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Wood-based panels for use in construction - Characteristics, evaluation of conformity and marking

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EUROPÄISCHE NORM

October 2000

ICS 01.040.79; 01.040.91; 79.060.01; 91.080.20

English version

Wood-based panels for use in construction - Characteristics, evaluation of conformity and marking

Panneaux à base de bois destinés à la construction - Caractéristiques, évaluation de conformité et marquage

Holzwerkstoffe zur Verwendung im Bauwesen - Eigenschaften, Bewertung der Konformität und Kennzeichnung

This draft European Standard is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee CEN/TC 112.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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

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Contents

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 document is currently submitted to the Unique Acceptance Procedure.

This European Standard has been prepared under mandate M113 given to CEN by the European Commission and the European Free Trade Association and supports essential requirements of EU Directives.

For relationship with Council Directive 89/106/EEC, see the informative annex ZA which is an integral part of this standard.

No existing European Standard is superseded.

The annexes A and B are normative. Annex ZA is informative.

1 Scope

This European Standard defines wood-based panels for use in construction and specifies the relevant characteristics and the appropriate test methods to determine these characteristics for wood-based panels, unfaced, overlaid, veneered or coated:

- for internal use as structural components in dry conditions[1)] ;
- for internal (or protected external) use as structural components in humid conditions[2)] ;
- for external use as structural components[3)] ;
- for internal use as non-structural components in dry conditions[1)];
- for internal (or protected external) uses as non structural components in humid conditions[2)];
- for external use as non-structural components[3)];
- for internal use as structural floor decking on joists in dry[1)] or humid[2)] conditions;
- for internal use as structural roof decking on joists in dry[1)] or humid[2)] conditions;
- for internal use as structural wall sheathing on studs in dry[1)] or humid[2)] conditions.

It provides for the evaluation of conformity and the requirements for marking these products.

This standard covers wood-based panels in the form of solid wood panels, LVL[4)] , plywood, OSB, particleboards (chipboards) either resin- or cement-bonded, and fibreboards in the form of hardboards, medium boards, softboards and dry process fibreboards (MDF) for use in construction. They may contain chemical agents to improve their reaction to fire and to resist to biological attack, e.g. by fungi and insects.

This standard is not applicable to wood-based panels intended for use in non-constructional applications.

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.

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

EN 300:1997, O*riented Strand Boards (OSB) — Definitions, classification and specifications*.

EN 309, *Wood particleboards — Definitions and classification*.

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1) Dry conditions are defined in terms of service class 1 of ENV 1995-1-1. Boards of this type are suitable for use in biological hazard class 1 of EN 335-3.

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

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

4) Standards for LVL are under development. LVL panels are not currently covered by this standard.

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

EN 312-1, *Particleboards — Specifications — Part 1: General requirements for all board types.*

EN 312-2, *Particleboards — Specifications — Part 2: Requirements for general purpose boards for use in dry conditions.*

EN 312-3, *Particleboards — Specifications — Part 3: Requirements for boards for interior fitments (including furniture) for use in dry conditions.*

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 313-2, *Plywood — Classification and terminology — Part 2: Terminology.*

EN 314-1, *Plywood — Bonding quality — Part 1: Test methods.*

EN 314-2, *Plywood — Bonding quality — Part 2: Requirements.*

EN 316, *Wood fibreboards — Definition, classification and symbols.*

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

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

EN 321, *Fibreboards — Cyclic tests in humid conditions.*

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 335-1, *Durability of wood and derived products — Definition of hazard classes of biological attack — Part 1: General.*

EN 335-2, *Durability of wood and wood-based products — Definition of hazard classes of biological attack — Part 2: Application to solid wood.*

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

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

EN 622-1, *Fibreboards — Specifications — Part 1: General requirements.*

EN 622-2:1997, *Fibreboards — Specifications — Part 2: Requirements for hardboards.*

EN 622-3:1997, *Fibreboards — Specifications — Part 3: Requirements for medium boards.*

EN 622-4, *Fibreboards — Specifications — Part 4: Requirements for softboards.*

EN 622-5:1997, *Fibreboards — Specifications — Part 5: Requirements for dry process boards (MDF).*

EN 633, *Cement-bonded particleboards — Definition and classification.*

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

EN 636-1, *Plywood — Specifications — Part 1: Requirements for plywood for use in dry conditions.*

EN 636-2, *Plywood — Specifications — Part 2: Requirements for plywood for use in humid conditions.*

EN 636-3, *Plywood — Specifications — Part 3: Requirements for plywood for use in exterior conditions.*

ENV 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 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 load and creep factors.*

EN 1195, *Timber structure — Test methods — Performance of structural floor decking.*

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

EN 12369-1, *Wood-based panels — Characteristic values for use in structural design — Part 1: Particleboards, OSB and fibreboards —*[5] .

EN 12524, *Building materials and products — Hygrothermal properties — Tabulated design values.*

prEN 12664:2000, *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 12775, *Solid wood panels — Classification and terminology —*[5]

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

prENV 12872:1999, *Wood-based panels — Guidance on the use of load-bearing boards in floors, walls and roofs*.

EN 13353, *Solid wood panels — Requirements —*[5].

prEN 13354:1998, *Solid wood panels — Bonding quality — Test method*

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using test data from reaction to fire tests —*[5].

EN 20354, *Acoustics — Measurement of sound absorption in a reverberation room (ISO 354:1985).*

EN ISO 12572, *Building materials — Determination of water vapour transmission properties —*[5].

5) To be published

3 Terms and definitions

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

3.1
wood based panel
solid wood panel, laminated veneer lumber (LVL), plywood, oriented strand board (OSB), resin-bonded particleboard, cement-bonded particleboard or fibreboard

3.2
solid wood panel
wood-based panel as defined in EN 12775 consisting of pieces of timber glued together on their edges and, if multi-layer, on their faces

3.2.1
solid wood panel for internal or external use as a structural component in dry humid or exterior conditions
solid wood panel incorporating the performance characteristics from 4.1, 4.2 or 4.3 that are relevant in EN 13353

NOTE The performance characteristics relevant to solid wood panels in structural use and their requirements are given in table A.1.

3.2.2
solid wood panel for internal or external use as a non-structural component in dry humid or exterior conditions
solid wood panel incorporating the performance characteristics from clause 4.4, 4.5 or 4.6 that are relevant in EN 13353

NOTE The performance characteristics relevant to solid wood panels in non-structural use and their requirements are given in table A.1.

3.3
laminated veneer lumber (LVL)
wood panel consisting of an assembly of layers bonded together with the direction of grain in adjacent layers usually parallel to each other.

NOTE Specification standards for laminated veneer lumber are under development.

3.4
plywood
wood-based panel as defined in EN 313-2 consisting of an assembly of layers glued together with the direction of the grain in adjacent layers usually at right angles

3.4.1
plywood for internal use as a structural component in dry conditions
plywood incorporating the performance characteristics from 4.1 that are relevant to plywood in EN 636-1

NOTE The performance characteristics relevant to this type of plywood and their requirements are given in table A.2.

3.4.2
plywood for internal use as a structural component in humid conditions
plywood incorporating the performance characteristics from 4.2 that are relevant to plywood in EN 636-2

NOTE The performance characteristics relevant to this type of plywood and their requirements are given in table A.2.

3.4.3
plywood for external use as a structural component
plywood incorporating the performance characteristics from 4.3 that are relevant to plywood in EN 636-3

NOTE The performance characteristics relevant to this type of plywood and their requirements are given in table A.2.

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