SLOVENSKI STANDARD
SIST EN 12871:2013
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Nadomešča:
SIST EN 12871:2010

Lesne plošče - Lastnosti in zahteve za nosilne plošče, ki se uporabljajo za pode, stene in strehe

Wood-based panels - Determination of performance characteristics for load bearing panels for use in floors, roofs and walls

Holzwerkstoffe - Bestimmung der Leistungseigenschaften für tragende Platten zur Verwendung in Fußböden, Wänden und Dächern

Panneaux à base de bois - Détermination des caractéristiques de performance des panneaux travaillants utilisés en planchers, toitures et murs

Ta slovenski standard je istoveten z: **EN 12871:2013**

ICS:

79.060.01	Lesne plošče na splošno	Wood-based panels in general

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EUROPEAN STANDARD

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EN 12871

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English Version

Wood-based panels - Determination of performance characteristics for load bearing panels for use in floors, roofs and walls

Panneaux à base de bois - Détermination des caractéristiques de performance des panneaux travaillants utilisés en planchers, toitures et murs

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

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Foreword

This document (EN 12871:2013) 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of an identical text or by endorsement, at the latest by December 2013, and conflicting national standards shall be withdrawn at the latest by December 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12871:2010.

Compared to EN 12871:2010, the following changes have been made:

a) the title of the standard has been changed, because this standard now only deals with determining performance characteristics;

b) proposals for national performance requirements are given in Annex B; Annex B includes a new reduction factor for ultimate limit state;

c) for soft body impact tests, 3 impact classes have been defined to describe the performance; they can be related to load categories as suggested in Annex B;

d) this standard does not include testing of racking behaviour nor uniformly distributed loads as these are covered by testing according to EN 594 or calculation according to EN 1995-1-1 respectively;

e) the possibility to increase the span in dependence on the roof slope was included to Annex B;

f) the reference for the statistical evaluation of the results has been changed to EN 1058;

g) the load pad used for point load testing is now 50 mm x 50 mm in all cases, see Annex A.

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, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This European Standard provides methods for determining performance characteristics for concentrated loads and impact on wood-based panels used for structural floor or roof decking and for impact on wood-based panels used for wall sheathing.

This European Standard takes the approach of type testing specific structures. This approach yields an optimised design since the results from the testing shall apply only to one specific design.

This revision incorporates experiences from use, adopts the load area for concentrated load defined in EN 1991-1-1 and the evaluation methods from EN 1058.

This European Standard contains an informative annex with proposals for national requirements to the characteristics determined by this European Standard, based on Eurocodes and national annexes.

1 Scope

This European Standard specifies:

- concentrated load test and assessment methods for floor and roof decking;
- soft body impact assessment methods and classification system for floors, roofs and walls.

This European Standard does not include racking testing or uniformly distributed loads as these are covered by testing according to EN 594 or calculation according to EN 1995-1-1 respectively.

This European Standard specifies the procedure for determining the performance characteristics through type testing, of load-bearing wood-based panels fitted on:

a) structural joists for decking:

   1) in flooring applications in load categories A, B, C and D;

   2) in roof applications in load categories H and I;

for which type testing involves:

   i) punching shear under concentrated loading;

   ii) vertical soft body impact;

b) studs for walling application for which type testing involves:

   1) pendular soft body impact.

Annex A (normative) lists modifications to EN 1195, particularly the contact area of the loading head that may be used for concentrated loading.

Annex B (informative) provides proposals for national performance requirements.

Annex C (informative) provides examples for a decking application in a floor and a roof.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

2.1 General

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

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

EN 1058, *Wood-based panels — Determination of characteristic 5-percentile values and characteristic mean values*

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

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

EN 1990:2002, *Eurocode — Basis of structural design*

EN 1991-1-1, *Eurocode 1: Actions on structures — Part 1-1: General actions — Densities, self-weight, imposed loads for buildings*

EN 1995-1-1:2004, *Eurocode 5: Design of timber structures — Part 1-1: General — Common rules and rules for buildings*

2.2 Product standards

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

EN 312, *Particleboards — Specifications*

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

EN 636, *Plywood — Specifications*

EN 13353, *Solid wood panels (SWP) — Requirements*

EN 14279, *Laminated Veneer Lumber (LVL) — Definitions, classification and specifications*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
service class 1
service class 1 is characterised 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

[SOURCE: EN 1995-1-1:2004, 2.3.1.3]

3.2
service class 2
service class 2 is characterised 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

[SOURCE: EN 1995-1-1:2004, 2.3.1.3]

3.3
service class 3
service class 3 is characterised by climatic conditions leading to higher moisture contents than in service class 2

[SOURCE: EN 1995-1-1:2004, 2.3.1.3]

3.4
serviceability limit states
SLS
states that correspond to conditions beyond which specified service requirements for a structure or structural member are no longer met

[SOURCE: EN 1990:2002, 1.5.2.14.]

3.5
ultimate limit states
ULS
states associated with collapse or with other similar forms of structural failure

[SOURCE: EN 1990:2002, 1.5.2.13]

Note 1 to entry: Specifically to this standard, it applies to the maximum force F_{max} applied to the tested component.

3.6
characteristic value
value of a material or product property having a prescribed probability of not being attained in a hypothetical unlimited test series

Note 1 to entry: This value generally corresponds to a specified fractile of the assumed statistical distribution of the particular property of the material or product. A nominal value is used as the characteristic value in some circumstances.

[SOURCE: EN 1990:2002, 1.5.4.1]

Note 2 to entry: In this standard, the probability of failing to pass the value is 5 % (5th percentile of the distribution).

3.7
load category
for decking applications, class of imposed load defined according to their end-uses in EN 1991-1-1

Note 1 to entry: The load values are defined in the National Annexes to EN 1991-1-1 or, where not available, in EN 1991-1-1.

3.8
structural wall-sheathing
vertical (or quasi-vertical) assembly of wood-based panels, supported by studs, capable of taking up loading in the 3 directions of space

3.9
structural floor-decking
horizontal (or quasi-horizontal) assembly of wood-based panels fixed to supporting joists and spanning over them

Note 1 to entry: When a load is applied on the decking, it is free to deflect between the joists.

3.10
sub-floor
structural panel meant to be covered by overlays

3.11
structural roof-decking
usually, sloping assembly of wood based panels, fixed to supporting joists and spanning over them

Note 1 to entry: Roof assemblies are tested horizontally.

Note 2 to entry: When a load is applied on the decking, it is free to deflect between the joists.

3.12
warm roof
roof design in which the panels supported by the joists are placed below the insulation

Note 1 to entry: Usually, the panels are considered to be under conditions corresponding to service class 1.

3.13
cold roof
roof design in which the panels and some of the supporting joists are placed above the insulation

Note 1 to entry: Usually, the panels are considered to be under conditions corresponding to service class 2.

3.14
set
irreversible deformation (unevenness between two adjoining panels) of the test floor, wall or roof after the removal of the applied load

3.15
punching shear strength
stress in the section of a panel under a concentrated load applied perpendicularly to its face by means of a loading head with a specified cross section

4 Symbols and subscripts

4.1 Symbols

A Contact area of a square load pad

F Force applied to the component being tested

L Span between joists or studs (axis to axis distance) with horizontal test assembly

L_α Increased span between joists or studs (axis to axis distance), as a function of roof slope

Q_k Characteristic concentrated load for the relevant load category, specified in National Annexes to EN 1991-1-1

R Stiffness of the structural decking or sheathing for concentrated loading (experimental value) and racking

k_{def} Deformation factor defined by EN 1995-1-1

k_{dis} Correction factor converting test loads, for consideration of influence of size and shape of the load pad

k_{mod} Modification factor defined by EN 1995-1-1

k_{red} Reduction factor for local types of failure

w_{fin} Final deflection

α Roof slope

γ_M Material partial factor defined by National Annexes to EN 1995-1-1 or, where not available, by EN 1995-1-1

γ_Q Action partial factor defined by National Annexes to EN 1990 or, where not available, by EN 1990