SLOVENSKI STANDARD
SIST EN 13353:2009+A1:2011

01-september-2011

Nadomešča:
SIST EN 13353:2009

Masivne lesne plošče (SWP) - Zahteve

Solid wood panels (SWP) - Requirements

Massivholzplatten (SWP) - Anforderungen

Bois panneautés (SWP) - Exigences

Ta slovenski standard je istoveten z: EN 13353:2008+A1:2011

ICS:

79.060.99 Druge lesne plošče Other wood-based panels

SIST EN 13353:2009+A1:2011 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13353:2008+A1

May 2011

ICS 79.060.99

Supersedes EN 13353:2008

English Version

Solid wood panels (SWP) - Requirements

Bois panneautés (SWP) - Exigences

Massivholzplatten (SWP) - Anforderungen

This European Standard was approved by CEN on 18 October 2008 and includes Amendment 1 approved by CEN on 9 March 2011.

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 CEN-CENELEC 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, 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.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword

This document (EN 13353:2008+A1:2011) 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of an identical text or by endorsement, at the latest by November 2011, and conflicting national standards shall be withdrawn at the latest by November 2011.

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 includes Amendment 1 approved by CEN on 9 March 2011.

This document supersedes ⟦A1⟩ EN 13353:2008 ⟨A1⟩.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ⟦A1⟩ ⟨A1⟩.

Compared to EN 13353:2003 the following changes have been made:

a) classification introduced according to non-structural use, structural use and declared values;

b) information on moisture content of chemically or thermally treated wood added in 4.2;

c) relationship between shear strength and wood failure percentage in introduced in 4.3.3;

d) provisions for adhesives other than thermosetting for structural applications added in 4.3.4;

e) different requirements for single and multi layer solid wood panels for structural applications specified in 4.5.2;

f) footnote regarding alternative test methods for the determination of the bonding quality added in Table 5.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies requirements for solid wood panels as defined in EN 12775 〈A1〉 with a maximum thickness of 80 mm 〈A1〉 for use in dry, humid and exterior conditions as defined in service classes 1, 2 and 3 of EN 1995-1-1.

Additional information on supplementary properties for certain applications is also given.

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 301:2006, *Adhesives, phenolic and aminoplastic, for load-bearing timber structures — Classification and performance requirements*

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

EN 318, *Wood-based panels — Determination of dimensional changes associated with changes in relative humidity*

EN 322, *Wood-based panels — Determination of moisture content*

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

EN 324-1, *Wood-based panels — Determination of dimensions of boards — Part 1: Determination of thickness, width and length*

EN 324-2, *Wood-based panels — Determination of dimensions of boards — Part 2: Determination of squareness and edge straightness*

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 335-2, *Durability of wood and wood-based products — Definition of use classes — Part 2: Application to solid wood*

EN 594, *Timber structures — Test methods — Racking strength and stiffness of timber frame wall panels*

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

CEN/TS 635-4, *Plywood — Classification by surface appearance — Part 4: Parameters of ability for finishing, guideline*

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*

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

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

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

EN 12775, *Solid wood panels — Classification and terminology*

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

EN 13017-1, *Solid wood panels — Classification by surface appearance — Part 1: Softwood*

EN 13017-2, *Solid wood panels — Classification by surface appearance — Part 2: Hardwood*

EN 13183-2, *Moisture content of a piece of sawn timber — Part 2: Estimation by electrical resistance method*

EN 13354, *Solid wood panels — Bonding quality — Test method*

EN 13446, *Wood-based panels — Determination of withdrawal capacity of fasteners*

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

[A1] EN 15416-3:2007 [A1], *Adhesives for load bearing timber structures other than phenolic and aminoplastic — Test methods — Part 3: Creep deformation test at cyclic climate conditions with specimens loaded in bending shear*

3 Terms, definitions and classes

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12775 and the following apply.

3.1.1
solid wood panel for use in dry conditions
panel intended for use in interior applications with no risk of wetting as defined in service class 1 of EN 1995-1-1 and use class 1 of EN 335-2

NOTE Service class 1 is characterised by a moisture content of the material corresponding to a temperature of 20 °C and a relative humidity of the surrounding air exceeding 65 % for only a few weeks per year.

3.1.2
solid wood panel for use in humid conditions
panel intended for use in protected external applications as defined in service class 2 of EN 1995-1-1 (e. g. behind cladding or under roof coverings) and use class 2 of EN 335-2

NOTE 1 It is also capable of resisting weather exposure for short periods (e.g. when exposed during construction).

NOTE 2 Service class 2 is characterised by a moisture content of 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.

3.1.3
solid wood panel for use in exterior conditions
panel intended for use in unprotected external applications as defined in service class 3 of EN 1995-1-1 and use class 3 of EN 335-2

NOTE 1 It is also capable of withstanding exposure to weathering conditions and liquid water, or water vapour in a damp but ventilated location where it can frequently attain a moisture content above 20 %.

NOTE 2 Service class 3 is characterised by a moisture content of the material higher than service class 2.

3.2 Classes for solid wood panels indicating their intended use

3.2.1 Technical classes for non-structural use

SWP/1 NS: Solid wood panel for non-structural use in dry conditions according to 3.1.1

SWP/2 NS: Solid wood panel for non-structural use in humid conditions according to 3.1.2

SWP/3 NS: Solid wood panel for non-structural use in exterior conditions according to 3.1.3

3.2.2 Technical classes for structural use

SWP/1 S: Solid wood panel for structural use in dry conditions according to 3.1.1

SWP/2 S: Solid wood panel for structural use in humid conditions according to 3.1.2

SWP/3 S: Solid wood panel for structural use in exterior conditions according to 3.1.3

3.2.3 Classes for structural use based on declared values

SWP/1 SD: Solid wood panel for structural use in dry conditions according to 3.1.1

SWP/2 SD: Solid wood panel for structural use in humid conditions according to 3.1.2

SWP/3 SD: Solid wood panel for structural use in exterior conditions according to 3.1.3

NOTE Technical classes are intended to simplify the use of standardised solid wood panels by providing supporting data e.g. in EN 12369-3 as well as simplifying marking in accordance with EN 13986. Nevertheless products should not be limited by the requirements according to the technical classes. Therefore classes based on declared values may be used for such products.

4 Requirements

4.1 Dimensional tolerances

The tolerances for the nominal length, width and thickness, thickness within the panel, edge straightness and squareness are given in Table 1. They relate to the moisture content at time of despatch for large and medium sized panels according to EN 12775 and shall be determined in accordance with EN 324-1 and EN 324-2 as appropriate.

Table 1 — Dimensional tolerances for both large and medium sized panels

Tolerances on nominal length and width[a]	Thickness[a]		Tolerance[b] for	
	Tolerance within an single panel	Tolerance on nominal thickness	Edge straightness	Squareness
± 2,0 mm	0,5 mm	± 1,0 mm	1,0 mm/m	1,0 mm/m

[a] Determined in accordance with EN 324-1
[b] Determined in accordance with EN 324-2

4.2 Moisture content at despatch

At time of despatch the moisture content according to EN 322 shall be (8 ± 2) % for use in dry conditions, (10 ± 3) % for use in humid conditions and (12 ± 3) % for use in exterior conditions.

If chemically or thermally treated wood is used, the equilibrium moisture content of the panels can differ significantly to those made of natural wood. In that case a deviation from the above mentioned requirements concerning moisture content is possible.

If another moisture content is necessary e.g. due to regional climatic condition the appropriate moisture content has to be specified explicitly.

4.3 Bonding quality

4.3.1 General

The bonding quality shall be determined in accordance with EN 13354 after the appropriate pre-treatment for use in dry, humid or exterior condition.

4.3.2 Single layer solid wood panel

The lower 5-percentile of the shear strength, calculated in accordance with EN 326-1, shall not be less than 2,5 N/mm^2.

The mean wood failure percentage of each panel shall be more than 40 % except if the density is more than 600 kg/m³.

4.3.3 Multi layer solid wood panel

The lower 5-percentile of the shear strength f_v calculated in accordance with EN 326-1 and the mean percentage wood failure of each panel shall comply with Table 2.

Table 2 — Requirements

Shear strength N/mm²	Wood failure %
$0,4 \leq f_v < 0,8$	≥ 40
$0,8 \leq f_v < 1,2$	≥ 20
$f_v \geq 1,2$	no requirement

4.3.4 Adhesive for solid wood panels in structural applications

Where panels are intended for structural applications, a thermosetting adhesive (phenolic or aminoplastic type) shall be used for the bonding of the layers to each other. Other adhesives have to show their suitability by fulfilling the requirements to thin glue line (0,1 mm) according to EN 301:2006, 5.2 regarding tensile shear and according to EN 301:2006, 5.3 regarding delamination, and ▌A1⟩ with regard to creep according to EN 15416-3:2007 with a thin glueline (0,1 mm) or ENV 1156 ⟨A1▌.

4.4 Biological durability

The risk of attack for uses in dry, humid and exterior conditions is outlined in use classes 1, 2 and 3 of EN 335-2. Guidance on factors affecting durability and on precautionary measures which may be considered necessary can be found in EN 335-2 and EN 460.

4.5 Mechanical characteristics

4.5.1 General

The mechanical properties of solid wood panels are determined according to their application.