BS EN 13629:2012

BSI Standards Publication

Wood flooring — Solid individual and pre-assembled hardwood boards

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National foreword

This British Standard is the UK implementation of EN 13629:2012. It supersedes BS EN 13629:2002 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/543, Round and sawn timber.

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

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13629

April 2012

ICS 79.080

Supersedes EN 13629:2002

English Version

Wood flooring - Solid individual and pre-assembled hardwood boards

Plancher en bois - Lame à plancher massive individuelle ou pré-assemblée en bois feuillus

Holzfußböden - Massive Laubholzdielen und zusammengesetzte massive Laubholzdielen-Elemente

This European Standard was approved by CEN on 9 March 2012.

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Foreword

This document (EN 13629:2012) has been prepared by Technical Committee CEN/TC 175 “Round and sawn timber”, 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of an identical text or by endorsement, at the latest by October 2012, and conflicting national standards shall be withdrawn at the latest by October 2012.

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 13629:2002.

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1 Scope

This European Standard specifies the characteristics of individual hardwood boards and pre-assembled hardwood boards with grooves and/or tongues for internal use as flooring. This document covers hardwood boards with or without surface coating.

This European Standard does not cover solid parquet elements. (See Annex C).

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 351-1, *Durability of wood and wood-based products — Preservative-treated solid wood — Part 1: Classification of preservative penetration and retention*

EN 460, *Durability of wood and wood-based products — Natural durability of solid wood — Guide to the durability requirements for wood to be used in hazard classes*

EN 844-1:1995, *Round and sawn timber — Terminology — Part 1: General terms common to round timber and sawn timber*

EN 844-3:1995, *Round and sawn timber — Terminology — Part 3: General terms relating to sawn timber*

EN 844-4:1997, *Round and sawn timber — Terminology — Part 4: Terms relating to moisture content*

EN 844-6:1997, *Round and sawn timber — Terminology — Part 6: Terms relating to dimensions of sawn timber*

EN 844-7:1997, *Round and sawn timber — Terminology — Part 7: Terms relating to anatomical structure of timber*

EN 844-9:1997, *Round and sawn timber — Terminology — Part 9: Terms relating to features of sawn timber*

EN 844-10:1998, *Round and sawn timber — Terminology — Part 10: Terms relating to stain and fungal attack*

EN 844-11:1998, *Round and sawn timber — Terminology — Part 11: Terms relating to degrade by insects*

EN 844-12:2000, *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 1311, *Round and sawn timber — Method of measurement of biological degrade*

EN 1534, *Wood flooring — Determination of resistance to indentation — Test method*

EN 13183-1, *Moisture content of a piece of sawn timber — Part 1: Determination by oven dry method*

EN 13183-2, *Moisture content of a piece of sawn timber — Part 2: Estimation by electrical resistance method*

EN 13647, *Wood flooring and wood panelling and cladding — Determination of geometrical characteristics*

EN 13756:2002, *Wood flooring — Terminology*

EN 14298, *Sawn timber - Assessment of drying quality*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 844-1:1995, EN 844-3:1995, EN 844:4:1997, EN 844-6:1997, EN 844-7:1997, EN 844-9:1997, EN 844-10:1998, EN 844-11:1998, EN 844-12:2000, EN 13756:2002 and the following apply.

3.1
Solid individual hardwood board
wide and generally long solid (single layer) hardwood element which has parallel sides, is machined to a regular thickness and profile(s) with profiled edges and ends and is capable of being assembled with other analogous elements (See Figure 1)

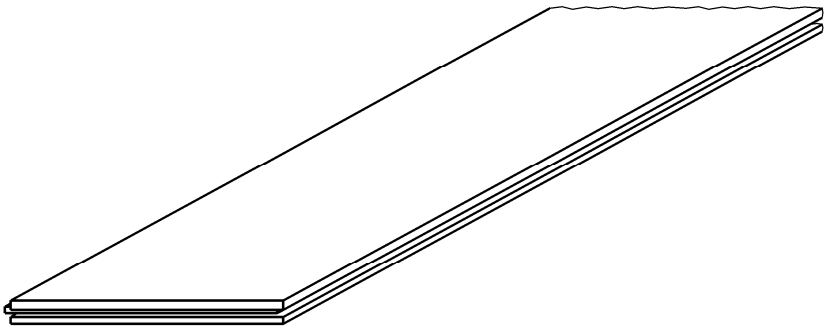


Figure 1 — Individual hardwood board

3.2
solid pre-assembled hardwood board
wide and generally long solid (single-layer) hardwood element, pre-assembled from several strips in length and width by dovetailing, edge gluing and end jointing which has parallel sides, is machined to a regular thickness and profile(s) with profiled edges and ends, and is capable of being assembled with other analogous elements (see Figure 2)

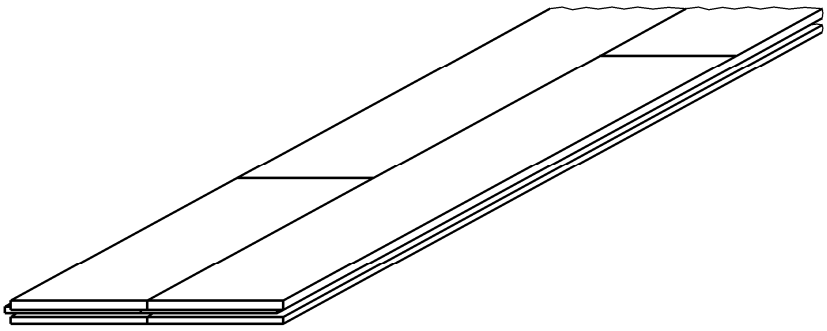


Figure 2 – Solid pre-assembled hardwood board

3.3
strip
smallest single item forming the pre-assembled board

3.4
thickness above the groove
thickness between the face and any discontinuity such as a change in the profile (excluding chamfering), a groove/glue pocket or a glue line (excluding the glue line of dove-tail joints)

4 Specific product requirements

4.1 Wood species

A list of the most commonly used hardwood species for wood flooring as described in this standard is given in Annex A.

4.2 Finishing

The product may be delivered with a factory applied surface coating which allows the product to be taken into use immediately after installation. The surface treatment used and any artificial change of the natural wood colour shall be stated in the product description.

4.3 Appearance

4.3.1 General rules

Tables 1 to 4 define the classification relating to appearance rules for the face and for the non-visible parts (back and edges) of an element of the most commonly used species for solid wood flooring as defined in this standard.

Features shall be measured according to EN 1310 (knots assessed according to the general method of 4.1 in EN 1310:1997). Bio deterioration, permitted only for certain appearance classes (see table 1 to 4) is measured according to EN 1311.

A classification with three appearance classes is specified, designated○, △ and□.

A classification named "Free class" is based on the principles laid out in Annex B.

The face shall include all the visible surface of the element.

Any continuous glue joint which allows renovation without significantly changing the appearance or the functional characteristics is acceptable.

4.3.2 Classification

The class shall be specified.

The decorative appearance of each species will vary with class.

NOTE It should be noted that some classes allow many natural characteristics. This fact should be taken into account when specifying decorative appearance.

4.3.3 Rules for the most commonly used species

4.3.3.1 Quercus spp. (oak)

Rules for oak are given in Table 1.

Table 1 — Classification for *Quercus* spp. (oak)

Face of the element			
Features	**Class**		
	○	Δ	□
Sound sapwood	Permitted up to 10 % of the face, if distributed	Permitted up to 50 % of the face, if distributed	All possible features permitted without limit to size or quantity if these do not impair the strength or the wearing quality of the wood flooring.
Knots [a] Sound and intergrown Unsound	Permitted if: diameter ≤ 15 mm diameter ≤ 5 mm	Permitted if: diameter ≤ 35 mm diameter ≤ 25 mm	
Checks	Not permitted	Permitted up to 50 mm in length per strip	
Bark pockets	Not permitted	Not permitted	
Lightning shake	Not permitted	Permitted	
Slope of grain	Permitted, no limit	Permitted, no limit	
Colour variation	Permitted	Permitted	
Medullary ray	Permitted	Permitted	
Biodeterioration	Not permitted	Not permitted	Not permitted, except blue stain and black holes
Non-visible parts			
All possible features permitted without limit to size or quantity if these do not impair the strength or the wearing quality of the wood flooring.			

[a] Cracks in knots and knot holes shall be filled (repaired by sealing with filler).

4.3.3.2 Fagus sylvatica (European beech)

Rules for European beech are given in Table 2.

Table 2 — Classification for *Fagus sylvatica* (European beech)

Face of the element			
Features	**Class**		
	○	Δ	□
Sound sapwood	Not applicable	Not applicable	Not applicable
Knots [a] Sound and intergrown Unsound	Permitted if: diameter ≤ 10 mm diameter ≤ 5 mm	Permitted if: diameter ≤ 33 mm [b] diameter ≤ 10 mm [b]	All possible features permitted without limit to size or quantity if these do not impair the strength or the wearing quality of the wood flooring.
Checks	Very fine and significant checks permitted	Fine and significant checks permitted	
Bark pockets	Not permitted	Not permitted	
Lightning shake	Not permitted	Permitted	
Slope of grain	Permitted, no limit	Permitted, no limit	
Colour variation	Permitted [b]	Permitted	
Red heart	Not permitted	Permitted up to 50 % of the face, if distributed	
Stick marks	Not permitted	Permitted	Permitted
Medullary ray	Permitted	Permitted	Permitted
Biodeterioration	Not permitted	Not permitted	Not permitted, except blue stain and black holes
Non-visible parts			
All possible features permitted without limit to size or quantity if these do not impair the strength or the wearing quality of the wood flooring.			

[a] Cracks in knots and knot holes shall be filled (repaired by sealing with filler).

[b] Permitted for steamed beech.

4.3.3.3 Fraxinus excelsior (European ash) and Acer spp. (maple)

Rules for European ash and maple are given in Table 3.

Table 3 — Classification for *Fraxinus excelsior* (European ash) and *Acer* spp. (maple)

Face of the element			
Features	**Class**		
	○	Δ	□
Sound sapwood	Not applicable	Not applicable	Not applicable
Knots [a] Sound and intergrown European ash maple Unsound knots	Permitted if: diameter ≤ 15 mm diameter ≤ 10 mm diameter ≤ 5 mm, if not grouped together [b]	Permitted if: diameter ≤ 35 mm diameter ≤ 33 mm diameter ≤ 2 mm	All possible features permitted without limit to size or quantity if these do not impair the strength or the wearing quality of the wood flooring.
Checks	Not permitted	Permitted up to 50 mm	
Bark pockets	Not permitted	Not permitted	
Lightning shake	Not permitted	Not permitted	
Slope of grain	Permitted, no limit	Permitted, no limit	
Colour variation	Permitted	Permitted [c]	
Red heart	Not permitted	Permitted up to 50 % of the face, if distributed	
Stick marks	Not permitted	Permitted	
Medullary ray	Permitted	Permitted	
Biodeterioration	Not permitted	Not permitted	Not permitted, except blue stain and black holes
Non-visible parts			
All possible features permitted without limit to size or quantity if these do not impair the strength or the wearing quality of the wood flooring.			

[a] Cracks in knots and knot holes shall be filled (repaired by sealing with filler).

[b] Knots are grouped together if the distance separating them, measured from edge to edge, does not exceed 30 mm.

[c] Blackheart permitted for European ash.

4.3.3.4 Other hardwoods

Rules for other hardwoods are given in Table 4.

Table 4 — Classification for other hardwoods

Face of the element			
Features	**Class**		
	○	Δ	□
Sound sapwood	Not permitted	Permitted	Slight traces permitted
Knots Sound and intergrown Unsound knots	Permitted if: diameter ≤ 5 mm diameter ≤ 3 mm	Permitted if: diameter ≤ 10 mm diameter ≤ 5 mm	All possible features permitted without limit to size or quantity if these do not impair the strength or the wearing quality of the wood flooring.
Checks	Not permitted	Not through going. Permitted if the width ≤ 0,5 % of the width of the element	
Bark pockets	Not permitted	Not permitted	
Lightning shake	Not permitted	Not permitted	
Slope of grain	Permitted, no limit	Permitted, no limit	
Colour variation	Permitted	Permitted	
Medullary ray	Permitted	Permitted	
Biodeterioration	Not permitted	Not permitted	Not permitted, except blue stain and black holes
Non-visible parts			
All possible features permitted without limit to size or quantity if these do not impair the strength or the wearing quality of the wood flooring.			

4.3.4 Free class

The free class covers any species which may be used for wood flooring and for which hardness HB has a minimum mean value of 10 N/mm^2. Hardness shall be measured according to EN 1534. The free class covers any classification which the producer wishes to offer or which is requested by the buyer. The proportions or limits of features shall be specifically indicated in the producer's literature/data sheets, in conformity with Annex B and stated according to Table B.1.

NOTE 10 N/mm^2: approximately 1 kgf/mm^2

4.3.5 Natural colours

Timber colours are mainly dependent on the wood species.

NOTE All timber varies in colour when exposed to light over a period of time.

4.4 Moisture content

The target moisture content at the time of the first delivery of the product shall be between 6 % and 12 % according to EN 14298 (see Annex D).

The moisture content shall be measured with an electric moisture meter in accordance with EN 13183-2. In case of dispute, the moisture content shall be determined by oven-drying in accordance with EN 13183-1.

4.5 Geometrical characteristics

4.5.1 Dimensions

All dimensions are given at a reference moisture content of 9 %.

The methods of measurement of geometrical characteristics are given in EN 13647.

Unless there is evidence to the contrary, it shall be assumed that the thickness and width of a piece of timber increase by 0,25 % for every 1 % of moisture content above the reference moisture content, and decrease by 0,25 % for every 1 % of moisture content below the reference moisture content.

The dimensions given in Table 5 are common dimensions.

Table 5 — Dimensions

Dimensions in millimetres

	Thickness	Width	Lengths
Individual hardwood board	≥ 10	≥ 90	≥ 400
pre-assembled hardwood board	≥ 10	≥ 110	≥ 900

4.5.2 Permitted deviations

4.5.2.1 Limit deviations from nominal dimensions of the element

The limit deviations of dimensions of elements at all points at the time of the first delivery are shown in Tables 6 and 7.

Table 6 — Limit deviations from nominal dimensions of an unfinished individual board

Dimension	Limit deviation
Length	± 2,0 mm
Width	± 1,0 mm
Thickness	± 1,0 mm
Lipping (between elements)	≤ 0,3 mm
Cup	≤ 0,7 %
NOTE Unfinished boards should be prepared so that deviation in width between contiguous pieces when laid do not exceed 0,5 mm.	

Table 7 — Limit deviations from nominal dimensions of a pre-finished board

Dimension	Limit deviation
Length	± 2,0 mm
Width	± 0,3 %
Thickness	± 0,3 mm
Lipping	≤ 0,3 mm
Cup	≤ 0,7 %
NOTE Pre-finished boards should be prepared so that deviation in width between contiguous pieces when laid do not exceed 0,25 mm.	

4.5.2.2 Squareness and other angular deviations

The deviation from all the 90° angles and from required angles for specific patterns shall not exceed 0,2 % measured across the width.

4.5.2.3 Bow

Bow shall be evaluated taking into account the thickness, the length, the species and the method of laying.

If the elements are to be installed by gluing only, this shall be stated when ordering. For such elements, bow shall not exceed 0,5 % of the length at the time of the first delivery.

4.5.2.4 Spring

Spring shall be evaluated taking into account the thickness, the length, the species and the method of laying.

For lengths not exceeding 1 m, spring shall not exceed 0, 5 ‰ of the considered length at the time of the first delivery.

For lengths more than 1 m, spring shall not exceed 2 ‰ of the considered length at the time of the first delivery.

If the elements are to be installed by gluing only, this shall be stated when ordering. For such elements, spring shall not exceed 1 ‰ of the length at the time of the first delivery.

4.5.3 Machining

All pieces shall be accurately machined and shall be smoothly finished on the face on boards without surface treatment. Slightly torn grain or similar feature is admissible if it can readily be removed by the ordinary process of sanding the floor after it has been laid in preparation for finishing.

4.5.4 Profile

The element shall be precisely machined, properly sanded and shall have tongue and/or groove on all sides to make an effective laying possible.

4.6 Characteristics required when in service

4.6.1 General

Typical values for wood hardness shall be determined by the test defined in EN 1534.

The laying instructions shall be supplied by the producer/supplier.

NOTE The elements specified in this standard will be part of a total floor construction and can only meet the technical demands on the wood flooring when in service if specified and installed according to the laying instructions or usual specifications.

4.6.2 Species

Hardwood species shall be specified. A list of the most commonly used species (hardwood) is given in Annex A.

For appearance rules and natural colours, refer to 4.3.

NOTE Wood species exhibit natural colour and grain. Each species and consignment will have varied decorative appearance according to the procurement area.

4.6.3 Renovation and repair

The solid element as described in this European Standard shall be capable of undergoing renovation at least twice, if not subject to excessive wear and tear or if renovation does not remove an excessive amount of wood.

The construction shall be such that the element shall be capable of being replaced.

5 Marking

Each package defined by the manufacturer at the time of the first delivery shall be clearly identified as follows:

— The type of product, and if applicable its trade name;

— the designation the appearance class (Δ, O, or appropriate designation for free class(es));

— the nominal length of the element, in millimetres and the number of elements; or

— if random, the mean length, in millimetres; or

— the total length, in metres; and

— the number of elements;

— the nominal width and commercial thickness, in millimetres;

— the laid measure in square metres;

— the trade name of the species;

— patterns, if applicable;

— if required, the durability class (see EN 460) or preservative treatment (see EN 351-1) against biodeterioration;

— indication of the laying mode;

— reference to this standard, EN 13629.

Annex A
(informative)

Botanical and trade names of the most commonly used species for hardwood flooring

Table A.1 contains the botanical and trade names of the most commonly used species for wood flooring in Europe (for more information, refer to EN 13556).

Table A.1 — Species for wood flooring

Botanical species Espèce botanique Botanische Art	Code	Source	Standard name	Nom standard	Handelsüblicher Name
Acer campestre L.	ACCM	EU	field maple	érable champêtre	Feldahorn
Acer saccharum Marsh. (principally)	ACSC	AM (N)	rock maple	érable d'Amérique	Zuckerahorn
Acer pseudoplatanus L.	ACPS	EU	sycamore	érable sycomore	Bergahorn
Acer spp.	-	-	maple	érable	Ahorn
Aextoxicon punctatum	-	-	-	olivillo	-
Afzelia spp., principally *A. bipindensis* Harms *A. pachyloba* Harms	AFXX	AF	afzelia	doussié	Afzelia
Alnus glutinosa (L.) Gaertn.	ALGL	EU	common alder	aulne glutineux	Schwarzerle
Alnus incana (L.) Moench	ALIN	EU	grey alder	aulne blanc	Grauerle
Androstachys johnsonii	-	-	-	mecrussé	Mecrusse
Anisoptera spp.	ANXX	AS	mersawa	mersawa	Mersawa
Baillonella toxisperma Pierre	BLTX	AF	moabi	moabi	Moabi
Beilschmiedia spp.	-	AU	tawa	kanda	Kanda

Table A.1 — Species for wood flooring *(continued)*

Botanical species Espèce botanique Botanische Art	Code	Source	Standard name	Nom standard	Handelsüblicher Name
Betula pendula Roth *B. pubescens* Ehrh	BTXX	EU	European birch	bouleau d'Europe	Birke, Gemeine
Bowdichia nitida Benth.	BWNT	AM(S)	sucupira	sucupira	Sucupira
Brachylaena hutchinsii Hutch.	BYHT	AF	muhuhu	muhuhu	Muhuhu
Brachystegia spp.	BRXX	AF	okwen	naga	Naga
Calophyllum spp.	CLXX	AS	bintangor	bintangor	-
Castanea sativa Mill.	CTST	EU	sweet chestnut	châtaignier	Edelkastanie
Celtis spp.	CJXX	AF	African celtis	diania ; ohia	Ohia
Copaifera salikounda Heckel	CFSL	AF	etimoé	etimoé	Etimoé
Dacryodes igaganga	-	-	-	igaganga	-
Dacryodes pubescens	-	-	-	safoukala	Safoukala
Dacryodes buettneri H.J.Lam	DABT	AF	ozigo	ozigo	Ozigo
Dicorynia guianensis Amsh.	DIGN	AM (S)	basralocus	angélique	Angelique
Dipterocarpus spp.	DPXX	AS	keruing	keruing	Keruing
Entandrophragma angolense (Welw.) C. DC.	ENAN	AF	gedu nohor	tiama	Tiama Mahagoni
Entandrophragma cylindricum (Sprague) Sprague	ENCY	AF	sapele	sapelli	Sapelli Mahagoni
Entandrophragma utile (Dawe & Sprague) Sprague	ENUT	AF	utile	sipo	Sipo Mahagoni
Erythrophleum ivorense A. Chev *E. suaveolens* (Guill. & Perr.) Brenan	EYXX	AF	missanda	tali	Tali
Eucalyptus delegatensis R. T. Bak. *E. obliqua* L'Hérit *E. regnans* F. Muell.	EUXX	AP	"Tasmanian oak"	eucalyptus de Tasmanie	Tasmanian "oak"
Fagus sylvatica L.	FASY	EU	European beech	hêtre	Buche
Fraxinus excelsior L.	FXEX	EU	European ash	frêne commun	Esche

Table A.1 — Species for wood flooring *(continued)*

Botanical species Espèce botanique Botanische Art	Code	Source	Standard name	Nom standard	Handelsüblicher Name
Gambeya africana Pierre *G. lacourtiana* Aubr. & Pellegr. *G. subnuda* Pierre	GAXX	AF	longhi	longhi	Aningré
Gilbertiodendron dewevrei J. Léon.	GBDW	AF	limbali	limbali	Limbali
Guibourtia arnoldiana (De Wild. & Th. Dur.) J. Léon.	GUAR	AF	mutenye	mutényé	Mutenye
Guibourtia ehie (A. Chev.) J. Léon.	GUEH	AF	ovangkol	ovangkol	Ovenkol
Heritiera spp.	HEXM	AS	mengkulang	mengkulang	Mengkulang
Hymenolobium spp.	-	-	-	sapupira amarella	-
Intsia bijuga (Colebr.) O. Ktze. *I. palembanica* Miq.	INXX	AS	merbau	merbau	Merbau
Juglans nigra L.	JGNG	AM(N)	American walnut	noyer noir d'Amérique	Schwarznußbaum
Juglans regia L.	JGRG	EU	European walnut	noyer	Nußbaum
Letestua durissima	-	-	-	congtali	-
Lophira alata Banks ex Gaertn. f.	LOAL	AF	ekki	azobé	Azobé
Manilkara bidentata (D.C.) Chev. *M. huberi* Ducke	MNXX	AM(S)	massaranduba	maçaranduba	Massaranduba
Mansonia altissima A. Chev.	MAAL	AF	mansonia	mansonia	Mansonia
Milicia excelsa (Welw.) C.C. Berg *M. regia* (A. Chev.) C.C. Berg	MIXX	AF	iroko	iroko	Iroko
Millettia laurentii De Wild.	MTLR	AF	wengé	wengé	Wengé
Millettia stuhlmannii Taub.	MTST	AF	panga panga	wengé	Panga Panga

Table A.1 — Species for wood flooring *(continued)*

Botanical species Espèce botanique Botanische Art	Code	Source	Standard name	Nom standard	Handelsüblicher Name
Morus mesozygia *M. lactea*	-	-	-	difou	-
Nauclea diderrichii (De Wild. & Th. Durr.) Merr.	NADD	AF	opepe	bilinga	Bilinga
Nesogordonia papaverifera *(Cistanthera papaverifera)* (A. Chev.) Capuron	NEPP	AF	danta	kotibé	Kotibé
Ocotea rubra Mez	OCRB	AM(S)	red louro	louro vermelho	Louro vermelho
Palaquium spp.	PPXX	AS	nyatoh	nyatoh	Nyatoh
Paratecoma peroba (Record) Kuhlm.	PAPR	AM(S)	white peroba	peroba de campos	Peroba da campos
Peltogyne spp.	PGXX	AM(S)	purpleheart	amarante	Amarant
Pericopsis elata (Harms) van Meeuwen	PKEL	AF	afrormosia	afrormosia	Afrormosia
Piptadeniastrum africanum (Hook. f.) Brenan	PIAF	AF	dahoma	dabéma	Dabema
Pometia pinnata Forst. *P. tomentosa*	PMPN	AS;AP	taun	kasai	Kasai
Prunus avium L.	PRAV	EU	European cherry	merisier	Kirschbaum;Vogelkirsche
Prunus serotina Ehrh.	PRSR	AM(N)	American cherry	merisier d'Amérique	Amerikanische Kirsche
Pterocarpus angolensis DC.	PTAN	AF	muninga	muninga	Muninga
Pterocarpus soyauxii Taub. *P. osun* Craib	PTXX	AF	African padauk	padouk	Afrikanisches Padouk
Qualea spp.	-	-	-	Gronfolo rose	-
Quercus petraea (Matt.) Liebl. *Q. robur* L.	QCXE	EU	European oak	chêne blanc européen	Eiche
Quercus spp. including *Q. alba* L. and other spp.	QCXA	AM(N)	American white oak	chêne blanc d'Amérique	Weißeiche
Quercus spp. including *Q. rubra* L.	QCXR	AM(N)	American red oak	chêne rouge d'Amérique	Roteiche

Table A.1 — Species for wood flooring *(end)*

Botanical species Espèce botanique Botanische Art	Code	Source	Standard name	Nom standard	Handelsüblicher Name
Shorea spp. principally *S. atrinervosa* *S. ciliata*	SHBL	AS	balau	balau	Balau
Shorea spp. principally *S. guiso* (Blanco) Bl. *S. kunstleri* King	SHRB	AS	red balau	red balau	Red Balau
Shorea spp. principally *S. bracteolata* *S. hypochra* *S. floribunda* *S. sericuflora*	SHWM	AS	white meranti	meranti blanc	Weisses Meranti
Shorea spp. principally *S. curtini* *S. pauciflora*	SHDR	AS	dark red meranti	dark red meranti	Dunkelrotes Meranti
Sindoropsis letestui J. Léon.	SPLT	AF	ghéombi	ghéombi	Ghéombi
Staudtia stipitata Warb. *S. kamerunensis*	SSST	AF	niové	niové	Niove
Sterculia rhinopetala K Schum.	STRH	AF	brown sterculia	lotofa	Lotofa
Swietenia macrophylla King	SWMC	AM(C&S)	American mahogany	mahogany	Amerikanisches Mahagoni
Swietenia mahagoni Jacq.	SWMH	AM(C)	American mahogany	mahogany	Echtes Mahagoni
Tabebuia spp.	AM(S)	-	-	ipé	-
Tectona grandis L. f.	TEGR	AS	teak	teck	Teak
Testulea gabonensis Pellegr.	TZGB	AF	izombé	izombé	Izombé
Tieghemella africana Pierre	TGAF	AF	makoré	makoré	Douka
Tieghemella heckelii Pierre ex A. Chev.	TGHC	AF	makoré	makoré	Makoré
Ulmus procera Salisb.	ULPR	EU	English elm	orme champêtre	Englische Ulme
Ulmus x hollandica Mill.	ULXH	EU	Dutch elm	orme de Hollande	Holländische Ulme
Vouacapoua americana *V. pallidior* *V. macropetala*	-	-	-	wacapou	-

Annex B
(normative)

Principles for the classification of the free class

The free class is an appearance class with a particular selection offered by the producer or requested by the user.

The free class shall be described with all the features given in Table B.1 and their requirements. The features shall be measured according to EN 1310.

The same species may have several different values for each feature to have several selections.

Table B.1 — Classification for hardwood species

Face of the element	
Feature	**Limit**
Sound sapwood	
Knots (sound, intergrown, unsound)	
Yellow stain	
Checks	
Bark pocket	
Lightning shake	
Curly grain	
Slope of grain	
Sound heart	
Colour variation (incl. blackheart, red heart, etc.)	
Filling	
Stick marks	
Medullary ray	
Biodeterioration	
Non-visible parts	
All possible features permitted without limit to size or quantity if these do not impair the strength or the wearing quality of the wood flooring.	

Annex C
(informative)

Comparison between EN 13226 and EN 13629

Table C.1 — Comparison between EN 13226 and EN 13629

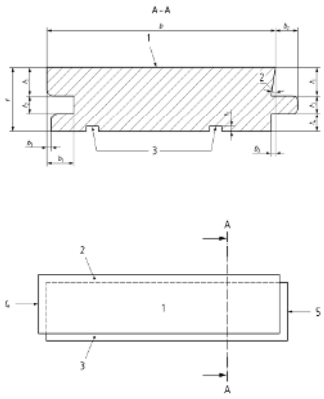
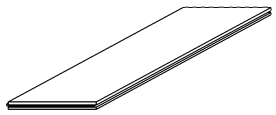
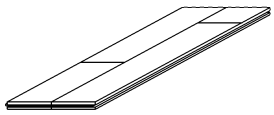
	EN 13226 - Wood flooring - Solid parquet elements with grooves and/or tongues	**13629 -Individual hardwood board**	**EN 13629 -Solid pre-assembled hardwood**
	 Element of type 1.		
Terms and definitions	Parquet elements with grooves and/or tongues for internal use as flooring.	A wide and generally long solid (single layer) hardwood element. This element has parallel sides, is machined to a regular thickness and profile(s) with profiled edges and ends and is capable of being assembled with other analogous elements	A wide and generally long solid (single-layer) hardwood element, pre-assembled from several strips by dovetailing, edge gluing and end jointing. This element has parallel sides, is machined to a regular thickness and profile(s) with profiled edges and ends, and is capable of being assembled with other analogous elements
Moisture content	Between 7 % and 11 % at the first delivery (Between 7 % and 13 % at the first delivery for Maritime Pine and Chesnut)	Between 6 % and 12 % at the first delivery	Between 6 % and 12 % at the first delivery.

Table C.1 ***(continued)***

Geometrical characteristics			
Dimensions at 9% Thickness Width Length	 ≥ 14 mm ≥ 40 ≥ 250	 ≥ 10 ≥ 90 ≥ 400	 ≥ 10 ≥ 110 ≥ 900
Permitted deviations	Length ± 0,5 mm Width ± 0,5mm Thickness ± 0,2 mm Cup 0,5 % Width Squareness and other angular deviations 0,2 % measured across the width. Bow shall not exceed 0,5 % of the length (If the elements are to be installed by gluing.	Length ± 2,0 mm Width ± 1,0 mm Thickness ± 1,0 mm Cup 0,7 % Squareness and other angular deviations 0,2 % measured across the width. Bow shall not exceed 0,5 % of the length (If the elements are to be installed by gluing	Length ± 2,0 mm Width ± 0,3 % Thickness ± 0,3 mm Lipping ≤ 0,3 mm Cup ≤ 0,7 % Squareness and other angular deviations 0,2 % measured across the width. Bow shall not exceed 0,5 % of the length (If the elements are to be installed by gluing.

Table C.1 *(end)*

Spring.	For lengths ≤1m spring shall not exceed 0,5 ‰ of the considered length For lengths >1m spring shall not exceed 1 ‰ If the elements are to be installed by gluing, spring shall not exceed 0,5 ‰ .	For lengths not exceeding 1 m, spring shall not exceed 0,5 ‰ of the considered length at the time of the first delivery. For lengths more than 1 m, spring shall not exceed 2 ‰ of the considered length at the time of the first delivery. If the elements are to be installed by gluing only, this shall be stated when ordering. For such elements, spring shall not exceed 1 ‰ of the length at the time of the first delivery.	For lengths not exceeding 1 m, spring shall not exceed 0,5 ‰ of the considered length at the time of the first delivery. For lengths more than 1 m, spring shall not exceed 2 ‰ of the considered length at the time of the first delivery. If the elements are to be installed by gluing only, this shall be stated when ordering. For such elements, spring shall not exceed 1 ‰ of the length at the time of the first delivery.
Machining Profile	All pieces shall be accurately machined and shall be smoothly finished on the face of elements without surface treatment. Slightly torn grain or similar feature is admissible if it can readily be removed by the ordinary process of sanding the wood flooring after it has been laid in preparation for finishing. A slight misplaning, not exceeding 1/3 of the length on the back, is allowed if it does not extend to either end of the element. Misplaning of the edge of the tongue is admissible but a minimum 3 mm width b2 shall be maintained. The horizontal portion of the tongue may reduce to 2,5 mm for b < 70 mm and 3 mm for b ≥ 70 mm, but this is restricted to 10 % of the length of any element.	The element shall be precisely machined, properly sanded and shall have tongue and/or groove on all sides to make an effective laying possible.	The element shall be precisely machined, properly sanded and shall have tongue and/or groove on all sides to make an effective laying possible.

Annex D
(informative)

Moisture content

“The serviceability and long-term performance of wood products is influenced in nearly all cases by the moisture content of the wood used in the manufacture of those products. This annex sets out the requirements for moisture content suited to different environments and tolerance limits appropriate for those moisture contents.

The variability inherent in all timber and the ease or difficulty of drying different species with available kiln technology makes drying to constant moisture contents effectively impossible. A range of target moisture contents, and an allowable range of average moisture content around each target moisture content, for ‘standard drying’ is set out in EN 14298.

This does not, however, guarantee that all pieces within the same batch/consignment will be within the target moisture content tolerance limits. For this reason EN 14298 also specifies the number of pieces in a single batch or lot which shall have individual moisture content between the stipulated upper and lower limits.

In some cases it may be appropriate to specify target moisture content with tighter tolerances than those available with ‘standard drying’. EN 14298 sets out what should be stipulated for ‘Drying for specific end-use and certain species’ and provides guidance on what tolerances should be expected with this enhanced drying. EN 14298 also sets out requirements for what should be expected as maximum amounts of non-compliant pieces within a batch of kiln dried timber.”

Bibliography

EN 13226, *Wood flooring - Solid parquet elements with grooves and/or tongues*

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