BRITISH STANDARD

BS EN
634-2:2007

Cement-bonded particleboards — Specifications —

Part 2: Requirements for OPC bonded particleboards for use in dry, humid and external conditions

The European Standard EN 634-2:2007 has the status of a British Standard

ICS 79.060.20

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National foreword

This British Standard was published by BSI. It is the UK implementation of EN 634-2:2007. It supersedes BS EN 634-2:1997 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/541, Wood based panels.

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

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

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Cement-bonded particleboards - Specifications - Part 2: Requirements for OPC bonded particleboards for use in dry, humid and external conditions

Panneaux de particules liées au ciment - Exigences - Partie 2 : Exigences pour les panneaux de particules liées au ciment Portland ordinaire utilisés en milieux sec, humide et extérieur

Zementgebundene Spanplatten - Anforderungen - Teil 2: Anforderungen an Portlandzement (PZ) gebundene Spanplatten zur Verwendung im Trocken-, Feucht- und Außenbereich

This European Standard was approved by CEN on 13 January 2007.

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Foreword

This document (EN 634-2:2007) 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of an identical text or by endorsement, at the latest by August 2007, and conflicting national standards shall be withdrawn at the latest by August 2007.

This document supersedes EN 634-2:1996.

The principal modifications introduced by this standard consist of a revision of the product marking requirements, clarification that external control in the factory is carried out according to EN 326-2, and clarification that inspection of an isolated lot of panels may be carried out according to EN 326-3.

This standard is one of a series specifying requirements for cement-bonded particleboards:

— EN 634-1, *Cement-bonded particleboards — Specification — Part 1: General requirements;*

— EN 634-2, Cement-bonded particleboards — Specifications — Part 2: Requirements for OPC bonded particleboards for use in dry, humid and external conditions.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, 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 for cement-bonded particleboards specifies the requirements for particleboards bonded with Ordinary Portland Cement (OPC) for use in dry, humid[1)] and external[2)] conditions. Additional information on supplementary properties for certain applications is also given.

NOTE 1 Boards made with cement other than OPC may comply with this Standard if test values are declared according to EN 13986. However, further parts of EN 634 may be developed in the future to cover other types of cement or other materials.

NOTE 2 Cement-bonded particleboard does not contain any asbestos fibre.

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

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 inspection — Part 2: Quality control in the factory*

EN 634-1, *Cement-bonded particleboards — Specification — Part 1: General requirements*

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 1128, *Cement-bonded particleboards — Determination of hard body impact resistance*

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

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1) Humid conditions are defined in terms of service class 2 of EN 1995-1-1 which is characterized by moisture content in the material corresponding to a temperature of 20 °C and a relative humidity of the surrounding air exceeding 85 % for only a few weeks per year. Boards of this type are suitable for use in biological hazard classes 1 and 2 of EN 335-3.

2) External conditions are defined in terms of service class 3 of EN 1995-1-1. Boards of this type are suitable for use in biological hazard classes 1, 2, 3 and 4 of EN 335-3.

EN 1328, *Cement bonded particleboards — Determination of frost resistance*

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

3 Requirements

3.1 General requirements

OPC bonded particleboards shall comply with the general requirements listed in EN 634-1 and the requirements set out in Table 1 of this standard.

3.2 Specified properties

The requirements in Table 1 shall be met by five percentile values (95 percentile values in the case of thickness swelling) based on the mean values for individual boards and calculated in accordance with EN 326-1. In the case of thickness swelling they shall be equal to or less than the values in Table 1 and in the case of all other properties they shall be equal to or greater than the values in Table 1.

Table 1 — Requirements for specified properties

Property	Test method	Unit	Requirement (all thicknesses)
Density	EN 323	Kg/m^3	1 000
Bending strength	EN 310	N/mm^2	9
Modulus of elasticity in bending	EN 310	N/mm^2	Class 1 4 500 Class 2 4 000
Internal bond	EN 319	N/mm^2	0,5
Swelling in thickness 24 h	EN 317	%	1,5
Internal bond after cyclic test	EN 319 and EN 321	N/mm^2	0,3
Swelling in thickness after cyclic test	EN 317 and EN 321	%	1,5

If it is made known by the purchaser that the boards are intended for specific use in flooring, walls or roofing, the relevant performance standard EN 12871 has to be consulted. This can result in having to comply with additional requirements.

NOTE 1 The values in this table for both bending strength and modulus of elasticity shall apply to test results obtained in any direction in the plane of the panel.

NOTE 2 With the exception of thickness swelling and the cyclic test, the values given in this table are characterized by moisture content in the material corresponding to a relative humidity of 65 % and a temperature of 20 °C.

3.3 Supplementary properties

For certain applications, information on some of the properties listed in Table 2 can be required and where appropriate, shall be supplied by the board manufacturer. In this case all shall have been derived using the test methods listed in Table 2.

Table 2 — Supplementary properties and test methods

Property	Test method
Dimensional changes	EN 318
Impact resistance	EN 1128
Resistance to withdrawal of screws	EN 320
Frost resistance	EN 1328
Creep and duration of load	ENV 1156
Structural properties (strength and stiffness)	EN 789 and EN 1058
NOTE For certain applications, information on additional properties not specified in Table 2 can be required. For example, for determining of thermal conductivity, water vapour transmission, and classification for reaction to fire, see EN 13986.	

4 Verification of compliance

4.1 General

Verification of compliance with this EN shall be carried out using the test methods listed in Table 1, Table 2 (where required), EN 634-1, and shall comply with the requirements of EN 13986 for panels used for construction purposes.

4.2 External control

External control in the factory, if required by EN 13986, shall be carried out according to EN 326-2.

Inspection of consignments shall be carried out according to statistical basis.

NOTE Inspection of isolated lots of panels can be carried out according to EN 326-3.

4.3 Factory production control

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

The properties listed in Table 3 shall be controlled using intervals between tests not exceeding the intervals given. Sampling shall be carried out at random. Alternative test methods and/or unconditioned test pieces may be used if a valid correlation can be proven (see EN 326-2) with the specified test method.

Table 3 — Maximum intervals between tests for each production line

Property	Maximum interval between tests
General properties:	
Thickness (unsanded)	8 h per thickness
Thickness (sanded)	2 h per thickness
Length	2 h per thickness
Width	2 h per thickness
Squareness	2 h per thickness
Edge straightness	2 h per thickness
Moisture content	8 h per thickness
Density Bending strength Modulus of elasticity (bending)	8 h per thickness range[a]
Internal bond Swelling in thickness, 24 h	24 h
Internal bond after cyclic test Swelling in thickness after cyclic test	One week

[a] A thickness range is defined as any range of thicknesses extending to ± 6 mm from the preceding manufactured thickness.

5 Marking

5.1 Marking boards placed on the internal market of the European Economic Area for construction purposes

Boards marketed in one or more market territories of the European Union or other territories of the wider European Economic Area shall be marked in accordance with the requirements of EN 13986, to signify compliance with that standard and denote the claim (by affixing a CE mark), that the boards are legally placed on the market in accordance with the Construction Products Directive provisions and corresponding national regulations.

NOTE For full details of the above requirements for marking, either by reference to the appropriate technical class (board type) for OPC bonded particleboards or on the basis of declared property values, see clause 7 (Marking) and ZA.3 (CE Marking) of EN 13986:2004.

5.2 Positioning of the marking applied according to 5.1

The marking and the accompanying information shall be placed according to the provisions of EN 13986.

5.3 Marking of other boards

Boards not marketed as mentioned in clause 5.1 shall be marked either (a) according to the requirements of clause 5.1 if acceptable to the buyer, or (b) according to the relevant properties for the intended application using the elements in Table 4.

5.4 All boards

Whether the marking is applied according to clause 5.1 or clause 5.3, if the marking and/or the accompanying information is/are not placed on the product itself, the first commercial purchasers to whom the product is delivered shall be responsible for ensuring that all relevant information, as contained in the relevant table of EN 13986, EN 634-1 or this standard, is passed to any other commercial purchaser or user to whom he or she in turn delivers the product.

NOTE If CE marking is applied according to the requirements of EN 13986, the marking may only be applied by the producer or agent situated within the European Economic Area and duly authorised by the producer for that purpose. The authenticity of all product information accompanying the CE mark remains the responsibility of the producer.

5.5 Cut-size panels

In case of cut-size panels, where the first purchaser is the user of the product and where he agrees that marking (other than on the package) is unnecessary, the marking of such individual panels in the package need not be undertaken.

5.6 Colour coding

Additionally, panels may be colour coded with two vertical white stripes and one vertical brown stripe, each 25 mm in length, applied near one corner of the board.

NOTE This is in accordance with the unified system of colour coding for wood-based panels and indicates that the board is suitable for use in dry, humid and external conditions.

Table 4 — Marking requirements related to option (b) of 5.3

a)	Manufacturer's name, trademark, or identification mark
b)	Number of this European Standard: EN 634-2
c)	Board type (technical class), namely Class 1 or Class 2[a]
d)	Nominal thickness
e)	Reaction to fire class (including smoke and droplets; additional classification as relevant) for boards excluding flooring, or for flooring, as the case may be[b]
f)	Batch number or the production week

[a] The board types (technical classes 1 and 2) are differentiated only by reference to the requirements for modulus of elasticity in bending (see Table 1), but products in either class shall also satisfy the requirements of the remaining specified properties in Table 1 as well as the general requirements given in EN 634-1.

[b] The standard reaction to fire class for cement-bonded particleboard is as given in Table 8 of EN 13986:2004 where the cement content is at least 75 % by mass and the boards do not require testing for further classification (i.e. boards with standard features and properties only). For other boards, the classification for reaction to fire performance shall be based on test data according to EN 13501-1.

Bibliography

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

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

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

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