

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

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 12871:2013 sisaldab Euroopa standardi EN 12871:2013 ingliskeelset teksti.	This Estonian standard EVS-EN 12871:2013 consists of the English text of the European standard EN 12871:2013.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 26.06.2013.	Date of Availability of the European standard is 26.06.2013.
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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

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

This European Standard was approved by CEN on 1 May 2013.

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# Contents

Page

Foreword.....	4
Introduction .....	5
1 Scope .....	6
2 Normative references .....	6
3 Terms and definitions .....	7
4 Symbols and subscripts .....	9
4.1 Symbols .....	9
4.2 Subscripts .....	10
5 General requirements.....	10
5.1 Specification of panels intended for load-bearing application.....	10
5.2 Mechanical properties.....	11
5.2.1 General.....	11
5.2.2 Concentrated load on structural floor or roof decking on joists .....	11
5.2.3 Soft body impact test .....	11
5.3 Sampling.....	11
6 Determination of performance characteristics.....	12
6.1 General Recommendations .....	12
6.1.1 Dimensional tolerances: length and width .....	12
6.1.2 Dimensional tolerances: thickness.....	12
6.1.3 Dimensional changes: linear expansion .....	12
6.1.4 Discrepancy at joints between panels.....	12
6.1.5 Edge profile of tongued and grooved or similar panels.....	12
6.2 Structural floor or roof decking on joists.....	13
6.2.1 General.....	13
6.2.2 Determination of stiffness characteristics (serviceability limit state) for concentrated load ....	13
6.2.3 Determination of the serviceability load corresponding to the elasticity limit .....	13
6.2.4 Determination of $F_{\max,k}$ .....	13
6.2.5 Determination of Impact Class for soft body impact .....	13
6.3 Structural wall sheathing on studs.....	14
6.3.1 General.....	14
6.3.2 Soft body impact test .....	15
7 Evaluation.....	15
7.1 Concentrated load .....	15
7.2 Impact load .....	15
8 Report .....	15
Annex A (normative) Modification to EN 1195.....	17
A.1 Scope .....	17
A.2 Modification to EN 1195 .....	17
Annex B (informative) Proposal for performance requirements .....	18
B.1 Introduction .....	18
B.2 Concentrated load .....	18
B.2.1 General.....	18
B.2.2 Serviceability limit state.....	19
B.2.3 Ultimate limit state .....	19
B.2.4 Increase of span $L_{\alpha}$ as a function of roof slope.....	20
B.3 Soft body impact.....	21

<b>B.3.1</b>	<b>General .....</b>	<b>21</b>
<b>B.3.2</b>	<b>Requirements.....</b>	<b>21</b>
<b>Annex C (informative)</b>	<b>Example .....</b>	<b>22</b>
<b>C.1</b>	<b>General .....</b>	<b>22</b>
<b>C.2</b>	<b>Features of the end use .....</b>	<b>22</b>
<b>C.2.1</b>	<b>Decking for flooring in housing applications .....</b>	<b>22</b>
<b>C.2.2</b>	<b>Decking for an accessible cold roof (load category I).....</b>	<b>22</b>
<b>C.3</b>	<b>Type testing values of the component.....</b>	<b>22</b>
<b>C.3.1</b>	<b>Main features of the testing (according to EN 1195) .....</b>	<b>22</b>
<b>C.3.2</b>	<b>Results.....</b>	<b>22</b>
<b>C.4</b>	<b>Values for the calculation parameters .....</b>	<b>23</b>
<b>C.5</b>	<b>Determination of the Limit States of the component and compliance to recommended requirements.....</b>	<b>23</b>
<b>C.5.1</b>	<b>Ultimate Limit State (according to B.2.3) .....</b>	<b>23</b>
<b>C.5.2</b>	<b>Serviceability Limit State (according to B.2.2) .....</b>	<b>24</b>
<b>C.5.3</b>	<b>Summarisation.....</b>	<b>24</b>
<b>Bibliography</b>	<b>.....</b>	<b>25</b>

## 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]