

Wood-based panels — Characteristic values for structural design —

Part 1: OSB, particleboards and fibreboards

The European Standard EN 12369-1:2001 has the status of a
British Standard

ICS 79.060.20

National foreword

This British Standard is the official English language version of EN 12369-1:2001. The UK participation in its preparation was entrusted to Technical Committee B/541, Wood-based panels, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Users should note that the terminology and notation used in EN 12369-1 is different from that used for solid timber and different from that previously used in the UK for wood-based panels in BS 5268-2. The symbols used are explained in 3.2 and users should note that the subscripts “0” and “90” are used to denote the major and minor axes of OSB.

Bending properties are for flatwise bending, and for OSB the “0” is with the major axis parallel to the span and “90” is with the minor axis parallel to the span. No corresponding values are given for edgewise bending.

The tension and compression properties given are both for in-plane stresses. No values are given for perpendicular to the plane of the panel.

The term panel shear is for in-plane shear which tends to transform a rectangular section of a panel into a lozenge shape, as in the web of an I-beam. The term planar shear is also in-plane and occurs in flatwise bending and between glued components. It refers to stresses tending to cause layers of the panel to slide over one another. In BS 5268-2, this property is referred to as rolling shear.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 14, an inside back cover and a back cover.

The BSI copyright date displayed in this document indicates when the document was last issued.

This British Standard, having been prepared under the direction of the Sector Committee for Building and Civil Engineering, was published under the authority of the Standards Committee and comes into effect on 15 March 2001

Amendments issued since publication

Amd. No.	Date	Comments

© BSI 03-2001

ISBN 0 580 36993 5

English version

Wood based panels — Characteristic values for structural design — Part 1: OSB, particleboards and fibreboards

Panneaux à base de bois — Valeurs caractéristiques pour la conception des structures — Partie 1: OSB, panneaux de particules et panneaux de fibres

Holzwerkstoffe — Charakteristische Werte für die Berechnung und Bemessung von Holzbauwerken — Teil 1: OSB, Spanplatten und Faserplatten

This European Standard was approved by CEN on 3 December 2000.

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 Management Centre 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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

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

Contents

	Page
Foreword	2
1 Scope	3
2 Normative references	3
3 Terms and definitions and symbols	4
3.1 Terms and definitions	4
3.2 Symbols	5
4 General	5
5 Characteristics values	6
5.1 Introduction	6
5.2 OSB (EN 300)	6
5.3 Particleboards (EN 312)	7
5.4 Fibreboards (EN 622 parts 2 and 3)	10
5.5 MDF (EN 622-5)	12
Annex A (informative) Format for the presentation of the characteristic values	14

Foreword

This European Standard 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 July 2001, and conflicting national standards shall be withdrawn at the latest by July 2001.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

This standard is intended to be used in conjunction with ENV 1995-1-1.

No existing European Standard is superseded.

Annex A is informative.

1 Scope

This European Standard provides information on the characteristic values for use in designing structures incorporating wood based panels. The characteristic values given are as defined in ENV 1995-1-1.

This standard includes the characteristic values of both the mechanical properties and density for the panels set out below:

- OSB/2, OSB/3 and OSB/4, complying with EN 300;
- Particleboard, P4, P5, P6, P7 complying with EN 312 Parts 4 to 7;
- Hardboard, HB.HLA2 complying with EN 622-2;
- Medium board, MBH.LA2 complying with EN 622-3;
- MDF.LA and MDF.HLS complying with EN 622-5.

Characteristic values for plywood, solid wood panels, laminated veneer lumber (LVL) and cement bonded particleboards will be provided in one or more further parts of this standard.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies (including amendments).

EN 300, *Oriented Strand Boards (OSB) — Definitions, classification and specifications.*

EN 312-4, *Particleboards — Specifications — Part 4: Requirements for load-bearing boards for use in dry conditions.*

EN 312-5, *Particleboards — Specifications — Part 5: Requirements for load-bearing boards for use in humid conditions.*

EN 312-6, *Particleboards — Specifications — Part 6: Requirements for heavy duty load-bearing boards for use in dry conditions.*

EN 312-7, *Particleboards — Specifications — Part 7: Requirements for heavy duty load-bearing boards for use in humid conditions.*

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

EN 622-2, *Fibreboards — Specifications — Part 2: Requirements for hardboards.*

EN 622-3, *Fibreboards — Specifications — Part 3: Requirements for medium boards.*

EN 622-5, *Fibreboards — Specifications — Part 5: Requirements for dry process boards (MDF).*

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.*

ENV 1995-1-1 *Eurocode 5 — Design of timber structures — Part 1-1: General rules and rules for buildings.*

3 Terms and definitions and symbols

3.1 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply:

3.1.1

characteristic values

Characteristic strength values are defined as the population 5-percentile values obtained from the results of tests with a duration of 300 s at an equilibrium moisture content of the test pieces relating to a temperature of 20 °C and a relative humidity of 65 %.

Characteristic stiffness values are defined as either the population 5-percentile or the mean values obtained under the same test conditions as defined above.

The stiffness values given in the tables are mean values as these are most commonly used in design. A note below each of the tables explains how to calculate the 5-percentile value.

The characteristic density is defined as the population 5-percentile value with mass and volume corresponding to equilibrium moisture content at a temperature of 20 °C and a relative humidity of 65 %. This value is used in the design of joints in association with ENV 1995-1-1.

3.1.2

service classes

three service classes are defined in ENV 1995-1-1. These are:

service class 1: characterized by a moisture content in the materials corresponding to a temperature of 20 °C and the relative humidity of the surrounding air only exceeding 65 % for a few weeks per year.

service class 2: characterized by a moisture content in the materials corresponding to a temperature of 20 °C and the relative humidity of the surrounding air only exceeding 85 % for a few weeks per year.

service class 3: climatic conditions leading to higher moisture contents than in service class 2.

3.1.3

load-duration classes

For strength and stiffness calculations, actions are assigned to one of the load-duration classes given in Table 1 (see ENV 1995-1-1).

The load-duration classes are characterized by the effect of a constant load acting for a certain period of time in the life of the structure. For a variable action the appropriate class is determined on the basis of an estimate of the interaction between the typical variation of the load with time and the rheological properties of the materials.

Table 1 — Load-duration classes

Load-duration class	Order of accumulated duration of characteristic load	Examples of loading
Permanent	more than 10 years	self weight
Long-term	6 months to 10 years	storage
Medium-term	1 week to 6 months	imposed load
Short-term	less than one week	snow ^a and wind
Instantaneous		accidental load
^a In areas which have a heavy snow load for a prolonged period of time, part of the load should be regarded as medium-term		