BRITISH STANDARD

BS EN
300:2006

Oriented Strand Boards (OSB) — Definitions, classification and specifications

The European Standard EN 300:2006 has the status of a British Standard

ICS 79.060.20

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BSI
British Standards

National foreword

This British Standard was published by BSI. It is the UK implementation of EN 300:2006. It supersedes BS EN 300:1997 which is withdrawn.

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A list of organizations represented on B/541 can be obtained on request to its secretary.

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Oriented Strand Boards (OSB) - Definitions, classification and specifications

Panneaux de lamelles minces, longues et orientées (OSB) - Définitions, classification et exigences

Platten aus langen, flachen, ausgerichteten Spänen (OSB) - Definitionen, Klassifizierung und Anforderungen

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

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Foreword

This document (EN 300:2006) has been prepared by Technical Committee CEN/TC 112 “Wood-based panels”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by January 2007, and conflicting national standards shall be withdrawn at the latest by January 2007.

This document supersedes EN 300:1997.

The following principal modifications have been made:

a) thickness ranges for board types OSB/2, OSB/3 and OSB/4 have been extended;

b) requirements for moisture resistance have been adapted;

c) requirements for the marking of boards have been simplified, taking account of the fact that EN 13986 now describes the detailed requirements for CE marking of boards for use in construction;

d) former Annexes E (list of approval numbers for option 2 board types with certain adhesives or adhesive systems) and F (A-deviations) have been deleted.

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 applies to Oriented Strand Boards (OSB). It defines terms, establishes a classification and specifies requirements.

The values listed in this European Standard relate to product properties but they are not characteristic values to be used in design calculations.

NOTE Test methods for determination of mechanical properties for structural purposes are given in EN 789. Determination of characteristic values of mechanical properties and density for structural purposes is given in EN 1058. Design characteristic values for OSB are given in EN 12369-1.

Information on supplementary properties is given in Annex C.

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 120, *Wood-based panels - Determination of formaldehyde content - Extraction method called the perforator method*

EN 310, *Wood-based panels - Determination of modulus of elasticity in bending and of bending strength*

EN 317, *Particleboards and fibreboards - Determination of swelling in thickness after immersion in water*

EN 318*, Wood-based panels - Determination of dimensional changes associated with changes in relative humidity*

EN 319, *Particleboards and fibreboards - Determination of tensile strength perpendicular to the plane of the board*

EN 320, *Fibreboards - Determination of resistance to axial withdrawal of screws*

EN 321, *Wood based panels - Determination of moisture resistance under cyclic test conditions*

EN 322, *Wood-based panels - Determination of moisture content*

EN 323, *Wood-based panels - Determination of density*

EN 324-1, *Wood-based panels - Determination of dimensions of boards - Part 1: Determination of thickness, width and length*

EN 324-2, *Wood-based panels - Determination of dimension of boards - Part 2: Determination of squareness and edge straightness*

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

EN 326-2, *Wood-based panels - Sampling, cutting and inspectionPart 2: Quality control in the factory*

EN 326-3*, Wood-based panels - Sampling, cutting and inspection - Part 3: Inspection of an isolated lot of panels*

EN 594, *Timber structures - Test methods - Racking strength and stiffness of timber frame wall panels*

EN 596, *Timber structures - Test methods - Soft body impact test of timber framed walls*

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

EN 789, *Timber structures - Test methods - Determination of mechanical properties of wood-based panels*

EN 1058, *Wood-based panels - Determination of characteristic values of mechanical properties and density*

EN 1087-1, *Particleboards - Determination of moisture resistance - Part 1: Boil test*

ENV 1156, *Wood-based panels - Determination of duration of load and creep factors*

EN 1195, *Timber structures - Test methods - Performance of structural floor decking*

EN 12369-1, *Wood-based panels - Characteristic values for structural design - Part 1: OSB, particleboards and fibreboards*

EN 12871, *Wood-based panels - Performance specifications and requirements for load bearing boards for use in floors, walls and roofs*

EN 13986:2004, *Wood-based panels for use in construction - Characteristics, evaluation of conformity and marking*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13986:2004 and the following apply.

3.1
Oriented Strand Board (OSB)
multi-layered board mainly made from strands of wood together with a binder. The strands in the external layer are aligned and parallel to the board length or width. The strands in the internal layer or layers can be randomly orientated or aligned, generally at right angles to the strands in the external layers

3.2
strand
piece of wood of a predetermined shape with a length of more than 50 mm and a typical thickness of less than 2 mm

3.3
major axis
direction in the plane of the board in which the bending properties have the higher values

3.4
minor axis
direction in the plane of the board at right angles to the major axis

3.5
dry conditions
conditions corresponding to service class 1 of EN 1995-1-1 which is characterised by a moisture content in the material corresponding to a temperature of 20 °C and a relative humidity of the surrounding air only exceeding 65 % for a few weeks per year

3.6
humid conditions
conditions corresponding to service class 2 of EN 1995-1-1 which is characterised by a moisture content in the material corresponding to a temperature of 20 °C and a relative humidity of the surrounding air only exceeding 85 % for a few weeks per year

4 Classification of boards

Four types of board are classified and are distinguished as follows:

OSB/1 general purpose non load-bearing boards, and boards for interior fitments for use in dry conditions;

OSB/2 load-bearing boards for use in dry conditions;

OSB/3 load-bearing boards for use in humid conditions;

OSB/4 heavy duty load-bearing boards for use in humid conditions.

NOTE Load-bearing boards are intended for use in the design and construction of load-bearing or stiffening building elements e.g. walls, flooring, roofing and I-beams (see EN 1995-1-1 and/or performance standards) for use in dry or humid conditions

5 General requirements for all OSB types

Oriented Strand Boards shall comply with the general requirements listed in Table 1 when dispatched from the producing factory.

NOTE On delivery of OSB panels, their moisture content should be determined prior to use, and allowed to come into equilibrium with the ambient climatic conditions.

Table 1 — General requirements for all OSB types

No.	Property	Test method	Requirement
1 [a b]	Tolerances on nominal dimensions:	EN 324-1	
	— thickness (sanded within and between boards;		± 0,3 mm
	— thickness (un-sanded) within and between boards;		± 0,8 mm
	— length and width		± 3,0 mm
2 [a b]	Edge straightness tolerance	EN 324-2	1,5 mm/m
3 [a b]	Squareness tolerance	EN 324-2	2,0 mm/m
4 [a]	Moisture content	EN 322	2 % to 12 %
5 [b]	Tolerance on the mean density within a board	EN 323	± 15 %
6 [e]	Formaldehyde release according to EN 13986		
	— Class E 1		
	Perforator value [f]	EN 120	Content ≤ 8 mg/100 g oven dry board [d]
	Steady state emission value [c]	EN 717-1	Release ≤ 0,124 mg/m^3 air
	— Class E 2		
	Perforator value [f]	EN 120	Content > 8 mg/100 g oven dry board [d] ≤ 30 mg/100 g oven dry board
	Steady state emission value	EN 717-1	Release > 0,124 mg/m^3 air

[a] Certain users of OSB can require other tolerances (see separate performance standards, e.g. EN 12871).

[b] These values are characterised by a moisture content in the material corresponding to a relative humidity of 65 % and a temperature of 20 °C.

[c] Experience has shown that to ensure compliance with the limit for class E1 the rolling average of the EN 120 values found from the factory production control over a period of six months should not exceed 6,5 mg formaldehyde 100 g panel mass for OSB.

[d] Initial type testing may be carried out for formaldehyde class E1 (established products only) on the basis of existing data with either EN 120 or pr EN 717-1 testing, either from factory production control or from external inspection, see EN 13986.

[e] For more detail concerning the formaldehyde classes and requirements, see EN 13986.

[f] The perforator values apply to boards with moisture content H of 6,5 %. In the case of boards with different moisture content (in the range of 3 % ≤ H ≤ 10 %) the perforator value shall be multiplied by a factor F which can be calculated from the following equation: $F = -0{,}133\,H + 1{,}86$.

6 Requirement values

The values which are given in Tables 2 to 7, determined by the relevant test methods as listed in Clauses 7 to 10, are to be used for factory production control (FPC) purposes only and shall not be used in design calculations.

With the exception of the moisture resistance requirements in Tables 5 and 7 and the swelling in thickness requirements given in Tables 2 to 4 and 6, the values given in Tables 2 to 7 are characterised by a moisture content in the material corresponding to a relative humidity of 65 % and a temperature of 20 °C.

The values for the moisture resistance requirements in Tables 5 and 7 and swelling in thickness (Tables 2 to 4 and 6) are characterised by a moisture content in the material before the treatment corresponding to a relative humidity of 65 % and a temperature of 20 °C.

The requirements in Tables 2 to 7 shall be met by 5 percentile values (95 percentile values in the case of swelling in thickness) based on the mean values for individual boards and calculated in accordance with EN 326-1, or (for continuous internal FPC) EN 326-2. In the case of swelling in thickness they shall be equal to or less than the values in the Tables 2 to 4 and 6 and in the case of all other properties they shall be equal to or greater than the values in the tables.

7 Requirements for non load-bearing boards, general purpose boards and boards for interior fitments for use in dry conditions (Type OSB/1)

This clause specifies the requirements in addition to those specified in Clause 5, for non load-bearing boards, general purpose boards and boards for interior fitments for use in dry conditions. Therefore, boards of this type shall comply with the requirements given in Table 1 and Table 2.

NOTE Boards of this type are only suitable for use in biological hazard class 1 of EN 335-3.

For definitions of values given in the tables see Clause 6.

Table 2 — Non load-bearing boards, general purpose boards and boards for interior fitments for use in dry conditions — Requirements for specified mechanical and swelling properties

Board type (technical class) OSB/1 Property	Test method	Unit	Requirement		
			Board thickness range (mm, nominal)		
			6 to 10	> 10 to < 18	18 to 25
Bending strength — major axis	EN 310	N/mm^2	20	18	16
Bending strength – minor axis	EN 310	N/mm^2	10	9	8
Modulus of elasticity in bending — major axis	EN 310	N/mm^2	2 500	2 500	2 500
Modulus of elasticity in bending — minor axis	EN 310	N/mm^2	1 200	1 200	1 200
Internal bond	EN 319	N/mm^2	0,30	0,28	0,26
Swelling in thickness — 24 h immersion	EN 317	%	25	25	25

8 Requirements for load-bearing boards for use in dry conditions (Type OSB/2)

This clause specifies the requirements, in addition to those specified in Clause 5, for load-bearing boards for use in dry conditions. Therefore, boards of this type shall comply with the requirements given in Table 1 and Table 3.

NOTE Boards of this type are only suitable for use in biological hazard class 1 of EN 335-3.

For determining characteristic values, see Clause 1.

Design characteristics for OSB are given in EN 12369-1 only for thickness classes up to 25 mm. For the higher thicknesses, tests have to be performed according to EN 789 and EN 1058.

For definitions of values given in the tables, see Clause 6.

Table 3 — Load-bearing boards for use in dry conditions — Requirements for specified mechanical and swelling properties

Board type (technical class) OSB/2 Property	Test method	Unit	Requirement				
			Board thickness range (mm, nominal)				
			6 to 10	> 10 to < 18	18 to 25	> 25 to 32	> 32 to 40
Bending strength — major axis	EN 310	N/mm^2	22	20	18	16	14
Bending strength — minor axis	EN 310	N/mm^2	11	10	9	8	7
Modulus of elasticity in bending — major axis	EN 310	N/mm^2	3 500	3 500	3 500	3 500	3 500
Modulus of elasticity in bending — minor axis	EN 310	N/mm^2	1 400	1 400	1 400	1 400	1 400
Internal bond	EN 319	N/mm^2	0,34	0,32	0,30	0,29	0,26
Swelling in thickness — 24 h immersion	EN 317	%	20	20	20	20	20
If it is made known by the purchaser that the boards are intended for specific use in flooring, walls or roofing, the performance standard EN 12871 has also to be consulted. This can result in additional requirements having to be complied with.							

9 Requirements for load-bearing boards for use in humid conditions (Type OSB/3)

9.1 General

This clause specifies the requirements, in addition to those specified in Clause 5, for load-bearing boards for use in humid conditions. Therefore, boards of this type shall comply with the requirements of Tables 1, 4 and 5.

NOTE Boards of this type are suitable for use in biological hazard classes 1 and 2 of EN 335-3.

For determining characteristic values, see Clause 1.

Design characteristics for OSB are given in EN 12369-1 only for thickness classes up to 25 mm. For the higher thicknesses, tests have to be performed according to EN 789 and EN 1058.

For definitions of values given in the tables, see Clause 6.

9.2 Mechanical and swelling properties

Table 4 — Load-bearing boards for use in humid conditions — Requirements for specified mechanical and swelling properties

Board type (technical class) OSB/3 Property	Test method	Unit	Requirement				
			Board thickness range (mm, nominal)				
			6 to 10	> 10 to < 18	18 to 25	> 25 to 32	> 32 to 40
Bending strength — major axis	EN 310	N/mm^2	22	20	18	16	14
Bending strength — minor axis	EN 310	N/mm^2	11	10	9	8	7
Modulus of elasticity in bending — major axis	EN 310	N/mm^2	3 500	3 500	3 500	3 500	3 500
Modulus of elasticity in bending — minor axis	EN 310	N/mm^2	1 400	1 400	1 400	1 400	1 400
Internal bond	EN 319	N/mm^2	0,34	0,32	0,30	0,29	0,26
Swelling in thickness — 24 h immersion	EN 317	%	15	15	15	15	15
If it is made known by the purchaser that the boards are intended for specific use in flooring, walls or roofing, the performance standard EN 12871 has also to be consulted. This can result in additional requirements having to be complied with.							

9.3 Moisture resistance

For the requirements for moisture resistance, two options are set out in Table 5 corresponding to the two principal recognised methods of evaluation. It is necessary for the manufacturer to show compliance with only one of these two options.

Option 1 requirements apply to boards subjected to an accelerated ageing test, the so-called “cyclic test”, described in EN 321. Option 2 requirements apply to boards subjected to the so-called “boil test” described in EN 1087-1. The glues or adhesive systems suitable for the application of either option 1 or option 2 are unrestricted.

For Option 1, there are two alternative sets of requirements, either through measuring internal bond after cyclic test (alternative A) or through measuring bending strength after cyclic test (alternative B). It is necessary for the manufacturer to show compliance with only one of these two alternatives.

When verifying compliance by external control only the test option performed and notified by the manufacturer shall be carried out. If the option is unknown it will be necessary to carry out both sets of the procedures, but compliance is required with only one set of requirements.

Table 5— Load-bearing boards for use in humid conditions — Requirements for moisture resistance

Board type (technical class) OSB/3 Property	Test method	Unit	Requirement				
			Board thickness range (mm, nominal)				
			6 to 10	> 10 to < 18	18 to 25	> 25 to 32	> 32 to 40
Option 1 – alternative A Internal bond after cyclic test	EN 321 + EN 319	N/mm^2	0,18	0,15	0,13	0,10	0,08
Option 1 – alternative B Bending strength after cyclic test – major axis	EN 321 + EN 310 [a]	N/mm^2	9	8	7	6	6
Option 2 Internal bond after boil test	EN 1087-1 [b]	N/mm^2	0,15	0,13	0,12	0,06	0,05

[a] For the calculation of bending strength after cyclic test, the thickness taken into account is the thickness measured after the cyclic test.

[b] EN 1087-1 shall be used with the modified procedure given in Annex A.

10 Requirements for heavy duty load-bearing boards for use in humid conditions (Type OSB/4)

10.1 General

This clause specifies the requirements in addition to those specified in Clause 5, for heavy duty load-bearing boards for use in humid conditions. Therefore, boards of this type shall comply with the requirements of Tables 1, 6 and 7.

NOTE Boards of this type are suitable for use in biological hazard classes 1 and 2 of EN 335-3.

For determining characteristic values, see Clause 1.

Design characteristics for OSB are given in EN 12369-1 only for thickness classes up to 25 mm. For the higher thicknesses, tests have to be performed according to EN 789 and EN 1058.

For definitions of values given in tables see Clause 6.

10.2 Mechanical and swelling properties

Table 6 — Heavy duty load-bearing boards for use in humid conditions — Requirements for specified mechanical and swelling properties

Board type (technical class) OSB/4 Property	Test method	Unit	Requirement				
			Board thickness range (mm, nominal)				
			6 to 10	> 10 to < 18	18 to 25	> 25 to 32	> 32 to 40
Bending strength — major axis	EN 310	N/mm^2	30	28	26	24	22
Bending strength — minor axis	EN 310	N/mm^2	16	15	14	13	12
Modulus of elasticity in bending — major axis	EN 310	N/mm^2	4 800	4 800	4 800	4 800	4 800
Modulus of elasticity in bending — minor axis	EN 310	N/mm^2	1 900	1 900	1 900	1 900	1 900
Internal bond	EN 319	N/mm^2	0,50	0,45	0,40	0,35	0,30
Swelling in thickness — 24 h immersion	EN 317	%	12	12	12	12	12
If it is made known by the purchaser that the boards are intended for specific use in flooring, walls or roofing, the performance standard EN 12871 has also to be consulted. This can result in additional requirements having to be complied with.							

10.3 Moisture resistance

See 9.3 and apply Table 7.

Table 7 — Heavy duty load-bearing boards for use in humid conditions — Requirements for moisture resistance

Board type (technical class) OSB/4 Property	Test method	Unit	Requirement				
			Board thickness range (mm, nominal)				
			6 to 10	> 10 to < 18	18 to 25	> 25 to 32	> 32 to 40
Option 1 – alternative A Internal bond after cyclic test	EN 321 + EN 319	N/mm^2	0,21	0,17	0,15	0,10	0,08
Option 1 – alternative B Bending strength after cyclic test – major axis	EN 321 + EN 310 [a]	N/mm^2	15	14	13	6	6
Option 2 Internal bond after boil test	EN 1087-1 [b]	N/mm^2	0,17	0,15	0,13	0,06	0,05

[a] For the calculation of bending strength after cyclic test, the thickness taken into account is the thickness measured after the cyclic test.

[b] EN 1087-1 shall be used with the modified procedure given in Annex A.

11 Verification of compliance

11.1 General

Verification of compliance with this EN shall be carried out using the test methods given in the relevant tables above.

Sampling and cutting of test pieces and expression of test results shall be in accordance with EN 326-1.

For boards for use in construction applications EN 13986 applies.

11.2 External control, and inspection of an isolated lot

External control of the factory, if any, shall be carried out according to EN 326-2.

NOTE The inspection of an isolated lot of panels may be carried out according to EN 326-3. EN 326-3 is a non-mandated standard. Therefore, its use is voluntary in the absence of agreement between buyer and seller on an alternative procedure for checking an isolated lot of panels.

In the case of formaldehyde potential, however, for both external control according to EN 120, and inspection of an isolated lot of panels if the method according to EN 326-3 is used, the respective requirement set out in Table 1 shall be met by the mean value of at least three boards. Additionally, no individual board shall exceed an upper tolerance limit of + 10 %.

11.3 Factory production control

Factory production control shall be carried out according to EN 326-2.

The properties listed in the tables shall be controlled using intervals between tests not exceeding the intervals given in Table 8. Sampling shall be carried out at random. The intervals between tests given in Table 8 are related to a production under statistical control.

Each requirement relating to formaldehyde potential (perforator value) shall be met by the 95 percentile value based on test values of individual boards. The 95 percentile value shall be equal to or less than the respective tabulated value given in Table 1.

Alternative test methods and/or unconditioned test pieces may be used if a valid correlation to the specified test methods can be proven (see EN 326-2). For specifications, claims etc., only the methods specified in this European Standard shall be used.

Table 8— Maximum intervals between tests for each production line

Property		Maximum interval between tests [b]
Moisture content		8 h per type of board
Formaldehyde potential (Table 1) [a]	Class E1	24 h per type of board
	Class E2	One week per type of board
All other properties listed in Table 1		8 h per type and thickness range
Moisture resistance (Table 5 and Table 7)	Option 1	One week per type of board
	Option 2	8 h per type of board [c]
All other properties listed in Tables 2 to 7		8 h [c]

[a] Certain types of OSB are known to release little or no formaldehyde. In these cases, the test intervals may be increased. However, it remains the responsibility of the manufacturer and inspection agency, if any, to ensure compliance with this European Standard.

[b] If a given property does not meet the requirements, frequency shall be increased in accordance with internal procedures in the factory or with external procedures applied by an inspection agency (if any).

[c] If several thickness ranges are produced in one 8h shift, the internal control shall be organised so that at least one board of each thickness range is tested in one week's production.

12 Marking

12.1 Boards marketed within the European Economic Area for construction applications

Boards produced in conformity with this European Standard and marketed in any of the territories of the European Economic Area for use in construction applications as defined in the Construction Products Directive (89/106/EEC) shall be marked according to the requirements of EN 13986.

NOTE In certain countries only products of formaldehyde class E1 are allowed.

12.2 Other boards

In the case of other boards produced in conformity with this European Standard, each panel or package shall be clearly marked by the manufacturer by indelible direct printing with at least the following information in this sequence:

a) manufacturer's name, trade mark, or identification mark;

b) number of this European Standard, i.e. EN 300;

c) panel type e.g. OSB/2;

d) nominal thickness;

e) major axis (if no the length of the panel);

f) formaldehyde class;

g) batch number, or production week and year.

In addition, colour coding may be voluntarily applied to panels. If applied with the use of colour combinations, it shall be according to the system shown in Annex B; but this European Standard does not exclude the dyeing of the whole panel or of certain layers of the panel according to traditional national practices.

Annex A
(normative)

EN 1087-1 (Modified procedure)

EN 1087-1:1995 shall be used with the following modifications in the clauses.

Add the following subclause:

4.5 Air circulating oven – capable of maintaining an internal temperature of (70 ± 2) °C

Add the following sentence in **5.5**

5.5 The bonding of the test pieces to the testing blocks shall only be carried out after the boil and subsequent treatments have been completed.

All other aspects of this subclause apply.

6 Procedure – replace with the following subclause:

6.2 After (120 ± 5) min remove the test pieces and immerse them in water at (20 ± 5) °C for (60 ± 5) min. The test pieces shall have their faces vertical and be separated from each other and from the sides and the bottom of the water bath by at least 15 mm.

Remove the test pieces from the water, dry them with a paper towel and place them, with their faces horizontal, in the oven at (70 ± 2) °C for (960 ± 15) min.

Remove the test pieces from the oven, allow them to cool to approximately room temperature and bond the loading blocks to the faces.

NOTE If the surface of the test pieces is rough or uneven, they can be smoothed before bonding on the blocks by rubbing on a piece of abrasive paper which is held on a flat surface.

Annex B
(normative)

Voluntary colour coding system for OSB

Two colours are used in each case. The first colour defines the panel as either intended for general purpose use or for load bearing applications (either one or two stripes of this colour are used). The second colour identifies the panel as being suitable for use in either dry or humid conditions.

The colours used are as follows:

First colour	White	General purpose
	Yellow	Load-bearing
Second colour	Blue	Dry conditions
	Green	Humid conditions

Table B.1 — Voluntary colour coding for OSB

OSB Type	Colour code
OSB/1	White, blue
OSB/2	Yellow, yellow, blue
OSB/3	Yellow, yellow, green
OSB/4	Yellow, green

Annex C
(normative)

Supplementary properties

For certain applications, information on some supplementary properties may be required. On request, this information shall be supplied by the manufacturer.

Supplementary properties together with the appropriate EN test methods are listed in Table C.1.

Table C1 — Supplementary properties and test methods

Physical properties	Test method
— Dimensional changes	EN 318
Mechanical properties	
— Screw withdrawal	EN 320
— Duration of load/creep	ENV 1156
— Tension [a]	EN 789
— Compression [a]	EN 789
— Shear [a]	EN 789
— Bending [a]	EN 789
— Impact resistance	EN 1195
Performance properties	
— Flooring	EN 1195, EN 12871
— Walls	EN 594, EN 596, EN 12871
— Roofing	EN 1195, EN 12871
[a] Characteristic values for these properties are given in EN 12369-1.	

Bibliography

[1] EN 312 (all parts), *Particleboards - Specifications*

[2] EN 335-3, *Durability of wood and wood-based products - Definition of hazard classes of biological attack —Part 3: Application to wood-based panels*

[3] EN 1995-1-1, *Eurocode 5:Design of timber structures - Part 1-1: General - Common rules and rules for buildings*

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

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