
Lesene konstrukcije - Konstrukcijski les z okroglimi fazonskimi kosi - Zahteve

Timber structures - Structural timber with round cross-section - Requirements

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[oSIST prEN 14544:2006](https://standards.iteh.ai/catalog/standards/sist/ace94d62-2c96-4e23-8059-fd22b1d24a95/osist-pren-14544-2006)

<https://standards.iteh.ai/catalog/standards/sist/ace94d62-2c96-4e23-8059-fd22b1d24a95/osist-pren-14544-2006>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[oSIST prEN 14544:2006](#)

<https://standards.iteh.ai/catalog/standards/sist/ace94d62-2c96-4e23-8059-fd22b1d24a95/osist-pren-14544-2006>

August 2006

ICS 91.080.20; 79.040

English Version

Timber structures - Structural timber with round cross-section - Requirements

Structures en bois - Bois de structure à section ronde -
Exigences

Holzbauwerke Rundholz für tragende Zwecke -
Anforderungen

This draft European Standard is submitted to CEN members for second enquiry. It has been drawn up by the Technical Committee CEN/TC 124.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, 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 and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

Page

Foreword	3
1 Scope	3
2 Normative references	3
3 Terms and definitions	4
4 Symbols and abbreviations	7
5 Requirements	7
6 Evaluation of conformity	8
7 Marking	11
Annex A (normative) Reaction to fire: Euroclass without the need for further testing	13
B.3.1 Biological attacks	16
B.3.3 Included sapwood	16
Clauses of this European Standard addressing the provisions of the EU Construction Products Directive	17
An example of a mark on the product is given in Figure ZA.1	21

ITeH STANDARD PREVIEW
(standards.iteh.ai)
oSIST prEN 14544:2006
<https://standards.iteh.ai/catalog/standards/sist/ace94d62-2c96-4e23-8059-fd22b1d24a95/osist-pren-14544-2006>

Foreword

This document (prEN 14544:2006) has been prepared by Technical Committee CEN/TC 124 “Timber structures”, the secretariat of which is held by SFS.

This document is currently submitted to the second CEN Enquiry.

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 Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

1 Scope

This European Standard specifies the requirements for visual graded structural timber with round cross-sections, barked or unbarked and cut to length.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

The standard covers timber untreated or treated against biological attack.

The standard does not cover timber treated by fire retardant products.
oSIST prEN 14544:2006
<https://standards.iteh.ai/catalog/standards/sist/acc94d62-2c96-4e23-8059-fd22b1d24a95/osist-pren-14544-2006>

The standard identifies the characteristics for which as a minimum limits shall be given in visual grading rules

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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*

prEN 14544:2006 (E)

EN 1310: 1997, *Round and sawn timber - Method of measurements of features*

EN 13183-2, *Round and sawn timber - Method of measurement of moisture content - Part 2: Method for estimating moisture content of a piece of sawn timber (Electrical method)*

EN 13501-1, *Fire Classification of construction products and building elements – Part 1: Classification using tests from reaction to fire tests*

EN 13823, *Reaction to fire tests for building products – Building products excluding floorings exposed to the thermal attack by a single burning item*

EN 14251, *Timber structures – Structural round timber – Determination of the strength and stiffness parallel to grain in bending and compression*

PrEN 15228, *Structural timber – Structural timber treated against biological attack*

ISO 8322-2, *Building construction - Measuring instruments - Procedures for determining accuracy in use - Part 2: Measuring tapes*

EN/ISO 29002, *Quality management systems – Requirements*

3 Terms and definitions

For the purposes of this standard, the terms and definitions given in EN 385, EN 14080 and EN 14081 apply. Further the following definitions apply.

<https://standards.iteh.ai/catalog/standards/sist/ace94d62-2c96-4e23-8059-fd22b1d24a95/osist-pren-14544-2006>

3.1 bark pocket

bark that is partly or wholly enclosed in the wood.

3.2 batch

timber of one species population and target size graded in one working shift

3.3 characteristic density

population 5-percentile value of density with mass and volume corresponding to equilibrium moisture content at a temperature of 20° C and a relative humidity of 65 %

3.4 characteristic strength

population 5-percentile value of strength obtained from the results of tests with a duration of 300 s using test pieces at an equilibrium moisture content resulting from a temperature of 20° C and a relative humidity of 65 %

3.5 characteristic stiffness

population 5-percentile value or the mean value of stiffness obtained under the same test conditions as defined in 3.3

3.6 compression wood

reaction wood formed typically on lower sides of branches and of leaning or crooked stems of softwood trees.

3.7 decay

decomposition of wood by fungi or other micro-organisms resulting in softening, progressive loss of mass and strength, and often a change of texture and colour.

3.8 deviation

difference between actual size and the corresponding target size, making allowance for the difference in size due to difference in moisture content

3.9 diameter

distance at the section of measurement between two parallel lines tangential to the stem of round timber

3.10 fissure

longitudinal separation of fibres.

3.11 grade

strength grade

iTeh STANDARD PREVIEW

3.12 grade determining property

mechanical or physical property for which a particular value of that property has to be achieved for the material to be assigned to that grade

3.13 growth rate

average number of growth rings per 25 mm.

[oSIST prEN 14544:2006](https://standards.itih.ai/catalog/standards/sist/ace94d62-2c96-4e23-8059-id22b1d24a95/osist-pren-14544-2006)

<https://standards.itih.ai/catalog/standards/sist/ace94d62-2c96-4e23-8059-id22b1d24a95/osist-pren-14544-2006>

3.14 heart shake

radial end shake originating at the pith.

3.15 included sapwood

presence in the heartwood of a complete or incomplete ring having the colour and the properties of sapwood

3.10 knot

portion of a branch embedded in wood.

3.16 knot cluster

3.17 maximum diameter

maximum diameter at the section of measurement

3.18 minimum diameter

minimum diameter at the section of measurement

3.19 nominal diameter

a) theoretical diameter at the section of measurement for timber with 5 % or less ovality

b) minimum diameter at the section of measurement for timber with greater than 5 % ovality

3.20 ovality

difference between the maximum and minimum diameter at a cross section expressed as a percentage of the minimum diameter

3.21 producer

legal entity responsible for the grading of the timber

3.22 sample

specimens of timber of one size and representative of one species population

3.23 species population

timber from an identifiable source and of a species or species combination that is, or is intended to be, strength graded and marketed as a commercially defined product

3.24 strength-reducing characteristic

weakness in a piece of timber resulting from natural growth of the tree (e.g. knots, slope of grain) or changes in moisture content (e.g. fissures) or resulting from conversion of the log or caused by attack from fungi, insects or mechanical damage

iTeh STANDARD PREVIEW

3.25 target size

size specified at the reference moisture content, and to which the deviations, which would ideally be zero, are to be related

<https://standards.iteh.ai/catalog/standards/sist/ace94d62-2c96-4e23-8059-fd22b1d24a95/osist-pren-14544-2006>

3.26 theoretical diameter

diameter of a circle with the same circumference as the actual circumference at the section of measurement

3.27 timber size

sawn or processed dimensions with respect to the permitted deviations given in 5.2

3.28 visual strength grading

process by which a piece of timber can be sorted, by means of visual inspection, into grades to which characteristic values of strength and stiffness may be allocated. Electronic or mechanical instruments may be used to assist the visual grader in this process.

3.29 reaction wood

wood with distinctive anatomical characteristic, formed typically in parts of leaning or crooked stems and in branches when the tree tends to restore the original position, if this has been disturbed.

3.30 rindgall

surface wound that has been partially enclosed by the growth of a tree.

3.31 ring shake

fissure following the line of a growth ring.

3.32 scribe

Cranked rod with a swivel handle and a needle at the tip, set to a slight trailing angle. Used as a grain detector by pressing the needle into the timber and drawing it across the surface in the apparent direction of the grain.

3.33 slope of grain

divergence of the direction of the fibres from the longitudinal axis of the piece.

3.34 star shake

two or more heart shakes.

3.35 sweep

deviation of the longitudinal axis of round timber from a straight line.

3.36 taper

gradual reduction in diameter of a stem along its height or round timber along its length.

3.37 tension wood

reaction wood formed typically on upper sides of branches and of leaning or crooked stems of hardwood trees

4 Symbols and abbreviations

d diameter (in mm)

l length (in mm)

w distortion (in mm)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[oSIST prEN 14544:2006](https://standards.iteh.ai/catalog/standards/sist/ace94d62-2c96-4e23-8059-fd22b1d24a95/osist-pren-14544-2006)

5 Requirements**5.1 Sizes and tolerances**

Length shall be measured using a tape measure complying with ISO 8322-2.

Diameters shall be measured under any bark using calipers. Alternatively, the theoretical diameter may be calculated from the circumference measured by using a tape measure complying with ISO 8322-2.

Limit For the purposes of this standard the reference moisture content is 20 %. The moisture content shall be determines according to EN 13183-2.

5.1.1 Deviations

The limit deviations on length is $-0/+1\%$; however for length less than 2 m $-0/+20$ mm.

The limit deviations from the nominal target diameter referred to the reference moisture content and measured at midspan/midlength under bark is $-0/+20$ mm.

5.1.2 Changes in size due to changes in moisture content

Unless there is evidence to the contrary, it shall be assumed that the diameter of round timber increases by 0,25 % for every 1,0 % of moisture content higher than 20 % up to 30 %, and decreases by 0,25 % for every 1,0 % of moisture content lower than 20 %. The above values are typical, without regard to species.

5.2 Timber

5.2.1 Grading

Timber shall be visual graded according to a grading standard that meets the requirements given in Annex A. and have characteristic values for bending strength, compression strength, modulus of elasticity and density determined according to the appropriate clause in EN 14251.

Unless otherwise stated, 20 % moisture content shall be taken as the reference point for all measurements.

5.2.2 Characteristic values

The producer shall declare characteristic values for the bending strength, compression strength, modulus of elasticity in bending (5-percentile and mean value) and density. The declared values shall not be greater than characteristic values found from results from testing untreated timber according to EN 14251 evaluated in accordance with EN 384.

5.2.3 Durability against biological attack

5.2.3.1 If relevant, the producer shall declare the natural durability assessed in accordance with EN 350-1. If listed in EN 350-2, the natural durability shall be declared as given therein.

5.2.3.2 Timber treated against biological attack shall meet the requirements of prEN 15228.

5.2.4 Reaction to fire

Round timber with a minimum density of 350 kg/m³ can without further testing be classified as D-s2, d0.

Timber with a density below 350 kg/m³ shall where required, be tested and classified in accordance with EN 13501-1.

6 Evaluation of conformity

6.1 General

Compliance with the requirement of this standard shall be demonstrated by:

- initial type testing and initial assessment,

- factory production control by the producer.

All type testing reports shall be kept for at least five years after the date of last date of production of the product to which they relate, while all Factory Production Control record shall be kept for at least five years.

6.2 Type testing and assessment

Initial type testing shall be performed on first application of this standard. Tests previously performed in accordance with the provisions of this standard (same product, same population, same characteristic(s), test method, sampling procedure, system of attestation of conformity etc.) may be taken into account.

Whenever a change occurs, e.g. in raw materials, which would change significantly one or more characteristics, the type testing and assessment shall be repeated for the appropriate characteristic(s).

The testing and assessment shall be in accordance with Table 1.

iTeh STANDARD PREVIEW

Table 1 – Sampling plan and compliance criteria for initial testing

Property	Requirement	Method	Number of specimens	Compliance criteria
Characteristic strength - bending - compressive Density Modulus of elasticity in bending		See EN 14251-2	See EN 384-2	Characteristic values estimated according to EN 384 shall not be less than declared values.
Natural durability	Fungi: Class 1-5 Termites, wood boring insects and marine organisms: Class D,M,S Beetles: Class D,S,SH	EN 350-1 EN 350-2		Natural durability shall be taken as given in EN 350-2. If the species is not given it shall be tested in accordance with EN 350-1
Timber treated against biological attacks	see subclause 5.3.2			
Reaction to fire	Class C – E	EN 13823 EN ISO 11925-2	see EN 13 501 - 1 ^a	The requirements to the declared class shall be fulfilled

^a. CWFT products (see annex A) do not require direct testing of reaction to fire.