BS EN 14915:2013

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Solid wood panelling and cladding — Characteristics, evaluation of conformity and marking

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National foreword

This British Standard is the UK implementation of EN 14915:2013. It supersedes BS EN 14915:2006 which is withdrawn.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.

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

ISBN 978 0 580 80019 1

ICS 79.080

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 November 2013.

Amendments issued since publication

Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14915

September 2013

ICS 79.080

Supersedes EN 14915:2006

English Version

Solid wood panelling and cladding - Characteristics, evaluation of conformity and marking

Lambris et bardages bois - Caractéristiques, évaluation de conformité et marquage

Wand- und Deckenbekleidungen aus Massivholz - Eigenschaften, Bewertung der Konformität und Kennzeichnung

This European Standard was approved by CEN on 8 August 2013.

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Foreword

This document (EN 14915:2013) 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of an identical text or by endorsement, at the latest by March 2014, and conflicting national standards shall be withdrawn at the latest by March 2014.

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 14915:2006.

In comparison with the previous edition, the entire document has been revised.

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.

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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.

1 Scope

This European Standard defines and specifies the relevant characteristics and the appropriate test methods to determine these characteristics for solid wood products to be used as panelling and cladding (including siding) for:

— wall and ceiling panelling for internal use,

— wall and ceiling cladding for external uses.

It provides for the evaluation of conformity and the requirements for marking these products.

This European Standard does not cover panels intended for use as stiffening elements.

This European Standard does not cover suspended ceiling in wood panelling and cladding.

This European Standard does not cover the processes for treatment, surface coating or modification.

This European standard does not cover products which are produced from laminated layer section.

This European Standard covers treated, untreated and surface coated products, including those made of thermally or chemically modified wood, as well as finger jointed and edge glued products.

NOTE Prescriptions for surface coating and treatment can be found in documents valid in the place of use.

This European Standard covers products in compliance with EN 14519, EN 15146 and EN 14951, and other solid timber products manufactured for use as panelling and cladding.

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 335:2013, *Durability of wood and wood-based products — Use classes: definitions, application to solid wood and wood-based products*

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

EN 599-2, *Durability of wood and wood-based products — Performance of preventive wood preservatives as determined by biological tests — Part 2: Classification and labelling*

EN 717-1, *Wood based panels — Determination of formaldehyde release — Part 1: Formaldehyde emission by the chamber method*

EN 717-2, *Wood based panels — Determination of formaldehyde release — Part 2: Formaldehyde release by the gas analysis method*

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

EN 1309-1:1997, *Round and sawn timber — Method of measurement of dimensions — Part 1: Sawn timber*

EN 12664, *Thermal performance of building materials and products — Determination of thermal resistance by means of guarded hot plate and heat flow meter methods — Dry and moist products of medium and low thermal resistance*

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

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

EN 13756:2002, *Wood flooring — Terminology*

EN 13986, *Wood-based panels for use in construction — Characteristics, evaluation of conformity and marking*

EN ISO 354, *Acoustics — Measurement of sound absorption in a reverberation room (ISO 354)*

EN ISO 10456:2007, *Building materials and products — Hygrothermal properties — Tabulated design values and procedures for determining declared and design thermal values (ISO 10456:2007)*

EN ISO 11654, *Acoustics — Sound absorbers for use in buildings — Rating of sound absorption (ISO 11654)*

EN ISO 12572, *Hygrothermal performance of building materials and products - Determination of water vapour transmission properties (ISO 12572)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13756:2002, EN 844-9:1997 and EN 1309-1:1997 and the following apply.

3.1
siding
North American term, synonymous with exterior cladding; material attached to exterior of the building wall where length predominates over the other two dimensions, having reduced thickness

3.2
assembled panelling/cladding
products put together, according to their method of assembly as given by the manufacturer (e.g. joined tongue to groove), to form a panelling or cladding assembly

4 Requirements

4.1 General

Characteristics shall be assessed and declared when subject to regulatory requirements and may be assessed and declared when not subject to such requirements.

4.2 Characteristics for solid wood panelling for use on internal walls and ceilings

The following characteristics shall be determined:

— reaction to fire: see 5.1,

— release of formaldehyde: see 5.2.1,

— content of pentachlorophenol: see 5.2.2,

— water vapour permeability: see 5.4,

— sound absorption: see 5.5,

— thermal conductivity: see 5.6,

— resistance to fixings: see 5.7,

— release of other dangerous substance: see 5.3.

4.3 Characteristics for solid wood sidings for use on internal walls

The following characteristics shall be determined:

— reaction to fire: see 5.1,

— release of formaldehyde: see 5.2.1,

— content of pentachlorophenol: see 5.2.2,

— release of other dangerous substance: see 5.3,

— thermal conductivity: see 5.6,

— resistance to fixings: see 5.7.

4.4 Characteristics for solid wood sidings for use on external walls

The following characteristics shall be determined:

— reaction to fire: see 5.1,

— content of pentachlorophenol: see 5.2.2,

— release of other dangerous substance: see 5.3,

— water vapour permeability: see 5.4,

— thermal conductivity: see 5.6,

— resistance to fixings: see 5.7.

4.5 Characteristics for solid wood cladding for use on external walls and ceilings

The following characteristics shall be determined:

— reaction to fire: see 5.1,

— content of pentachlorophenol: see 5.2.2,

— release of other dangerous substance: see 5.3,

— water vapour permeability: see 5.4,

— thermal conductivity: see 5.6,

— resistance to fixings: see 5.7.

4.6 Durability against biological attack

4.6.1 Biological durability

If the species is listed in EN 350-2, the biological durability shall be as given therein; otherwise it shall be assessed in accordance with EN 350-1.

4.6.2 Timber treated against biological attack

4.6.2.1 General

Timber treated against biological attack shall meet regulatory requirements valid in the place of use of the products.

Preservative treated products shall be defined by:

— use class in accordance with EN 335,

— wood preservative in accordance with EN 599-2,

— penetration class in accordance with EN 351-1,

— retention of preservative in accordance with EN 351-1.

4.6.2.2 Timber

Any machining, boring, planing, etc. shall be completed before preservative treatment. In case of wane, the bark shall be removed.

4.6.2.3 Preservatives

Wood preservatives used shall conform to the performance requirements given in EN 599-2 appropriate for the use class.

4.6.2.4 Penetration

The minimum penetration shall be declared in terms of penetration classes listed in EN 351-1.

4.6.2.5 Retention

The mean retention in the analytical zone (see EN 351-1) shall be equal to or greater than the retention requirement for the preservative used in the declared use class.

5 Testing, assessment and sampling methods

5.1 Reaction to fire

The reaction to fire performance of a solid wood panelling and cladding product, whether treated or not, shall be classified in accordance with EN 13501-1, after being tested in accordance with the test standards given therein and the relevant reaction to fire class declared.

When tested, the product shall be mounted and fixed in accordance with the same mounting and fixing conditions used for obtaining the classification of products without the need of testing (i.e. those in relevant footnotes a to j of Table 1).

In case the product meets the requirements given in Table 1[1)] it may be classified without the need for further testing (CWFT) in one of the appropriate classes shown therein. In this case, the relevant reaction to fire class shall be declared (together with the corresponding mean density of the product, the overall thickness of the product as well as the end-use conditions).

Table 1 – Classes of reaction to fire performance

Material	Product detail [e]	Minimum mean density [f] (kg/m^3)	Minimum thickness total/ minimum [g] (mm)	End-use condition [d]	Class [c]
Panelling and cladding [a]	Wood pieces with or without tongue and groove and with or without profiled surface	390	9/6	Without air gap or with closed air gap behind	D - s2,d 2
			12/8		D - s2,d 0
Panelling and cladding [b]	Wood pieces with or without tongue and groove and with or without profiled surface	390	9/6	With open air gap ≤ 20 mm behind	D - s2,d 0
			18/12	Without air gap or with open air gap behind	
Wood ribbon elements [h]	Wood pieces mounted on a support frame [i]	390	18	Surrounded by open air on all sides [j]	D - s2,d 0

[a] Mounted mechanically on a wood batten support frame, with the gap closed or filled with a substrate of at least class A2 - s1, d0 with minimum density of 10 kg/m^3 or filled with a substrate of cellulose insulation material of at least class E and with or without a vapour barrier behind. The wood product shall be designed to be mounted without open joints.

[b] Mounted mechanically on a wood batten support frame, with or without an open air gap behind. The wood product shall be designed to be mounted without open joints.

[c] Class as provided for in Table 1 of the annex to Commission Decision 2000/147/EC.

[d] An open air gap may include possibility for ventilation behind the product, while a closed air gap will exclude such ventilation. The substrate behind the air gap shall be of at least class A2 - s1, d0 with a minimum density of 10 kg/m^3. Behind a closed air gap of maximum 20 mm and with vertical wood pieces, the substrate may be of at least class D - s2, d0.

[e] Joints include all types of joints, e.g. butt joints and tongue and groove joints.

[f] Conditioned according to EN 13238.

[g] As illustrated in Figure 1 below. Profiled area of the exposed side of the panel not more than 20 % of the plane area, or 25 % if measured at both exposed and unexposed side of the panel. For butt joints, the larger thickness applies at the joint interface.

[h] Rectangular wood pieces, with or without rounded corners, mounted horizontally or vertically on a support frame and surrounded by air on all sides, mainly used close to other building elements, both in interior and exterior applications.

[i] Maximum exposed area (all sides of rectangular wood pieces and wood support frame) not more than 110 % of the total plane area, see Figure 2.

[j] Other building elements closer than 100 mm from the wood ribbon element (excluding its support frame) shall be of at least class A2 - s1, d0, at distances 100 mm - 300 mm of at least class B - s1, d0 and at distances more than 300 mm of at least class D - s2, d0.

1) This table and Figures 1 and 2 correspond to Table 2 and Figures a and b respectively of the Commission Decision 2006/213/EC (OJEU L79/27 of 16.3.2006).

Table 1 *(continued)*

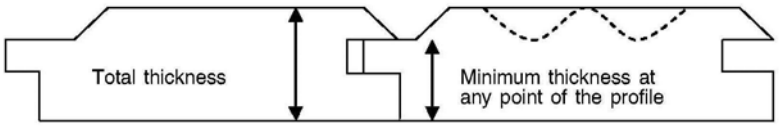
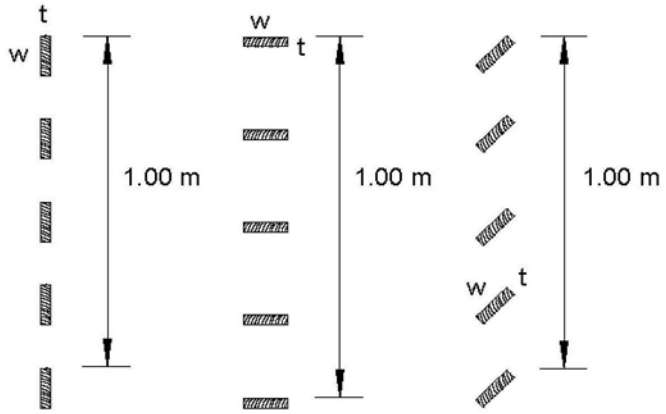


Figure 1 – Profiles for solid wood panelling and cladding

Maximum exposed area of wood ribbon element $2n\,(t + w) + a \leq 1{,}10$



Maximum exposed area of wood ribbon element:

$2n\,(t+w) + a \leq 1{,}10$

where

n is number of wood pieces per metre

t is thickness of each wood piece, in metre

w is width of each wood piece, in metre

a is exposed area of wood support frame (if any), in m^2, per m^2 of wood ribbon element

Figure 2 – Maximum exposed area

5.2 Dangerous substances

5.2.1 Formaldehyde release[2)]

The formaldehyde release of solid wood panelling and cladding products shall be determined according to Annex C. The declared values are expressed in term of classes.

2) Products CE marked according to this European Standard emitting formaldehyde above class E1 might be prohibited in some Member States.

5.2.2 Content of pentachlorophenol

Solid wood panelling and cladding as such, without chemical treatment, without adhesive, without coating or finishing, does not contain PCP. If the product contains raw materials that include PCP (may concern only soft wood treated against blue stain), then the product shall be tested in accordance with CEN/TR 14823. In case the value of 5×10^{-6n} is exceeded, the indication "PCP > 5×10^{-6n} shall be added to the marking. In case the value is less than 5×10^{-6n}, the indication PCP ≤ 5×10^{-6n} shall be added to the marking.

5.3 Release of other dangerous substances

National regulations on dangerous substances may require, verification and declaration on release, and sometimes content, of other dangerous substances, in addition to those dealt with in other clauses, when construction products covered by this standard are placed on those markets.

In the absence of European harmonised test methods, verification and declaration on release/content should be done taking into account national provisions in the place of use.

NOTE An informative database covering European and national provisions on dangerous substances is available at the Construction web site on EUROPA accessed through: http://ec.europa.eu/enterprise/construction/cpd-ds/.

5.4 Water vapour permeability

If water vapour permeability is required, either the water vapour resistance factor of the product tested as assembled panelling shall either be taken from Table 2 or, if the manufacturer wishes to declare a better value, obtained by testing the product as assembled panelling according to EN ISO 12572.

Table 2 – Characteristic values of water vapour permeability of wood as given in EN ISO 10456:2007[3)], Table 3

Wood type	Density [a] kg/m^3	Water vapour resistance factor μ	
		wet	dry
timber	450	20	50
	500	20	50
	700	50	200
[a] For other densities, interpolation is possible.			

5.5 Sound absorption

If the sound absorption coefficient of a product is required, it shall either be taken from Table 3 or, if the manufacturer wishes to declare a better value, obtained by testing the product as assembled panelling to EN ISO 354 and the result expressed according to EN ISO 11654.

NOTE The sound absorption depends on finishing, geometrical characteristics, etc.

3) EN ISO 10456 is currently impacted by EN ISO 10456:2007/AC:2009.

Table 3 – Sound absorption coefficient

Wood type	Sound absorption coefficient	
	Frequency range 250 Hz to 500 Hz	Frequency range 1 000 Hz to 2 000 Hz
Solid wood panelling and cladding	0,10	0,30

5.6 Thermal conductivity

The thermal conductivity shall be determined only for uses subject to thermal insulation requirements for solid wood panelling or sidings for use on internal walls and ceilings. It shall either be determined according to EN 12664 or given by using tabulated values related to density as shown in Table 4, taken from EN ISO 10456.

The thermal resistance R (m^2 K/W) of solid wood panelling and cladding of uniform thickness is given by the formula:

$$R = \frac{t}{\lambda}$$

where

t is the uniform minimum thickness of the wood panelling and cladding, in metres;

λ is the thermal conductivity, in W/m·K.

Table 4 – Design thermal conductivity values (*λ*) (in conformity with EN ISO 10456)

Wood type	**Mean density[a] *ρ* at a moisture content of 12 % in kg/m³**	**Thermal conductivity *λ* in W/(m·K) *(design value)***
Solid wood	300	0,09
	400	0,11
	500	0,13
	600	0,15
	700	0,18
	1 000	0,24
[a] For densities not given in this table, λ may be found by interpolation.		

5.7 Resistance to fixing

Resistance to fixing of solid wood is dependent on species and with higher density hardwoods may necessitate pre-drilling, especially if the wood has been dried. For wood species with an average density greater than 600 kg/m³ (at 20 % moisture content) the manufacturer shall indicate whether pre-drilling is either advisable or necessary.

When mechanically fixed (by means of nails, anchors, etc.) to walls/ceiling, the panelling/cladding shall be designed to take into account its own weight and other possible loads acting on it, e.g. wind load.

6 Evaluation of conformity

6.1 General

The conformity of solid wood panelling and cladding products with the requirements of this European Standard shall be demonstrated by:

— initial type testing or assessment,

— factory production control by the manufacturer.

Sampling shall be carried out at random if tests are necessary.

6.2 Initial type testing or assessment

Initial type testing/assessment shall be performed to demonstrate conformity with this standard or be demonstrated according to information given in this standard.

Tests previously performed in accordance with the provisions of this standard (same product, same characteristic, test method, system of attestation of conformity, etc.) may be taken into account for initial type testing.

For the purposes of testing, products may be grouped into families, where it is considered that the result for a given characteristic from any one product within the family are representative for all other products within that family.

When the product specification is amended, which could significantly change one or more of the characteristics (listed in 4.2 to 4.6 and Clause 5), the type assessment or testing shall be repeated for the appropriate characteristic(s). The verification of the characteristic(s) itself is not necessary when tabulated values of Clause 5 are used. Where wood panelling and cladding products are made from raw materials for which one or more of the characteristics in 4.2 to 4.6 and Clause 5 are already known (e.g. by the material being CE marked), the testing or assessment of such characteristics does not need to repeated for the finished product, as long as the manufacturing process does not change these characteristics.

All initial type test reports shall be kept for 10 years after the date of last production of the products to which they apply.

6.3 Factory production control (FPC)

6.3.1 General

The producer shall define his own control system.

The producer shall establish and maintain a documentation and a production control system to ensure that the products placed on the market conform with the stated performance characteristics. The control system shall consist of procedures, regular inspections and test/or assessment; the results shall be used to control raw and other incoming materials or components, equipment, the production process and the product shall be sufficiently detailed to ensure that the conformity of the product is apparent.

If the manufacturer operates a factory production control system conforming to EN ISO 9001, and made specific to the requirements of this standard, the above requirements are considered to be satisfied. The performance characteristics relevant to the intended application shall be controlled according to the provisions of 6.3.4.

6.3.2 Procedures when control criteria are not met

Procedures to be followed when control values and criteria are not met shall be established by the producer.

6.3.3 Record of documentation

The result of inspections, tests or assessments requiring action shall be recorded. Records shall be kept for at least two years, but shall also fulfil the regulatory system and/or the legal requirements of the country concerned.

6.3.4 FPC testing

6.3.4.1 General

For the purposes of factory production control according to this standard, indirect testing and documentary control may be used as an alternative to the test methods used for initial type testing, as long as the manufacturer is able to demonstrate a relationship between the indirect method(s) and the characteristic in question.

6.3.4.2 Reaction to fire (expressed in term of classes)

The manufacturer shall control regularly the composition of the elements produced, at a sufficient frequency to ensure that, for CWFT products, the requirements of Table 1 are satisfied and, for tested products, to ensure that the product remains in the same class as that obtained in the initial type test. If a fire retardant treated product is used, the indications given by the retardant supplier to maintain the characteristics shall be observed.

6.3.4.3 Formaldehyde content (expressed in term of classes)

Where the manufacturer uses no formaldehyde containing materials, he shall continue to check, with a frequency defined in his FPC manual, that no such material is used. For formaldehyde containing materials, the manufacturer shall use the provisions of Table C.1 or Table C.2 with a frequency sufficient to ensure that the class is obtained. A manufacturer declaring Class E2 need perform no FPC testing, unless he wishes to change this declaration.

6.3.4.4 Pentachlorophenol content (expressed in term of values)

Where the manufacturer uses no pentachlorophenol containing materials, he shall continue to check, with a frequency defined in his FPC manual, that no such material is used. For pentachlorophenol containing materials, the manufacturer shall use the provisions of 5.2.2 with a frequency sufficient to ensure that the class is obtained. A manufacturer declaring "PCP > 5×10^{-6}" need perform no FPC testing, unless he wishes to change this declaration.

6.3.4.5 Water vapour permeability, sound absorption, thermal conductivity

If required, or where the manufacturer wishes to provide values for water vapour permeability, sound absorption or thermal conductivity, the requirements in Clause 5 shall be followed. The values in Table 2, Table 3 and Table 4 refer to wood in the natural state and after thermal or chemical modification or treatment but without surface coating. Otherwise, the manufacturer shall declare NPD.

6.3.4.6 Biological durability (expressed in term of use classes)

For biological durability, the manufacturer shall ensure that the timber species used in the finished panelling and cladding product remain the same or do not change to an extent that would change the declared durability class. For conferred durability classes, the producer shall apply the principle defined in 4.6.2.1 to 4.6.2.5, knowing that less durable species will provide only limited service life in fully exposed exterior situations unless appropriate preservative treatment or design are employed. No FPC testing is necessary as long as the wood used does not change and the preservative characteristics and the application method are maintained. For preservative use, the panelling and cladding manufacturer shall follow indications of internal control expressed by the preservative manufacturer. If the product, the characteristics of the product or the method of application of the preservative change, the manufacturer shall repeat the initial type test using three samples.

7 Marking, labelling and packaging

The marking shall include the relevant properties for the intended application (see 4.1 to 4.6).

The accompanying information shall be placed on the product itself, on a label attached to it, on the packaging or on the accompanying commercial documents. The order in which the list is presented reflects a hierarchy of preference.

The marking shall include; a reference to this standard (EN 14915) and the information according to (a), (b) and (c) below:

a) marking requirements based on classes:

   1) reaction to fire: B, C, D, E or F and value of smoke production s1 or s2 and droplets d0 to d2 where the class requires this and, if CWFT, density and thickness(es) or, if tested, the end use conditions;

   2) formaldehyde class E_1 or E_2;

   3) content of pentachlorophenol (no indication if pentachlorophenol $\leq 5 \times 10^{-6n}$ and "PCP $> 5 \times 10^{-6n}$ " in all other cases);

   4) biological durability class: see 4.6;

b) marking requirements based on declared values:

   1) performance characteristic unit of declared value or class;

   2) sound absorption value;

   3) water vapour permeability value;

   4) thermal conductivity W/m·K;

c) information on the mode of installation when declarations have been made for fire and sound absorption.

Where regulatory marking provisions require information on some or all the items listed in this clause, the requirements of this clause concerning those common items are deemed to be met.

A simplified encoding system is given in Annex A.

Annex A
(informative)

Simplified encoding system for solid wood panelling and cladding

Where an encoding system is to be used for the description of the product and the relevant essential characteristics, the following system shall be used.

Description of the product			Information on regulated characteristics					
1	2	3	4	5	6	7	8	9

Description of the product

cell 1: I = internal use or E = external use,

cell 2: W = wall element, C = ceiling or WC = wall and ceiling,

cell 3: Species code according EN 13556,

Information on regulated characteristics

cell 4: natural durability class (1, 2, 3, 4 or 5) or T for treated against biological attack,

cell 5: water vapour permeability (5.4) and thermal conductivity (5.6), declared as values,

cell 6: sound absorption coefficients, first number: frequency range 250 Hz to 500 Hz, second number: frequency range 1 000 Hz to 2 000 Hz,

cell 7: formaldehyde: E1 or E2,

cell 8: PCP: $> 5 \times 10^{-6n}$ or $< 5 \times 10^{-6n}$ or NPD,

cell 9: resistance to fixing: density > 600 kg/m^3 - pre-drilling (pd) advisable (ad) or necessary (ne)

Example 1: wall and ceiling panelling product for internal use made of spruce, water vapour permeability and thermal conductivity being shown as density

I	WC	PCAB	4	390	0,1/0,3	E1	–	–

Example 2: cladding strip for external use made of western red cedar, water vapour density shown as density and thermal conductivity shown as a measured value

E	W	THPL	2	350/0,095	–	E1	–	–

Annex B
(informative)

General consideration regarding durability of wood

B.1 General precautions (based on EN 335:2013)

If the use class for an assembly of products when in use cannot be determined accurately, or when different parts of the same assembly are deemed to be in different use classes, decisions should be taken with regard to the more severe of the possible use classes. In situations where wood products out of ground contact may permanently accumulate water due to design or surface deposits, it may be necessary to consider that these situations are equivalent to contact with the ground or fresh water. This risk can vary from insignificant to high. It has been recognised that some products in use classes 4 and 5 will not be completely in ground or water contact. The part protruding from the ground or water can be liable to attack from additional organisms not normally associated with these use classes.

Where a wood product is inaccessible or where the consequences of its failure would be particularly serious, it may be more appropriate to consider a more durable timber or a more intensive preservative treatment than is usual for the perceived use class. The different durability and treatability of sapwood and heartwood should always be considered.

For some wood preservatives, a risk of leaching exists if the treated wood product is not sufficiently protected after treatment and before being put into service. This applies particularly to products in use classes 1 and 2 that are exposed to the weather during construction. Under such circumstances and if the specified wood preservative is leachable, it is essential that the wood product is covered or otherwise protected after treatment and during transport and construction, as well as in service.

Timber handling and building practice during construction, quality of maintenance, type and integrity of applied surface coatings and compatibility between treatments and coatings, are among the factors which can affect the performance of treated wood and which should be considered during the development of the specification.

B.2 Natural or conferred durability of solid wood (extract from EN 335:2013)

The natural durability of solid wood can depend to a large extent upon:

— species (see EN 460),

— the presence of heartwood or sapwood.

Improved durability may be conferred on solid wood by preservative treatment. The methods of treatment that may be used depend upon:

— species,

— the presence of heartwood or sapwood,

— the preservative product used and the penetration and retention values selected from EN 351-1.

For the natural durability of wood, see EN 350-2.

For the penetration and retention combinations available, see EN 351-1.

For the performance of wood preservatives, see EN 599-1.

B.3 Construction

The construction itself and its design is important to protect the wood against biological attacks. The main importance is to preserve the exterior panels from having a too high moisture content during longer periods. The ability of wood species not to absorb moisture too fast has an important effect, for example spruce. The panelling could also be protected from moisture absorption using a protective construction or by protecting the panelling from precipitation or contact with the ground.

The design of the panelling should consider:

— avoiding water-traps,

— cutting panel ends in butt-joint oblique for minimum gaps,

— avoiding splashes from the ground by keeping a good distance.

It is important to ventilate the construction, with at least 22 mm free gap behind the panelling. This will provide good ventilation and still protect the wall.

Annex C
(normative)

Formaldehyde classes

C.1 General

Because a specific method does not exist for solid wood products, this standard refers to the wood-based panels method (see Table C.1 and Table C.2 for highlighted information).

C.2 Panelling and cladding to be tested

When a product has to be tested, the test to be applied is EN 717-1 except for referring to EN 326-1 for test pieces so that the test is done only on the face exposed.

For initial type testing, one sample is required by type of product (type means same adhesive type, same finishing and same panel (if the panel has been itself controlled or characterised)).

If a panelling and cladding is composed of panels of Class E1, and if no formaldehyde is added in the process of assembling its composition, the classification E1 may be used for the product without testing.

Natural products on which or in which no formaldehyde has been added during the production are considered automatically classified E1.

C.3 Materials to be tested

Where formaldehyde-containing materials, particularly aminoplastic resins, have been added to the product as a part of the production process, the product shall be tested and classified into one of two classes: E1 or E2.

The test requirements for both initial type testing and factory production control/continuous verification are laid down in Table C.1 for Class E1 products and Table C.2 for Class E2 products.

NOTE 1 Products of Class E1 can be used without causing an indoor air concentration greater than $0{,}1 \times 10^{-6}$ *n* HCHO in conditions according to EN 717-1.

The test requirement does not apply to wood products to which no formaldehyde containing materials were added during production or in post-production processing. Such products may be classified E1 without testing.

The limit values for the formaldehyde Class E1 are given in Table C.1 and for Class E2 are given in Table C.2.

NOTE 2 The corresponding upper requirement limits for Class E2 products are found from the EN 120 or EN 717-2 factory production/external control tests.

Table C.1 – Formaldehyde Class E1 (based on EN 13986)

		Product	
		Unfaced	Coated
		Solid wood products	Solid wood products
Initial type testing [a]	Test method	EN 717-1	
	Requirement	Release ≤ 0,124 mg/m^3 air	
Factory production control	Test method	EN 717-2	
	Requirement	Release ≤ 3,5 mg/m^{2}h or ≤ 5 mg/m^2 h within 3 days after production	

[a] For established products, initial type testing may also be done on the basis of existing data from EN 120 or EN 717-2 testing, either from factory production control or from external inspection.

Table C.2 – Formaldehyde Class E2 (based on EN 13986)

			Product	
			Unfaced	Coated
			Solid wood products	Solid wood products
Initial type testing	Either	Test method	EN 717-1	
		Requirement	Release > 0,124 mg/m^3 air. See NOTE 2 of C.3	
	Or	Test method	EN 717-2	
		Requirement	Release > 3,5 mg /m^2 h to ≤ 8 mg /m^2 h or > 5 mg /m^2 h to ≤ 12 mg/m^2 h within 3 days after production	
Factory production control		Test method	EN 717-2	
		Requirement	Release >3,5 mg/m^2 h to ≤ 8 mg/m^2 h	

Annex ZA
(informative)

Clauses of this European Standard addressing the provisions of the EU Construction Products Directive

ZA.1 Scope and relevant characteristics

This European Standard and this annex, have been prepared under a mandate M/121 “Internal and external wall and ceiling finishes", as amended, given to CEN by the European Commission and the European Free Trade Association.

The clauses of this European Standard shown in this annex meet the requirements of the mandate given under the EU Construction Products Directive (89/106/EEC) for solid wood panelling and cladding products as described in Table ZA.1.

Compliance with these clauses confers a presumption of fitness of the products covered by this annex for the intended uses indicated herein; reference shall be made to the information accompanying the CE marking.

This annex establishes the conditions for the CE marking of the solid wood panelling and cladding intended for the uses indicated in Table ZA.1 and shows the relevant clauses applicable.

This annex has the same scope as the relevant part in Clause 1 of this standard related to the aspect covered by the mandate and is defined by Table ZA.1.

Table ZA.1 – Relevant clauses

Construction product : **Solid wood panelling and cladding** **Intended use :** **For use outside and/or inside buildings**			
Essential characteristics	**Requirement clauses in this European Standard**	**Levels and /or classes**	**Notes**
Reaction to fire	5.1	Classes A1 to F	- CWFT acc. to Table 1, or - tested and classified acc. to EN 13501-1
Release of formaldehyde	5.2.1	-	Only for internal use According to Annex C E1 or E2
Content of pentachlorophenol	5.2.2	-	According to CEN/TR 14823 $>5 \times 10^{-6n}$ or $\leq 5 \times 10^{-6n}$
Release of other dangerous substances	5.3	–	Declaration and test method as relevant , taking into account what is said in 5.3
Water vapour permeability	5.4	–	Not for internal sidings Tested in accordance with 5.4 and declared as value.
Sound absorption	5.5	–	Only for internal panelling Value
Thermal resistance express as thermal conductivity	5.6	–	Value
Resistance to fixings	5.7		Density pre-drilling advisable or necessary
Durability (biological risks)	4.6	–	According to EN 335 Use class

The requirement on a certain characteristic is not applicable in those Member States (MSs) where there are no regulatory requirements on that characteristic for the intended use of the product. In this case, manufacturers placing their products on the market of these MSs are not obliged to determine nor declare the performance of their products with regard to this characteristic and the option "No performance determined" (NPD) in the information accompanying the CE marking (see ZA.3) may be used. The NPD option may not be used, however, where the characteristic is subject to a threshold level.

ZA.2 Procedure for the attestation of conformity of solid wood panelling and cladding

ZA.2.1 Systems of attestation of conformity

The systems of attestation of conformity solid wood panelling and cladding indicated in Table ZA.1, in accordance with the Commission Decision 1998/437/CE of 30 June 1998 (OJ L 194, 10.7.1998) as amended by Commission Decision 2001/596/EC of 8 January 2001 (OJ L 209, 2.8.2001) with Corrigendum (OJ L 278, 15.10.1998) and as given in Annex III of the mandate for "Internal and external wall and ceiling finishes", is shown in Table ZA.2 for the indicated intended uses and relevant level or class:

Table ZA.2 – Systems of attestation of conformity

Product(s)	**Intended use(s)**	**Level(s) or class(es)** *(reaction to fire)*	**Attestation of conformity systems**
Sidings and panels	As internal or external finishes in walls or ceilings subject to reaction to fire regulations	(A1, A2, B, C)* (A1, A2, B, C)**, D, E (A1 to E)***, F	1 3 4
	As internal or external finishes in walls or ceilings, as relevant, subject to regulations on dangerous substances (1)	–	3
	As internal or external finishes in walls or ceilings for other uses mentioned in the mandate(2)	–	4
* Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material) ** Products/materials not covered by footnote (*) *** Products/ materials that do not require to be tested for reaction to fire (e.g. Products/materials of Classes A1 according to Commission Decision 96/603/EC).			
System 1: See Directive 89/106/EEC (CPD) Annex III.2.(i), without audit testing of samples. System 3: See Directive 89/106/EEC (CPD) Annex III.2.(ii), Second possibility. System 4: See Directive 89/106/EEC (CPD) Annex III.2.(ii), Third possibility.			
(1) In particular those dangerous substances defined in Council directive 76/769/EEC, as amended (2) Other intended uses covered by the mandate are: for vapour control, for water penetration control, for acoustic control and for thermal control			

The attestation of conformity of the solid wood panelling and cladding in Table ZA.1 shall be according to the evaluation of conformity procedures indicated in Tables ZA.3.1 to Table ZA.3.3 resulting from application of the clauses of this European Standard indicated therein.

Table ZA.3.1 – Assignment of evaluation of conformity tasks under systems 1, 3 and 4 (where reaction to fire is under system 1)

Tasks		Content of the task	Evaluation of conformity clauses to apply
Tasks under the responsibility of the manufacturer	Factory production control (FPC)	Parameters related to all characteristics of Table ZA.1 relevant for the intended use	6.3
	Further testing of samples taken at factory	All characteristics of Table ZA.1 relevant for the intended use,	6.3
	Initial type testing by the manufacturer	All characteristics of Table ZA.1 relevant for the intended use, except those listed below	6.2
	Initial type testing by a notified test lab for uses subject to regulations on dangerous substances	Release of formaldehyde, release (content) of pentachlophenol, release of other dangerous substances (when relevant)	6.2
Tasks under the responsibility of the product certification body	Initial type testing	Reaction to fire (classes [A1 (*), A2 (*), B (*), C (*)][a])	6.2
	Initial inspection of factory and of FPC	Parameters related to all characteristics of Table ZA.1 relevant for the intended use, namely reaction to fire	6.3
	Continuous surveillance, assessment and approval of FPC	Parameters related to all characteristics of Table ZA.1 relevant for the intended use, namely reaction to fire	6.3

[a] See footnote to Table ZA.2.

Table ZA.3.2 – Assignment of evaluation of conformity tasks under Systems 3 and 4 (where reaction to fire is under system 3)

Tasks		Content of the task	Evaluation of conformity clauses to apply
Tasks under the responsibility of the manufacturer	Factory production control (FPC)	Parameters related to all characteristics of Table ZA.1 relevant for the intended use	6.3
	Initial type testing by the manufacturer	All characteristics of Table ZA.1 relevant for the intended use except those listed below	6.2
	Initial type testing by a notified test laboratory for uses subject to regulations on dangerous substances	Reaction to fire (classes [A1 (**), A2 (**), B (**), C (**)][a], D and E) Release of formaldehyde, release (content) of pentachlophenol, release of other dangerous substances (when relevant)	6.2
[a] See footnote to Table ZA.2.			

Table ZA.3.3 – Assignment of evaluation of conformity tasks under systems 3 and 4, where reaction to fire is under system 4

Tasks		Content of the task	Evaluation of conformity clauses to apply
Tasks under the responsibility of the manufacturer	Factory production control (FPC)	Parameters related to all characteristics of Table ZA.1 relevant for the intended use	6.3
	Initial type testing by the manufacturer	All characteristics of Table ZA.1 relevant for the intended use namely. Reaction to fire [classes ((A1 to E) (***)) [a], F] water vapour permeability, sound absorption, thermal resistance and durability	6.2
	Initial type testing by a notified test laboratory for uses subject to regulations on dangerous substances	Release of formaldehyde, release (content) of pentachlophenol, release of other dangerous substances (when relevant)	6.2
[a] See footnote to Table ZA.2.			

ZA.2.2 EC Certificate and Declaration of Conformity

(In case of products with system 1): When compliance with the conditions of this annex is achieved, the certification body shall draw up the EC Certificate of conformity, which entitles the manufacturer to affix the CE marking. The EC Certificate of conformity shall include:

— name, address and identification number of the certification body;

— name and address of the manufacturer, or his authorised representative established in the EEA, and place of production;

NOTE 1 The manufacturer can also be the person responsible for placing the product onto the EEA market, if he takes responsibility for CE marking.

— description of the product (type, identification, use, ...);

— provisions to which the product conforms (i.e. Annex ZA of this EN);

— particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions);

— the number of the certificate;

— conditions of validity of the certificate, where applicable;

— name of, and position held by, the person empowered to sign the certificate.

(In case of products under system 3): When compliance with the conditions of this annex is achieved, the manufacturer or his agent established in the EEA shall draw up and retain the EC Declaration of conformity, which entitles the manufacturer to affix the CE marking. This EC Declaration of conformity shall include:

— name and address of the manufacturer, or his authorised representative established in the EEA, and place of production;

NOTE 2 The manufacturer may also be the person responsible for placing the product onto the EEA market, if he takes responsibility for CE marking.

— description of the product (type, identification, use, coated or not, ...), and a copy of the information accompanying the CE marking;

NOTE 3 Where some of the information required for the declaration is already given in the CE marking information, it does not need to be repeated.

— provisions to which the product conforms (i.e. Annex ZA of this EN) and a reference to the ITT report(s) and factory production control records (if appropriate);

— particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions);

— name and address of the notified laboratory/laboratories;

— name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or his authorised representative.

(In case of products under system 4): When compliance with this annex is achieved, the manufacturer or his agent established in the EEA shall draw up and retain the EC Declaration of conformity, which entitles the manufacturer to affix the CE marking. This EC declaration of conformity shall include:

— name and address of the manufacturer, or his authorised representative established in the EEA, and place of production;

NOTE 4 The manufacturer may also be the person responsible for placing the product onto the EEA market, if he takes responsibility for CE marking.

— description of the product (type, identification, use, coated or not, ...), and a copy of the information accompanying the CE marking;

NOTE 5 Where some of the information required for the declaration is already given in the CE marking information, it does not need to be repeated.

— provisions to which the product conforms (i.e. Annex ZA of this EN) and a reference to the ITT report(s) and factory production control records (if appropriate);

— particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions);

— name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or of his authorised representative.

The above mentioned EC Declaration of conformity or the EC Certificate of conformity shall be presented in the language or languages accepted in the Member State in which the product is to be used.

ZA.3 CE marking and labelling

The manufacturer or his authorised representative established within the EEA is responsible for the affixing of the CE marking. The CE marking symbol to affix shall be in accordance with Directive 93/68/EC and shall be shown on a label attached to the solid wood panelling and cladding or when not possible on the packaging, or on the accompanying commercial documents.

The following information shall accompany the CE marking symbol:

— identification number of the certification body (only for products under system 1);

— name or identifying mark of the manufacturer (see note 1 in Z.A.2.2);

— the last two digits of the year in which the marking is affixed;

— number of the EC Certificate of conformity or factory production control certificate (if relevant);

— reference to this European Standard;

— description of the product: generic name, material, dimensions, … and intended use, declared, which may be presented as the encoding system according to Annex A where relevant;

— information on those relevant essential characteristics listed in Table ZA.1 which are to be declared which may be presented as the encoding system according to Annex A where relevant;

— for timber treated against biological attack:

  — use class,

  — wood preservative,

  — penetration class,

  — retention class.

The “No performance determined” (NPD) option may not be used for durability and where the characteristic is subject to a threshold level. Otherwise, the NPD option may be used when and where the characteristic, for a given intended use, is not subject to regulatory requirements in the Member State of destination.

Figures ZA.1 and ZA.2 give examples of the information to be given on a label attached to the product, on the packaging and/or accompanying commercial documents. Figure ZA.1 gives an example of the information given in full, while Figure ZA.2 gives and example of using the encoding system of Annex A.

Figure ZA.1 shows an example of CE marking affixed by the company “Any Co Ltd” in the year 2006. It applies to a product, intended for internal use covered by CWFT and where the product is not subject to regulatory requirements on water vapour permeability or sound absorption, and having no pentachlorophenol content. Figure ZA.2 shows the CE marking applied to a product, covered by CWFT and where all regulated characteristics are given for a product intended for internal use (following Example 1 in Annex A).

CE	*CE conformity marking, consisting of the "CE" symbol given in Directive 93/68/EEC.*
Any Co Ltd, PO Box 21, B-1050 13	*Name or identifying mark and registered address of the producer.* *Last two digits of the year in which the marking was affixed.*
EN 14915:2013 Solid soft wood panelling and cladding with tongues and grooves, 1500 mm x 150 mm x 9 mm, Intended use: for internal use Density and thickness 390, 9 / 6 Reaction to fire D-s2,d2 Water vapour permeability NPD Thermal conductivity 0,04 W/m·K Sound absorption NPD Biological durability Class 3 PCP content ≤ 5×10^{-6n} Release of formaldehyde E1 Release of other dangerous substances (1): Substance X.....0,02 × 10^{-6n} Resistance to fixing NPD	*Number of this European Standard.* *Description of product and information on regulated characteristics.* *(1) Release of other dangerous substances should be included if the manufacturer is obliged to declare a substance subject to regulations in the market of destination.*

Figure ZA.1 – Example 1 of CE marking

CE	*CE conformity marking, consisting of the "CE" symbol given in Directive 93/68/EEC.*
Any Co Ltd, PO Box 21, B-1050 13	*Name or identifying mark and registered address of the producer.* *Last two digits of the year in which the marking was affixed.*
EN 14915:2013 Solid softwood panelling and cladding, 1200 mm x 250 mm x 12 mm Intended use: Wall and ceiling panels for internal use Density and thickness: 410, 12 / 8 I WC PCAB | 4 61/0,11 0,1/0,3 E1 >5 NPD Reaction to fire D-s2,d0 Release of other dangerous substances (1): Substance X.....0,02 × 10^{-6n}	*Number of this European Standard.* *Description of product and information on regulated characteristics.* *(1) Release of other dangerous substances should be included if the manufacturer is obliged to declare a substance subject to regulations in the market of destination.*

Figure ZA.2 – Example 2 of CE marking

Bibliography

[1] EN 120, *Wood-based panels — Determination of formaldehyde content — Extraction method called the perforator method*

[2] 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*

[3] EN 599-1, *Durability of wood and wood-based products — Efficacy of preventive wood preservatives as determined by biological tests — Part 1: Specification according to use class*

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

[5] EN 13238, *Reaction to fire tests for building products — Conditioning procedures and general rules for selection of substrates*

[6] EN 14519, *Solid softwood panelling and cladding — Machined profiles with tongue and groove*

[7] EN 14951, *Solid hardwood panelling and cladding — Machined profiles elements*

[8] EN 15146, *Solid softwood panelling and cladding — Machined profiles without tongue and groove*

[9] EN ISO 1182, *Reaction to fire tests for products — Non-combustibility test (ISO 1182)*

[10] EN ISO 9001, *Quality management systems — Requirements (ISO 9001)*

[11] EN ISO 11925-2, *Reaction to fire tests — Ignitability of products subjected to direct impingement of flame — Part 2: Single-flame source test (ISO 11925-2)*

[12] CEN/TR 14823, *Durability of wood and wood-based products — Quantitative determination of pentachlorophenol in wood — Gas chromatographic method*

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