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Authorised and notified according to Article 29 of the Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011

MEMBER OF EOTA

European Technical Assessment ETA-20/1323 of 2021/06/17

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the construction product:	Perlinato Strutturale
Product family to which the above construction product belongs:	Structural timber products
Manufacturer:	Consorzio Servizi Legno-Sughero Foro Buonaparte 12 20121 Milano Italy
Manufacturing plant:	See Annex 1
This European Technical Assessment contains:	16 pages including 4 annex which form an integral part of the document
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:	EAD 130196-00-03.04 “Solid Wood Boards for Flatwise Structural Use with Overlapping Edge Profiles”
This version replaces:	The ETA with the same number issued on 2021-01-01

1 Technical Description of the Product

1.1 General

This European Technical Assessment – ETA – applies to solid wood boards for flatwise structural use with overlapping edge profiles:

"Perlinato strutturale"

Solid wood boards for flatwise structural use with overlapping edge profiles (hereinafter "the profiled boards" or "the product") are:

- Visually graded flatwise based on a modified cross-section in accordance with DIN 4074-1 to S7, S10 or S13 or DIN 4074-5 to LS10 and better
- Assigned to a strength class based on the flatwise grade, the species and the source
- From the combinations of species and sources given in Clause 1.2 below
- Not treated with a fire retardant
- Not preservative treated
- Made exclusively of virgin wood; no recycled wood is used

The profiled boards are equipped with complementary tongue and groove or rebate profiles parallel to the grain direction along the opposing narrow edges. Examples of profiled cross section geometries are shown in Annex 2 (Figure 1 and Figure 2).

The minimum dimensions of the nominal cross section of the profiled boards are:

Thickness	18 mm
Width	80 mm

NOTE: The cross section of the profiled boards is rectangular, if the overlapping edge profiles are neglected (Annex 1, Figure 1 and Figure 2).

1.2 Wood Species and Source

Wood Species (softwood):

- Spruce (Picea abies (L.) Karst), Fir (Abies alba Mill.), Larch (Larix decidua Mill.), Pine (Pinus sylvestris L.).
  Source is Central, Northern and Eastern (CNE) Europe
- Douglas Fir (Pseudotsuga menziesii Mill.).
  Source is Germany and Austria
- Wood Species (hardwood):
- Oak (Quercus petrea Liebl. and Quercus robur L.).
  Source is Germany
- Sweet Chestnut (Castanea sativa Mill.)
  Source is Italy and France

2 Specification of the Intended Use in Accordance with the Applicable European Assessment Document (hereinafter EAD)

2.1 Intended Use

The profiled boards are intended for use in buildings as a structural component of walls, floors and roofs in Service Classes 1 and 2 according to EN 1995-1-1. The profiles have no structural function, but prevent gaps opening between boards.

Within a roof construction, the product will not contribute to the water tightness, but will receive a suitable waterproofing and roof covering. Waterproofing and roof covering are not within the scope of the EAD and ETA.

2.2 Assumptions

2.2.1 General

Concerning product packaging, transport, storage, maintenance, replacement, and repair it is the responsibility of the manufacturer to undertake the appropriate measures and to advise his clients on transport, storage, maintenance, replacement, and repair of the product as he considers necessary.

2.2.2 Design

The European Technical Assessment only applies to the manufacture and use of the profiled boards. Verification of stability of the works including application of loads on the products is not subject to this European Technical Assessment.

The following conditions shall be observed:

- Design of the product is carried out under the responsibility of an engineer experienced in such products;
- Verification is carried out by applying the rectangular cross section (the profiles have no structural function, but only prevent gaps opening between boards – see Figure 1 and Figure 2);
- Design of the works shall account for the protection of the profiled boards;
- The product is installed correctly;

Design of the product is according to EN 1995-1-1, EN 1995-1-2 and EN 1998-3 (for seismic actions), taking into account of Annex 3 of the European Technical Assessment. Standards and regulations in force at the place of use shall be considered.

2.2.3 Manufacturing

The profiled boards are manufactured according to the provisions of this European Technical Assessment. The product is produced by machining suitable boards, which are graded in accordance with EN 14081-1 (either dry-graded or not) on the assumption of a reduced cross-section. If required, moisture content is determined in accordance with EN 13183-2.

2.2.4 Packaging, Transport and Storage

The manufacturer's instruction for packaging, transport and storage shall be observed. The following aspects shall be considered:

- protection against unfavourable environmental effects;
- protection against external damage, that may affect the proper assembling of the profiled boards;
- intermediate storage at the construction site

2.2.5 Installation

2.2.5.1 General

The manufacturer shall provide installation instructions containing provisions to be followed to achieve the expected performance. It is assumed that the profiled boards will be installed according to the manufacturer's instructions.

2.2.5.2 Use, Maintenance and Repair of the Works

The profiled boards should not require maintenance or repair during the assumed working life if subject to normal use. Severe damage of the profiled boards may require immediate remedial action to restore the mechanical resistance and stability of the works.

If repair is deemed necessary it is generally made by replacement.

2.3 Assumed Working Life

This European Technical Assessment assumes a working life of 50 years for the profiled boards, when installed in the works, provided that the profiled boards are subject to appropriate installation, use, and maintenance (see Clause 2.2). These provisions are based upon the current state of the art and the available knowledge and experience.

In normal use conditions the real working life may be considerably longer without major degradation affecting the basic requirements for works[1].

The indications given as to the working life of the construction product cannot be interpreted as a guarantee, neither given by the product manufacturer or his representative nor by EOTA nor by the Technical Assessment Body, but are regarded only as a means for expressing the expected economically reasonable working life of the product.

[1] The real working life of a product incorporated in a specific works depends on the environmental conditions to which that works are subject, as well as on the particular conditions of design, execution, use and maintenance of that works. Therefore, it cannot be excluded that in certain cases the real working life of the product may also be shorter than the working life indicated above.

3 Performance of the Product and References to the Methods used for its Assessment

3.1 Essential Characteristics

The performance characteristics of the profiled boards are given in Table 1.

Table 1: Essential Characteristics and Performance of the Product

No.	Essential Characteristic	Product Performance
Basic Works Requirement 1: Mechanical Resistance and Stability[1]		
1	Bending Strength	See Annex 4
2	Tension Strength Parallel	See Annex 4
3	Tension Strength Perpendicular	See Annex 4
4	Compression Strength Parallel	See Annex 4
5	Compression Strength Perpendicular	See Annex 4
6	Shear Strength	See Annex 4
7	Modulus of Elasticity Parallel	See Annex 4
8	Modulus of Elasticity Perpendicular	See Annex 4
9	Shear Modulus	See Annex 4
10	Density	See Annex 4
11	Dimensional Stability	See Annex 4
12	Durability of Timber	See Annex 4
Basic Works Requirement 2: Safety in Case of Fire		
13	Reaction to Fire	See Annex 4
14	Resistance to Fire	See Annex 4
Basic Works Requirement 4: Safety and Accessibility in Use		
15	Same as Basic Works Requirement 1	———

3.2 Assessment Methods

The assessment of the essential characteristics in Clause 3.1 of the profiled boards for the intended uses and in relation to the requirements for mechanical resistance and stability, for safety in case of fire, and for hygiene health, and the environment in the sense of the Basic Works Requirements № 1 to 3 of Regulation (EU) № 305/2011 has been made in accordance with the European Assessment Document EAD 130196-00-0304 for solid wood boards for structural use with overlapping edge profiles.

3.3 Identification

This European Technical Assessment for the profiled boards is issued on the basis of agreed data that identify the assessed product[2]. Changes to materials, to composition, to characteristics, or to the production process of the profiled boards could result in these deposited data being incorrect. ETA-Danmark A/S should be notified before the changes are introduced, as an amendment of the European Technical Assessment may be necessary.

[2] The technical file of the European Technical Assessment is deposited at ETA-Danmark A/S

4 Assessment and Verification of Constancy of Performance (hereinafter AVCP) System applied, with reference to its Legal Base

4.1 System of Assessment and Verification of Constancy of Performance

According to Commission Decision 97/176/EC the system of assessment and verification of constancy of performance to be applied to solid wood boards for flatwise structural use with overlapping edge profiles is System 2+.

5 Technical Details Necessary for the Implementation of the AVCP System, as provided for in the applicable EAD

Technical details necessary for the implementation of the Assessment and Verification of Constancy of Performance (AVCP) are laid down in the control plan deposited at ETA-Danmark A/S prior to CE marking.

Issued in Copenhagen on 2021-06-17 by

Thomas Bruun
Managing Director, ETA-Danmark A/S

Annex 1 Manufacturing Plants

No.	Factory Name	Address
1	**BALCONI GIANNINO SRL**	Via Sempione, 48 - 21029 Vergiate (VA)
2	**FAS SRL**	Via Pangoni, 31 Zona Artigianale - 37022 Fumane (VR)
3	**F.B.E. di FONGARO ENRICO & C. SNC**	Via dell'industria, 1 - 36070 Castelgomberto (VI)
4	**G.G.G. DI SARDI GIULIO & C. SNC**	Via Buonarroti 178 - 20900 Monza (MB)
5	**IMOLA LEGNO SPA**	Via della Dogana, 548022 Lugo (RA)
6	**LEGNAMI SANGIORGIO di Molteni A. E C SAS**	Via Trieste, 28 - 22036 Erba {CO)
7	**MARIANA LUIGI SRL**	Via Provinciale per Dubino, 2 - 23014 Andalo Valtellino (SO)
8	**MIRRIONE FRANCESCO LEGNAMI S.R.L.**	Via Gamarra, 25 - 91011 Alcamo (TP)
9	**PACCHIANI HOLZ SRL**	Via Folzoni, 12 - 24052 Azzano San Paolo (BG)
10	**RENZETTI SAVERIO & FRATELLI SNC**	Via Guazzi Fraz. Soci - 52010 Bibbiena (AR)
11	**F.LLI SOLIANI DI GIOVANNI E FELICE SNC**	Via Francesco Petrarca, 30 - 42045 Luzzara (RE)
12	**VILTE LEGNAM I SRL**	Via Arturo Toscanini, 3 - 20063 Cernusco sul Naviglio (MI)
13	**LA EDILEGNO SRL**	Via Vittorio Veneto 31/ H Fraz. San Martina - 31014 Colle Umberto (TV)
14	**CENTRO LEGNO DI PERUZZI ANTONIO E C. S.N.C.**	Via Guido Rossa, 6 - Loc. Comeana - 59015 Prato (PO)
15	**SUBISSATI S.R.L.**	Via F.lli Lombardi, 6 - 60010 Ostra Vetere (AN)
16	**WOODEN BUILDINGS SRL**	Via della Stazione, 67 - 60022 Castelfidardo (AN)
17	**ANSALDI LEGNAMI SRL**	Strada del Rondello , 12 - 10028 Trofarello (TO)
18	**I.L.M.A. INDUSTRIA LEGNO MAGLIANO ALPI SPA**	S.S. 28 - Via Colle di Nava, 30 - 12060 - Magliano (CN)
19	**F.LLI ALIMONTI S.N.C. DI ALIMONTI ROCCO & C.**	Via Cona, 29/31 - 66010 - Pretoro (CH)
20	**DONATI LEGNAMI SPA**	Via Maestri Del Lavoro, 8 Z.I. S.Fiora - 52037 -Sansepolcro (AR)
21	**DIEMME LEGNO SNC DI DI MARCO VITTORIO E LORENZA**	Loc. La Dobbie - 33016 - Pontebba (UD}
22	**LEGNAMI MALUGANI SRL**	Via Provinciale, 91- 23818 Pasturo (LC}
23	**MASTRANGELI ALDO SRL**	Zona Artigianale ,sne - Loc. Macerine - 67028 San Demetrio ne Vestini (AQ)
24	**ARTENA LEGNAMI SRL**	Via Ariana km. 8,000 - 00031 - Artena (RM)
25	**CENTRO LEGNO ITALIA SRL**	Zona Industriale 146/B - 63095 - Paggese - Acquasanta Terme (AP}
26	**CHINUCCI LEGNAMI SRL**	Via Cassia Cimina, km 29 - 01037 - Ronciglione (VT}
27	**GALIMBERTI S.R.L.**	Via Mulino, 21 - 23871- Lomagna (LC}
28	**IMBERTI LEGNAMI SRL**	Via Roma, 2 - 24020 - Fiorano Al Serio (BG)
29	**PALAIE LEGNAMI SRL**	Via di Lucente, 25 - 50060 - Pelago (FI)
30	**PIANGOLI LEGNO DI PESCIAROLI G. P. & F.LLI SNC**	Strada Provinciale Piangoli, km 1 - 01038 - Soriano Nel Cimino (RM)

31	**FASS 2001DI SILVI FABRIZIO**	Nucleo Industriale La Torraccia - 05013 - Castel Giorgio (TR)
32	**SEGHERIA VALLESACRA**	Via Castelnuovo Nigra, 10 - 10081 - Castellamonte (TO)
33	**SEGHERIA ALTO TENNA SRL**	Loc. Santa Maria-Coriconi, 4A - 63857 - Amandola (FM)
34	**FRATELLI VIDONI S.R.L.**	Via Pontebbana, 46 - 33010 - Cassacco (UD)
35	**SILVESTRI SRL**	Via Stella, 15 - 38123 - Ravina - Trento (TN)
36	**E.COMOTTI S.R.L.**	Via Galileo Galilei, 43 - 20091 - Bresso (MI)
37	**SPEA TECNOLOGIE EDILI SRL**	Via Campomaggio, 114 - 62010 - Morrovalle (MC}
38	**GALANTE F.LLI SRL**	Via Roma, 136-38083 – Borgo Chiese (TN)
39	**MDR LEGNAMI SRL**	Via Nazionale, 7 - 23014 - Andalo Valtellino (SO)
40	**WOODEN HOUSES S.R.L.**	Via Salvo D'Acquisto, 60 - 61048 - Sant 'Angelo In Vado (PU)
41	**ARANOVA PALLETS DI CARLACCI LUIGI & . SNC**	Via Aravecchia, 15 - 03020 - Strangolagalli (FR)
42	**FRASCA LEGNAMI DI FRASCA ARMANDO**	Via Roma, 245 - 00040 - Lariano (RM)
43	**FREZZA LEGNAMI SPA**	Via Tommaso Columbo, 49 - 70132 - Bari (BA)
44	**QUINCI MAURO**	Via S. Rocco 44 - Serre di Rapolano - 53040 - Rapolano Terme (SI)
45	**LO CASTRO COMMERCIALESRL**	Via Ugo La Malfa, 5 - 90146 - PALERMO (PA)
46	**WOOD BETON s.p.a.**	Via Roma, 1- 25049 - Iseo (BS)

Annex 2 Geometry and Installation of Profiled Boards – Examples

Figure 1: Example of cross section of solid wood boards for flatwise structural use with overlapping edge profiles – complementary tongue and groove. The dashed lines show the limits of the width of the cross section for grading and design.

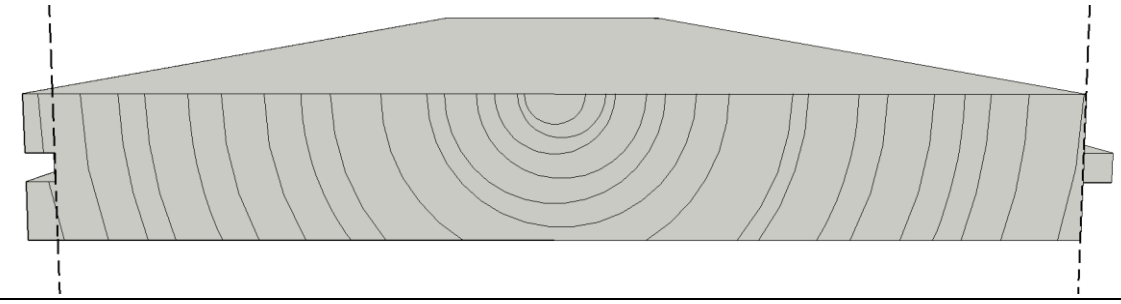


Figure 2: Example of cross section of solid wood boards for flatwise structural use with overlapping edge profiles – complementary rebates. The dashed lines show the limits of the width of the cross section for grading and design.

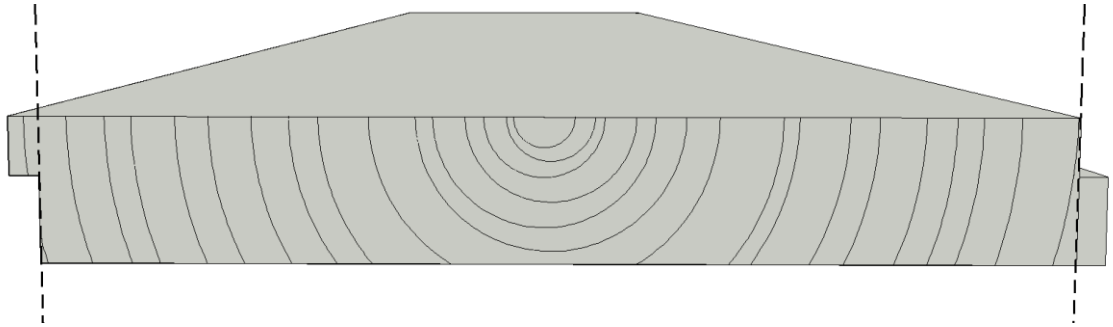


Figure 3: Example: staggered lay-up of tongue and groove profiled boards.

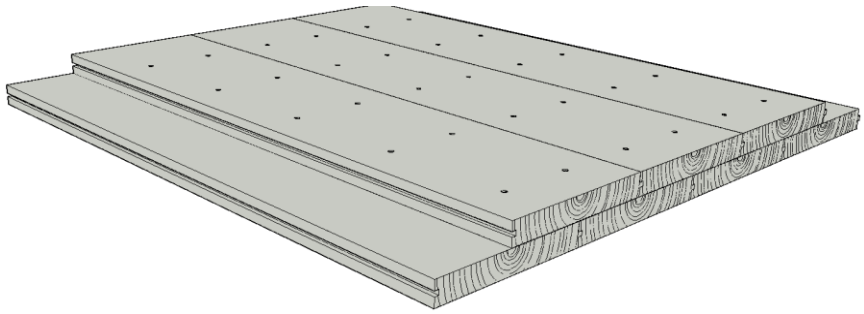


Figure 4: Example: staggered lay-up of rebate profiled boards.

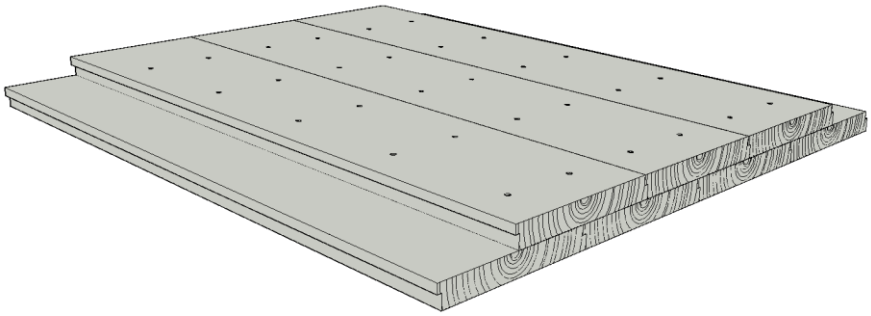


Figure 5: Example: crossed lay-up of tongue and groove profiled boards.

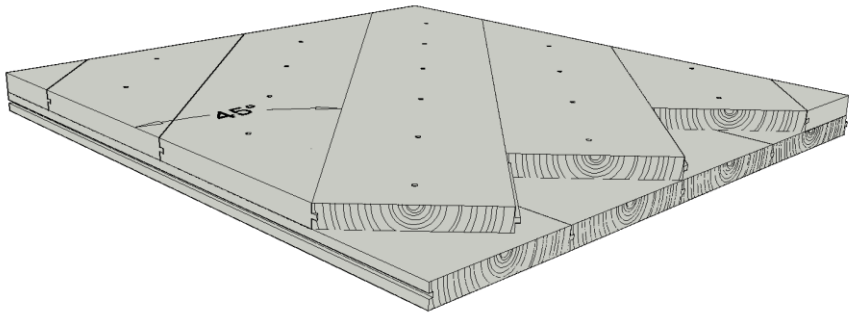
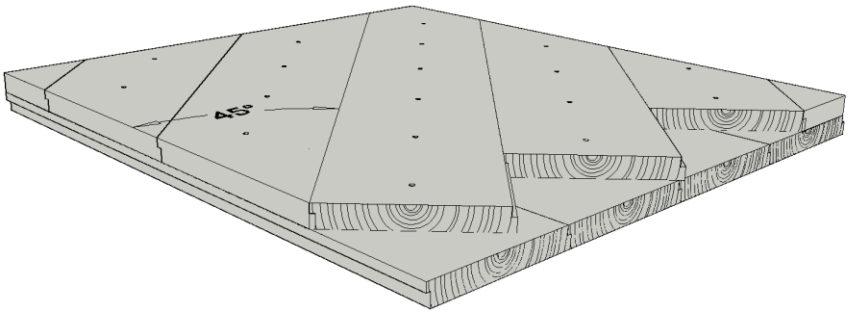


Figure 6: Example: crossed lay-up of rebate profiled boards.



Annex 3 Design of Solid Wood boards for Flatwise Structural Use with Overlapping Edge Profiles

Design of solid wood boards for flatwise structural use with overlapping edge profiles is in accordance with EN 1995-1-1, EN 1995-1-2 and EN 1998-3 (for seismic actions), taking into account the following items.

a) For mechanical actions perpendicular to the plane

According to Clause 3.2 of EN 1995-1-1, for solid timber with a characteristic density ≤ 700 kg/m³ the reference depth of the nominal cross-section in bending is 150 mm. For depths in bending of solid timber less than 150 mm the characteristic value $f_{m,k}$ should be increased by the factor k_h given by:

$$k_h = \min\begin{cases}\left(\frac{150}{h}\right)^{0,2}\\ 1,3\end{cases}$$

Where h is the depth in bending in mm.

According to Clause 6.6 of EN 1995-1-1, when the profiled boards are installed in more than one layer (either staggered as in Figures 3 and 4 or crossed as in Figures 5 and 6), the member strength properties shall be multiplied by a system strength factor k_{sys} as given in Figure 6.12 of EN 1995-1-1 for nailed or screwed laminations.

b) For mechanical actions parallel to the plane

According to Clause 3.2 of EN 1995-1-1 for solid timber with characteristic density ≤ 700 kg/m³, the reference width of nominal cross-section (maximum cross sectional dimension) in tension is 150 mm. For widths in tension of solid timber less than 150 mm the characteristic value $f_{t,k}$ should be increased by the factor k_h given by:

$$k_h = \min\begin{cases}\left(\frac{150}{h}\right)^{0,2}\\ 1,3\end{cases}$$

Where h is the width for tension in mm.

Annex 4 Characteristic data of solid wood boards for flatwise structural use with overlapping edge profiles

Table 2: Product performance of grades of S7, S10, S13 of solid wood boards for flatwise structural use with overlapping edge profiles of Spruce, Fir, Larch, Douglas Fir and Pine

BWR[1)]	Essential characteristic	Assessment method	Level, class or description		
			S7	S10	S13
1	**Mechanical resistance of solid wood boards for flatwise structural use with overlapping edge profiles of Spruce, Fir, Larch, Douglas Fir and Pine**				
	Strength class (Spruce and Pine)	[2)]	C18 or T12	C24 or T14.5	C30 or T21
	Strength class (Fir and Larch)	[2)]	C16 or T10	C24 or T14.5	C30 or T21
	Strength class (Douglas Fir)	[2)]	C18 or T12	C24 or T14.5	C35 or T26
	Dimensional timber	EN 336	Tolerance classes according to EN 336		
	Durability of timber • wood destroying fungi [3)]	EN 350	Class 5 (Class 4 if sapwood is excluded for Spruce and Fir, Class 3-4 for Pine, Class 3/4 for Larch and Douglas)		
	Service classes	EN 1995-1-1	1, 2		
2	**Reaction to fire**				
	Solid wood boards for flatwise structural use with overlapping edge profiles of Spruce, Fir, Larch, Douglas Fir and Pine	Commission Decision 2003/43/EC, as amended	D-s2, d0		
	Resistance to Fire				
	Charring rate	EN 1995-1-2			

NOTES
1) Basic Works Requirements;
2) EAD 130196-00-0304 and EN 338;
3) The natural durability in accordance with EN 350 shall be declared with specific reference to sapwood if the producer makes no special provision for its exclusion.

Table 3: Product performance of grades of "LS10 and better" solid wood boards for flatwise structural use with overlapping edge profiles of Oak

BWR[1)]	Essential characteristic	Assessment method	Level, class or description
			LS10 and better
1	**Mechanical resistance of solid wood boards for structural use with tongue and groove profiles of Oak**		
	Strength class of boards (Oak)	[2)]	D30
	Dimensional timber	EN 336	Tolerance classes according to EN 336
	Durability of timber • wood destroying fungi [3)]	EN 350	Class 5 (Class 2 if sapwood is excluded)
	Service classes	EN 1995-1-1	1, 2
2	**Reaction to fire**		
	Solid wood panelling for structural use with tongue and groove profiles of Oak	Commission Decision 2003/43/EC, as amended	D-s2, d0
	Resistance to Fire		
	Charring rate	EN 1995-1-2	

NOTE
1) Basic Works Requirement;
2) EAD 130196-00-0304 and EN 338;
3) The natural durability in accordance with EN 350 shall be declared with specific reference to sapwood if the producer makes no special provision for its exclusion.

Table 4: Product performance of grades of "LS10 and better" solid wood boards for flatwise structural use with overlapping edge profiles of Sweet Chestnut

BWR[1)]	Essential characteristic	Assessment method	Level, class or description
			LS10 and better
1	**Mechanical resistance of solid wood boards for structural use with tongue and groove profiles of Sweet Chestnut**		
	Strength class of boards (Sweet Chestnut)	[2)]	D24 or C27
	Dimensional timber	EN 336	Tolerance classes according to EN 336
	Durability of timber • wood destroying fungi [3)]	EN 350	Class 5 (Class 2 if sapwood is excluded)
	Service classes	EN 1995-1-1	1, 2
2	**Reaction to fire**		
	Solid wood panelling for structural use with tongue and groove profiles of Sweet Chestnut	Commission Decision 2003/43/EC, as amended	D-s2, d0
	Resistance to Fire		
	Charring rate	EN 1995-1-2	

NOTE
1) Basic Works Requirement;
2) EAD 130196-00-0304 and EN 338;
3) The natural durability in accordance with EN 350 shall be declared with specific reference to sapwood if the producer makes no special provision for its exclusion.