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Konstruktionsvirke – Visuell hållfasthetsklassning av tropiskt lövträ

Structural timber – Visual strength grading of tropical hardwood



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Denna standard är framtagen av kommittén för Bärande träkonstruktioner, SIS/TK 182/AG 4.

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EUROPEAN STANDARD

EN 16737

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2016

ICS 79.040

English Version

Structural timber - Visual strength grading of tropical hardwood

Bois de structure - Classement visuel des bois feuillus tropicaux de structure

Bauholz für tragende Zwecke - Visuelle Sortierung von Tropenholz nach der Festigkeit

This European Standard was approved by CEN on 19 March 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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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents	Page
European foreword.....	3
1 Scope	4
2 Normative references	4
3 Terms and definitions	4
4 Strength graded timber	6
4.1 Supervision of strength grading operations.....	6
4.2 Sizes.....	6
4.3 Processing of visually graded timber.....	6
4.4 Moisture content.....	6
5 Measurement of strength-reducing characteristics	7
5.1 Knots.....	7
5.1.1 General.....	7
5.1.2 Knot size: requisite comparisons.....	7
5.1.3 Pin knots.....	10
5.2 Slope of grain.....	10
5.3 Density.....	11
5.4 Fissures.....	11
5.5 Wane.....	11
5.6 Distortion.....	11
5.6.1 Bow and spring.....	11
5.6.2 Twist.....	11
5.7 Biological characteristics.....	11
5.7.1 Fungal biodegradation.....	11
5.7.2 Insect attack.....	12
5.7.3 Marine borers.....	12
5.8 Other defects and characteristics.....	12
6 Limiting values of characteristics for STH grade	13
7 Marking	13
Annex A (informative) Tropical hardwood species and their densities	14

European foreword

This document (EN 16737:2016) 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 November 2016 and conflicting national standards shall be withdrawn at the latest by November 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 standard gives grading methods, definitions and criteria as required in EN 14081-1 for a visual strength grading standard.

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1 Scope

This European Standard specifies a method of strength grading tropical hardwood visually for structural use.

The permissible limits of characteristics for a single visual strength grade of timber are specified, designated “Structural Tropical Hardwood” (STH) grade.

The method is only suitable for pieces of timber with a rectangular cross-section that is constant along their lengths.

Characteristics related to durability are not covered in this standard. For some end uses, additional requirements may be specified at the time of grading, e.g. sapwood exclusion.

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 336, *Structural timber - Sizes, permitted deviations*

EN 338, *Structural timber - Strength classes*

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 844-3, *Round and sawn timber - Terminology - Part 3: General terms relating to sawn 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 844-12, *Round and sawn timber - Terminology - Part 12: Additional terms and general index*

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 13556, *Round and sawn timber - Nomenclature of timbers used in Europe*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 336, EN 844-3, EN 844-9, EN 844-10, EN 844-12 and EN 14081-1 and the nomenclature in EN 13556 and the following apply.

3.1

bark pocket

bark that is partly or wholly enclosed in the wood

3.2**bore hole**

hole or tunnel in timber caused by insects

3.3**boxed heart**

pith that is present and not visible on any face or edge

3.4**brittleheart**

wood characterized by abnormal brittleness, mostly located in the heart

3.5**compression creases**

buckling of fibres across the grain as a consequence of excessive internal growth stresses or external forces

3.6**interlocked grain**

grain in which cells in succeeding growth periods incline alternately in opposite directions that are different from that of the axis of the tree

3.7**fissure**

longitudinal separation of the fibres

3.8**pinhole**

bore hole usually not more than 2 mm in diameter

3.9**pin knot**

round or oval knot, sound, intergrown or partially intergrown, with a maximum size of 5 mm

3.10**resin pocket**

lens-shaped cavity in timber containing, or that has contained, resin

3.11**resin canal**

longitudinal separation of the fibres containing resin appearing on a face or edge of the piece of timber

3.12**slope of grain**

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

3.13**thickness**

lesser dimension perpendicular to the longitudinal axis of the piece of timber

Note 1 to entry: This is the size of the edge.

3.14

tropical hardwood

wood of angiosperm trees of the botanical group dicotyledons whose natural distribution lies substantially South of the Tropic of Cancer and north of the Tropic of Capricorn

Note 1 to entry: Unlike temperate hardwood, tropical hardwood is typically free of gross anatomical features that indicate the rate of growth, such as annual growth increments.

3.15

width

greater dimension perpendicular to the longitudinal axis of the piece of timber

Note 1 to entry: This is the size of the face.

4 Strength graded timber

4.1 Supervision of strength grading operations

As specified in EN 14081-1, visual strength grading operations shall be carried out by a competent person, or people working within a company under the close supervision of competent persons.

4.2 Sizes

Timber graded to this standard shall conform to EN 336 with respect to its permissible deviations with the following exceptions:

- the minimum thickness at the time of grading shall be 22 mm;
- the minimum cross-sectional area at the time of grading shall be 2 200 mm².

4.3 Processing of visually graded timber

Visually graded timber shall no longer conform to this standard if its cross-section is reduced in size through subsequent processing by more than:

- a) 5 mm for dimensions 22 ≤ to 100 mm, or;
- b) 10 mm for dimensions > 100 mm.

Where graded timber is reduced in cross section beyond the above limits, it shall be re-graded if it is to conform to this standard.

Where graded timber is reduced in length, or a piece of graded timber is cross-cut into two or more pieces, each resulting piece may be assumed to conform to the permissible limits of characteristics in Table 1 of this standard.

4.4 Moisture content

Dry graded timber shall have at the time it is graded for fissures and distortion a mean moisture content of 20 % or less with no individual measurement exceeding 24 %.

NOTE The end use determines whether timber needs to be dry graded or not. If timber is not dry graded, it may be needed to check fissures and distortion also at the time of end use.

5 Measurement of strength-reducing characteristics

5.1 Knots

5.1.1 General

The size of the knot shall be related to the width or thickness on the basis of linear values.

Methods of measurements of knots are given in EN 1310. The “alternative method” shall be used, whereby the size of the knot is measured in a direction perpendicular to the longitudinal axis of the piece of timber (Figure 1).

Knots are accumulative if longitudinal separation between the edges of the knots is either less than twice the width or 300mm (whichever is the lesser), or when the grain has not fully recovered.

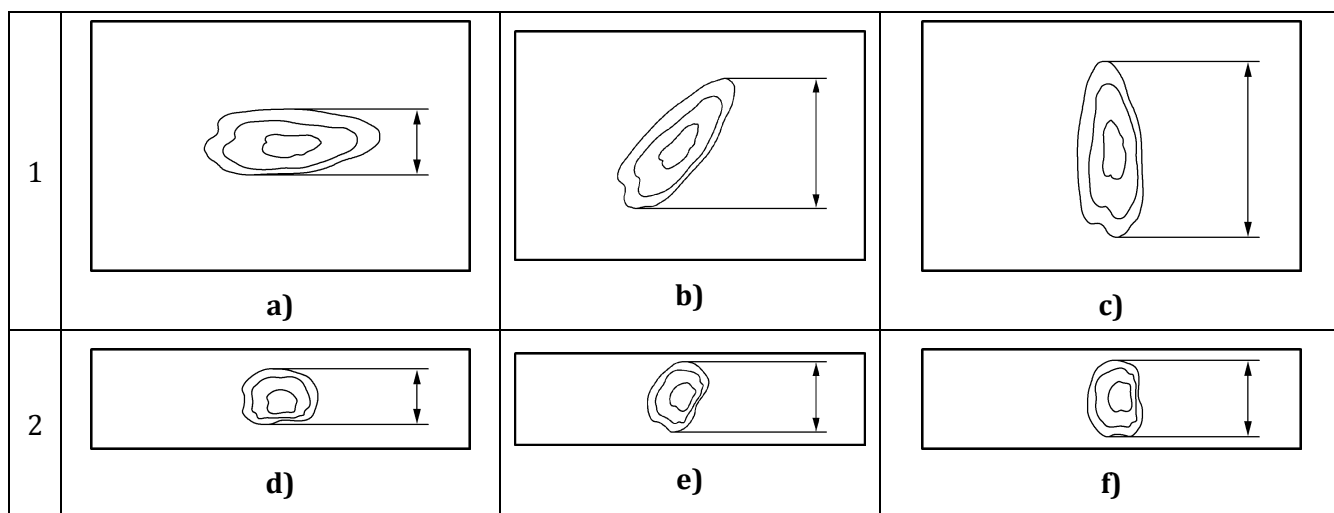


Figure 1 — Measuring knot sizes 1 on faces and 2 on edges

5.1.2 Knot size: requisite comparisons

For knots that are contained entirely within a single face or edge, the size of the knot shall be compared to the full size of the face or edge in which it appears (Figure 2).