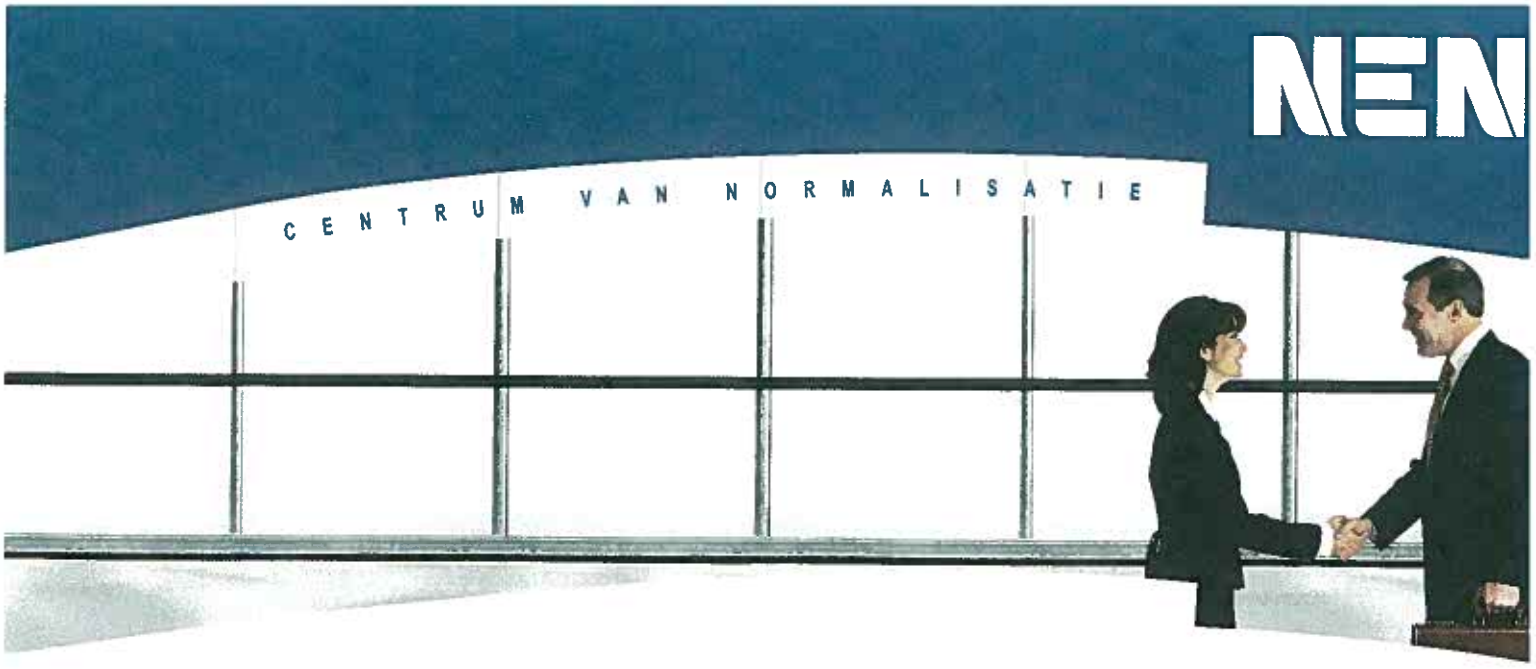

Nederlandse norm

NEN-EN 14915

(en)

Wand- en gevelbekleding van massief hout - Eigenschappen, conformiteitsbeoordeling en merken

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

Vervangt NEN-EN 14915:2004 Ontw.

ICS 79.080

september 2006

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Nederlands voorwoord

Voor de in deze norm vermelde normatieve verwijzingen bestaan in Nederland de volgende equivalenten:

vermelde norm	Nederlandse norm	titel
EN 326-1	NEN-EN 326-1	Houtachtige plaatmaterialen - Monsterneming, wijze van zagen en inspectie - Deel 1: Monsterneming en wijze van zagen van proefstukken en de beoordeling van de beproevingsresultaten (en)
EN 350-1	NEN-EN 350-1	Duurzaamheid van hout en op hout gebaseerde produkten - Natuurlijke duurzaamheid van massief hout - Deel 1: Richtlijn voor de principes van het beproeven en het classificeren van de natuurlijke duurzaamheid van hout (en)
EN 350-2	NEN-EN 350-2	Duurzaamheid van hout en op hout gebaseerde produkten - Natuurlijke duurzaamheid van massief hout - Deel 2: Richtlijn voor de natuurlijke duurzaamheid en behandelbaarheid van geselecteerde, voor Europa belangrijke houtsoorten (en)
EN 335-2:1992	-	-
EN 351-1	NEN-EN 351-1	Duurzaamheid van hout en op hout gebaseerde produkten - Met verduurzamingsmiddelen behandeld massief hout - Deel 1: Classificatie van de indringing en retentie van verduurzamingsmiddelen (en)
EN 599-2	NEN-EN 599-2	Duurzaamheid van hout en op hout gebaseerde produkten - Prestatie van houtverduurzamingsmiddelen zoals bepaald door biologische beproevingen - Deel 2: Klasse-indeling en etikettering (en)
EN 717-1	NEN-EN 717-1	Houtachtige plaatmaterialen - Bepaling van de formaldehyde-emissie - Deel 1: Formaldehyde-emissie volgens de kamermethode (en)
EN 717-2	NEN-EN 717-2	Houtachtige plaatmaterialen - Bepaling van de formaldehyde-emissie - Deel 2: Formaldehyde-emissie bepaald volgens de gasanalysemethode (en,nl)
EN 844-9:1997	NEN-EN 844-9:1997	Rondhout en gezaagd hout - Termen en definities - Deel 9: Termen voor de onvolkomenheden in gezaagd hout (en,fr,de,nl)
EN 1309-1:1997	NEN-EN 1309-1:1997	Rondhout en gezaagd hout - Methode voor het meten van afmetingen - Deel 1: Gezaagd hout (en)
EN 12524	NEN-EN 12524	Bouwmaterialen en bouwproducten - Warmte- en vochtwerende eigenschappen - Overzicht van ontwerpwaarden (en,nl)
EN 12664	NEN-EN 12664	Thermische eigenschappen van bouwmaterialen en producten - Bepaling van de warmteweerstand volgens de methode met afgeschermde "hot plate" en de methode met warmtestroommeter - Droge en natte producten met een lage en een gemiddelde warmteweerstand (en)
EN 13501-1	NEN-EN 13501-1	Brandclassificatie van bouwproducten en bouwdelen - Deel 1: Classificatie op grond van resultaten van beproeving van het brandgedrag (en)
EN 13556	NEN-EN 13556	Rondhout en gezaagd hout - Benamingen van houtsoorten die worden gebruikt in Europa (en,fr,de)
EN 13756:2002	NEN-EN 13756:2003	Houten vloeren - Terminologie (en,fr,de)
EN 13986	NEN-EN 13986	Houtachtige plaatmaterialen voor gebruik in de bouw - Eigenschappen, conformiteitsbeoordeling en merken (en)

EN ISO 354	NEN-EN-ISO 354	Akoestiek - Meting van geluidsabsorbtie in een nagalmkamer (en)
EN ISO 11654	NEN-EN-ISO 11654	Akoestiek - Geluiddempers voor gebruik in gebouwen - Eengetal-aanduiding voor de geluidabsorptie (en)
EN ISO 12572	NEN-EN-ISO 12572	Vochteigenschappen van bouwmaterialen en -producten - Bepaling van de waterdampdoorlatendheid (en)

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 14915

August 2006

ICS 79.080

English Version

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

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

Wand- und Deckenbekleidung aus Massivholz im Innen- und Außenbereich - Eingenschaften, Bewertung der Konformität und Kennzeichnung

This European Standard was approved by CEN on 24 May 2006.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

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

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Foreword

This document (EN 14915:2006) 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 December 2006, and conflicting national standards shall be withdrawn at the latest by March 2008.

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 organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This European Standard defines and specifies the relevant characteristics and the appropriate test methods to determine these characteristics for products (including sidings) used in solid wood panelling and cladding 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.

The products are not evaluated for stiffening functions.

This European Standard covers treated as well as untreated wood and it covers finger jointed and edge glued products.

This European Standard covers products in compliance with EN 14519, EN 14951 and prEN 15146 but it also covers other solid timber products suitable for panelling and cladding.

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

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 326-1, *Wood-based panels — Sampling, cutting and inspection — Part 1: Sampling and cutting of test pieces and expression of test results*

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 335-2:1992, *Durability of wood and wood-based products — Definition of hazard classes of biological attack – Part 2: Application to solid wood*

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 12524, *Building materials and products — Hygrothermal properties — Tabulated design values*

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 test 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 354:2003)*

EN ISO 11654, *Acoustics — Sound absorbers for use in buildings — Rating of sound absorption (ISO 11654:1997)*

EN ISO 12572, *Hygrothermal performance of building materials and products — Determination of water vapour transmission properties (ISO 12572:2001)*

3 Terms and definitions

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

3.1
siding
material attached to interior or exterior of the building wall where length predominates the other two dimensions, having reduced thickness

NOTE North American term synonymous with wall panelling and cladding

3.2
assembled test specimen
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 for the purpose of testing

4 Characteristics for internal and external wall and ceiling

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;

— content of pentachlorophenol: see 5.3;

— water vapour permeability: see 5.4;

— sound absorption: see 5.5;

— thermal conductivity: see 5.6.

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;

— content of pentachlorophenol: see 5.3;

— thermal conductivity: see 5.6.

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 5.3;

— water vapour permeability: see 5.4;

— thermal conductivity: see 5.6.

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 5.3;

— water vapour permeability: see 5.4;

— thermal conductivity: see 5.6.

4.6 Durability against biological attack

4.6.1 Natural durability

If the species is listed in EN 350-2, the natural 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 335-2;

— 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 Determination of the characteristics

5.1 Reaction to fire

Products meeting the definition given in Table 1 are considered to be classified without further testing (CWFT) in the class shown. Where the manufacturer wishes to declare a higher classification than given in, or other products than those covered by, Table 1, the product shall be tested and classified in accordance with EN 13501-1.

Table 1 — Classes of reaction to fire performance

Product	Product detail [e]	Minimum mean density [f] (kg/m^3)	Minimum thicknesses, 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, d2
-"-	-"-	390	12 / 8	-"-	D-s2, d0
Panelling and cladding [b]	-"-	390	9 / 6	With open air gap ≤ 20 mm behind	D-s2, d0
-"-	-"-	390	18 / 12	Without air gap or with open air gap behind	D-s2, d0
Wood ribbon elements [h]	Wood pieces mounted on a support frame [i]	390	18	Surrounded by open air on all sides [j]	D-s2, d0

[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 Commission Decision 2000/147/EC Annex Table 1. This decision is currently under review in respect to façade applications.

[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.

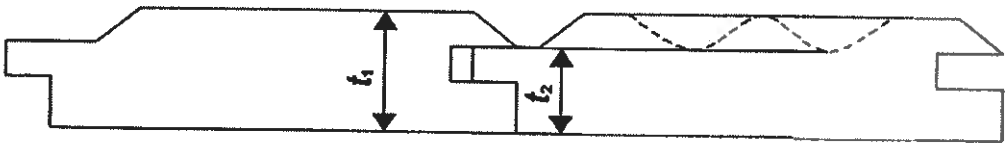
[f] Conditioned according to EN 13238.

[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.

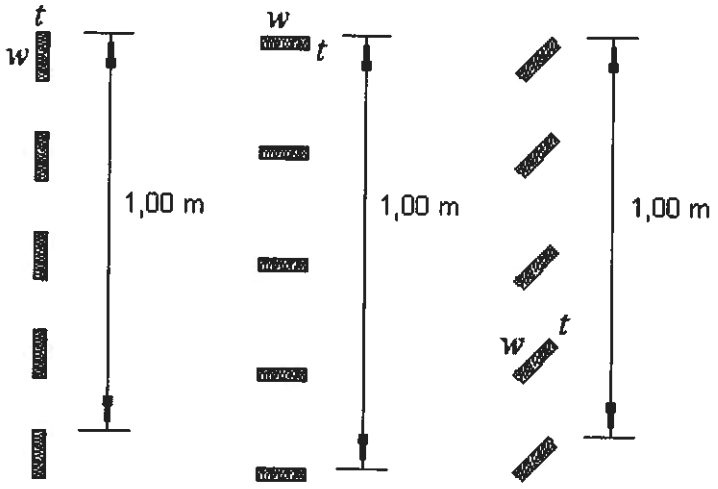
[i] Maximum exposed area (all sides of rectangular wood pieces and wood support frame) not more than 110 % of the total plane area, see Figure 2 below.

[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 to 300 mm of at least Class B-s1,d0 and at distances more than 300 mm of at least Class D-s2,d0.



Key
t_1 total thickness
t_2 minimum thickness at any point of the profile

Figure 1 — Profiles for solid wood panelling and cladding



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

where

n is the number of wood pieces per metre;

t is the thickness of each wood piece, in metres;

w is the width of each wood piece, in metres;

a is the 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 Release of formaldehyde

Solid wood as such, without chemical treatment, without adhesive, without coating or finishing, has no formaldehyde release of significance and may be classified E1.

The formaldehyde release of other solid wood panelling and cladding products shall be determined according to Annex C.

The declared values are expressed in term of classes.

5.3 Content of pentachlorophenol

Solid wood panelling and cladding as such, without chemical treatment, without adhesive, without coating or finishing, has no PCP release. If the product contains raw materials that include PCP (may concern only soft wood treated against blue stain), then the product shall be tested according to methods valid in the country of use of the product. In case the value of 5×10^{-6} (5 ppm) is exceeded, the indication "PCP > 5×10^{-6} (5 ppm)" shall be added to the marking.

5.4 Water vapour permeability

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

Table 2 — Characteristic values of water vapour permeability of wood as given in EN 12524

Wood type	Density [a] kg/m^3	Water vapour resistance factor Wet cup μ
Solid wood	300	50
	500	70
	700	90
	1 000	110
[a] For other densities, interpolation is possible.		

5.5 Sound absorption

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

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

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. 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 12524.

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

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

Where

t is the uniform thickness of the wood panelling and cladding in m;

λ is the thermal conductivity in W/m K.

Table 4 — Design thermal conductivity values (λ) (in conformity with EN 12524)

Wood type	Mean density [a] ρ at a moisture content of 12 % in kg/m^3	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.		

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 European Standard or be demonstrated according to information given in this European Standard.

Tests previously performed in accordance with the provisions of this European 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 European 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 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 5.3 with a frequency sufficient to ensure that the class is obtained. A manufacturer declaring "PCP > 5×10^{-6} (5 ppm)" need perform no FPC testing, unless he wishes to change this declaration.

6.3.4.5 Water vapour permeability (expressed in term of values)

The manufacturer shall control regularly the composition of the elements produced, at a sufficient frequency to ensure that, where tabulated values are used, the requirements of Table 2 are satisfied and, for tested products, to ensure that the product remains in the same class as that obtained in the initial type test. For FPC, the manufacturer shall ensure that the species used remain the same, and elements have the same composition and class (visual class) on a continuous basis, so that no faults likely to reduce the water vapour permeability are present.

6.3.4.6 Sound absorption (expressed in term of values)

The manufacturer shall control regularly the composition of the elements produced, at a sufficient frequency to ensure that, where tabulated values are used, the requirements of Table 3 are satisfied and, for tested products, to ensure that the product remains in the same class as that obtained in the initial type test. For FPC, the manufacturer shall ensure that the species used remain the same, and elements have the same composition and class (visual class) on a continuous basis, so that no faults likely to reduce the sound absorption are present.

6.3.4.7 Thermal conductivity (expressed in terms of values)

Where a thermal conductivity value is declared, the manufacturer shall ensure that the continuous mean density of the material is in line with the density given in the EN 350-2. Tests shall be made according to 5.6.

6.3.4.8 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 which 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 3 samples.

7 Marking

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

The accompanying information shall be placed 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 European Standard (EN 14915) and the information according to (a), (b) and (c) below;

a) marking requirements based on classes:

— 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;

— formaldehyde class E_1 or E_2;

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

— biological durability class: see 4.6;

b) marking requirements based on declared values:

performance characteristic	unit of declared value
— sound absorption	value;
— water vapour permeability	value;
— thermal conductivity	W/m K;

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

NOTE For CE marking information see Annex ZA.

A simplified encoding system is given in Annex A.

Annex A
(normative)

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:

1	2	3	4	5	6	7	8

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;

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 (6.3.4.7), declared as density if using tabulated values or as value(s) if tested;

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: only if more than 5×10^{-6} (5 ppm).

Where the manufacturer does not wish to declare a value against any characteristic, the corresponding cell shall contain a "–", equivalent to "no performance determined".

Example 1 Wall and ceiling panelling product for internal use made of spruce, water vapour permeability and thermal resistance 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 permeability 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 335-2:1992, Annex A)

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 335-2:1992, Annex A)

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 are important to protect the wood against biological attacks. The main importance is to preserve the exterior panels from having 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 cladding could also be protected from moisture absorption using a protective construction or by protecting the cladding from precipitation or contact with the ground.

The design of the cladding 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 cladding. 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 European Standard refers to the wood-based panels method (see Table C.1 and 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 surveillance 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 $0,1 \times 10^{-6}$ (0,1 ppm) 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	
		Un-faced	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	
			Un-faced	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

With reference to Clause 1, this Annex ZA has the same scope as Clause 1.

This European Standard and this annex have been prepared under Mandate M/121 "Internal and external wall and ceiling finishes", dated 12 November 1997, 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) for solid wood panelling and cladding products as described in Table ZA.1.

Compliance with these clauses confers a presumption of fitness of the construction products covered by this European Standard for their intended use; reference shall be made to the information accompanying the CE marking symbol.

WARNING: Other requirements and other EU Directives, not affecting the fitness for intended use, may be applicable to a construction product falling within the scope of this standard.

NOTE 1 There may be requirements on dangerous substances applicable to the products following within the scope of this standard (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

NOTE 2 An informative database of European and national provisions on dangerous substances is available at the Construction web site on EUROPA (accessed through http://europa.eu.int/comm/enterprise/construction/internal/dangsub/dangmain.htm).

Table ZA.1 — Relevant clauses

Essential characteristics	Requirement clauses in this standard	Mandated classes	Notes
Reaction to fire	4.2 to 4.5 and 5.1	Classes C to F	
Release of formaldehyde	4.2, 4.3 and 5.2	–	Only for internal use
Content of pentachlorophenol	4.2 to 4.5 and 5.3	–	
Water vapour permeability	4.2, 4.4 and 4.5 and 5.4	–	Not for internal sidings
Sound absorption	4.2 and 5.5	–	Only for internal panelling
Thermal resistance	4.2 to 4.5 and 5.6	–	
Durability (biological risks)	4.6	–	

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

ZA.2.1 Systems of attestation of conformity

For all solid wood panelling and cladding and their intended use of:

a) walls and ceilings for internal use;

b) sidings on wall internally;

c) sidings on wall externally;

d) walls and ceilings for external use.

The systems of attestation of conformity, as indicated in Annex 3 of Mandate M/121 are shown in Table ZA.2 for the indicated intended use(s) and relevant level(s) or class(es).

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
Solid wood panelling and cladding	For uses subject to reaction to fire regulations	(B, C)[a]	1
		(B, C)[b], D and E	3
		D[c] and F	4
	For uses subject to dangerous substances regulations	–	3
	For uses other than those mentioned above	–	4
[a] Products/materials for which there is a clearly identifiable stage in the production process which results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material). [b] Products/materials not covered by Footnote [a]. [c] Products/materials that do not require to be tested for reaction to fire (i.e. CWFT products/materials).			
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.			

The attestation of conformity of the solid wood panelling and cladding in Table ZA.2 shall be according to the evaluation of conformity procedures indicated in Tables ZA.3.1 to 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 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	Emission of formaldehyde and content of pentachlorophenol	6.2
Tasks under the responsibility of the product certification body	Initial type testing	Reaction to fire Class (B and 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, in particular 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, in particular reaction to fire	6.3

[a] See Footnote [a] to Table ZA.2.

Table ZA.3.2 — Assignment of evaluation of conformity tasks 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	Reaction to fire Classes (B and C)[a], D and E, emissions of formaldehyde and content of pentachlorophenol	6.2

[a] See Footnote [b] to Table ZA.2.

Table ZA.3.3 — Assignment of evaluation of conformity tasks 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: water vapour permeability, sound absorption, thermal resistance and durability	6.2

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 a certificate of conformity (EC Certificate of conformity), which entitles the manufacturer to affix the CE marking. The certificate 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 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, ...);

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

— 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 addition, the manufacturer shall draw up a declaration of conformity (EC Declaration of conformity) including the following:

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

— name and address of the certification body;

— description of the product (type, identification, use, ...), and a copy of the information accompanying the CE marking;

NOTE 2 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);

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

— number of the accompanying EC Certificate of conformity;

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

(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 prepare and retain a declaration of conformity (EC Declaration of conformity), which entitles the manufacturer to affix the CE marking. This declaration shall include:

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

NOTE 1 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 2 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 reference to the ITT report(s) and factory production control records as 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(ies);

— 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 prepare and retain a declaration of conformity (EC Declaration of conformity), which entitles the manufacturer to affix the CE marking. This declaration shall include:

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

NOTE 1 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 2 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 reference to the ITT report(s) and factory production control records as 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 declaration and certificate (if requested) shall be presented in 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 either on a label attached to the product or on the packaging or on the accompanying commercial documents, at the choice of the manufacturer. If the CE marking symbol is shown on a label or the packaging, it shall be accompanied by at least the following information:

— the name or identifying mark and registered address of the producer;

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

— reference to this European Standard;

— the encoding system according to Annex A.

The following information may be shown on a label attached to the product or on the packaging, and the above, together with the following, shall also be shown on the accompanying commercial documents, except as provided for below:

- description of the product: generic name, material, dimensions, ... and intended use;
- information on those relevant essential characteristics listed in Table ZA.1 which are to be declared:
  - reaction to fire (class and, if CWFT, density and thickness(es) or, if tested, the end use conditions), emission of formaldehyde, water vapour permeability, sound absorption, emission of pentachlorophenol (if greater than 5×10^{-6} (5 ppm)), thermal conductivity and durability and
  - "No performance determined" (or reaction to fire Class F) for characteristics where this is relevant;
- for timber treated against biological attack:
  - use class;
  - wood preservative;
  - penetration class;
  - retention class.

The above information, when shown on the accompanying commercial documents, may be shown using the encoding system given in Annex A for that information covered by the encoding system. If all the above information appears on the label or the packaging, it does not need to be shown on the accompanying commercial documents. The "No performance determined" (NPD) 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 06	*Name or identifying mark and registered address of the producer.* *Last two digits of the year in which the marking was affixed.*
EN 14915	*Number of this European Standard.*
Solid soft wood panelling and cladding strip with tongues and grooves, 1 500 mm x 150 mm x 9 mm,	*Description of product and information on regulated characteristics.*
Intended use: for internal use	
Density and thickness: 390, 9 / 5	
Reaction to fire: D-s1,d0	
Water vapour permeability: NPD	
Thermal resistance: 0,04 W/m K	
Sound absorption: NPD	
Biological durability: Class 3	

Figure ZA.1 — Example 1 of CE marking

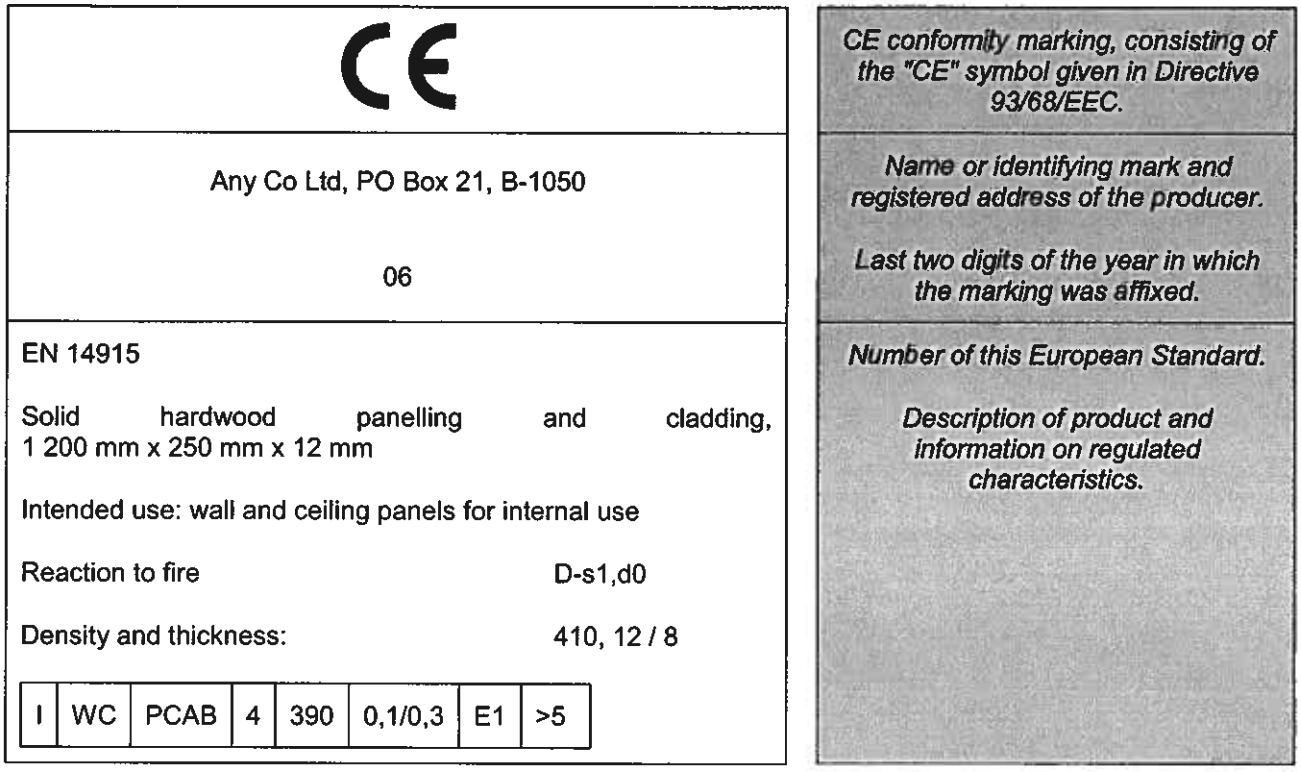


Figure ZA.2 — Example 2 of CE marking

In addition to any specific information relating to dangerous substances shown above, the product should also be accompanied, when and where required and in the appropriate form, by documentation listing any other legislation on dangerous substances for which compliance is claimed, together with any information required by that legislation.

NOTE European legislation without national derogations need not be mentioned.

Bibliography

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

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

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

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

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

[6] EN ISO 1182, *Reaction to fire tests for building products — Non-combustibility test (ISO 1182:2002)*

[7] EN ISO 9001, *Quality management systems — Requirements (ISO 9001:2000)*

[8] EN ISO 11925-2, *Reaction to fire tests — Ignitability of building products subjected to direct impingement of flame — Part 2: Single-flame source test (ISO 11925-2:2002)*

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

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

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

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

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