SLOVENSKI STANDARD
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Notranje in zunanje obloge iz masivnega lesa - Lastnosti, ovrednotenje skladnosti in oznaḷ evanje

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

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

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

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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

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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of an identical text or by endorsement, at the latest by December 2006, and conflicting national standards shall be withdrawn at the latest by March 2008.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.

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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.

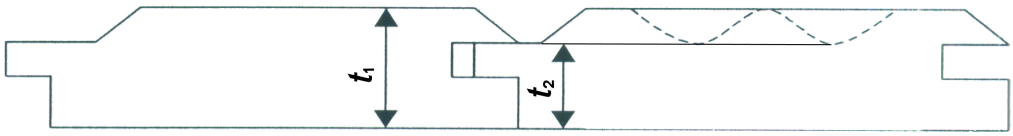
[f] Conditioned according to EN 13238.

[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.

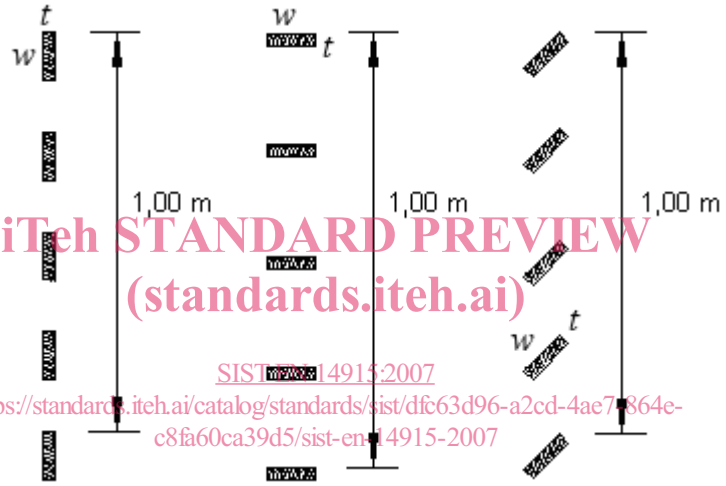
[i] Maximum exposed area (all sides of rectangular wood pieces and wood support frame) not more than 110 % of the total plane area, see Figure 2 below.

[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.