European Standard identifies characteristics for which limits have to be given in visual grading standards.

This European Standard covers structural timber, untreated or treated against biological attack.

This European Standard does not cover:

- timber treated by fire retardant products to improve its fire performance;
- thermally and/or chemically modified timber;
- structural finger jointed timber.

**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 350-1, *Durability of wood and wood-based products — Natural durability of solid wood — Part 1: Guide to the principles of testing and classification of the natural durability of wood*

EN 350-2, *Durability of wood and wood-based products — Natural durability of solid wood — Part 2: Guide to natural durability and treatability of selected wood species of importance in Europe*

EN 384, *Structural timber — Determination of characteristic values of mechanical properties and density*

EN 844-7, *Round and sawn timber — Terminology — Part 7: Terms relating to anatomical structure of timber*

EN 844-9, *Round and sawn timber — Terminology — Part 9: Terms relating to features of sawn timber*

EN 844-10, *Round and sawn timber — Terminology — Part 10: Terms relating to stain and fungal attack*

EN 1310:1997, *Round and sawn timber — Method of measurement of features*

EN 1912, *Structural Timber — Strength classes — Assignment of visual grades and species*

EN 1995-1-2, *Eurocode 5: Design of timber structures — Part 1-2: General — Structural fire design*

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