SLOVENSKI STANDARD

SIST EN 14279:2005+A1:2009

01-julij-2009

Nadomešča:

SIST EN 14279:2005

SIST EN 14279:2005/kprA1:2008

Slojnat furnirni les (LVL) - Definicije, klasifikacija in specifikacije

Laminated Veneer Lumber (LVL) - Definitions, classification and specifications

Furnierschichtholz (LVL) - Definitionen, Klassifizierung und Spezifikationen

Lamibois (LVL) - Définitions, classification et spécifications

Ta slovenski standard je istoveten z: EN 14279:2004+A1:2009

ICS:

79.060.99 Druge lesne plošče Other wood-based panels

SIST EN 14279:2005+A1:2009 en,fr,de

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14279:2004+A1

March 2009

ICS 79.080; 79.060.20

Supersedes EN 14279:2004

English Version

Laminated Veneer Lumber (LVL) - Definitions, classification and specifications

Lamibois (LVL) - Définitions, classification et spécifications

Furnierschichtholz (LVL) - Definitionen, Klassifizierung und Spezifikationen

This European Standard was approved by CEN on 14 October 2004 and includes Amendment 1 approved by CEN on 3 February 2009.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, 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 14279:2004+A1:2009) 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 September 2009, and conflicting national standards shall be withdrawn at the latest by September 2009.

This document includes Amendment 1, approved by CEN on 2009-02-03.

This document supersedes EN 14279:2004.

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

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, 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.

Introduction

LVL is covered by two standards: EN 14374 and EN 14279 (this document), prepared under Mandates M/112 and M/113 respectively.

In the field of application of Mandate M/112 "Structural timber products and ancillaries", LVL is a material used for manufacturing structural products. In the field of application of Mandate M/113 "Wood-based panels", LVL is a product.

The fields of application are to some extent overlapping. In some cases, the standard to be used is specified in the design standards, in other cases it is up to the user to specify the standard to be used.

For relationship with Council Directive 89/106/EEC, EN 14374:2004 has its own Annex ZA.

EN 14279 applies to LVL products for general purposes as well as to LVL products for use in construction, for relationship with Council Directive 89/106/EEC, refer to Annex ZA of EN 13986:2004.

This document has been prepared in concert with CEN/TC 124. Consequently, some parts are common with EN 14374, e.g. some definitions and general specifications.

1 Scope

This document gives definitions, a classification and specifies the requirements for Laminated Veneer Lumber (LVL) for general purposes or for use in construction in dry, humid or exterior conditions.

NOTE This standard will be called up in EN 13986 for construction applications.

Annex A "Evaluation of the bonding quality of laminated veneer lumber" is normative

Information on supplementary properties is given in Annex B.

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

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

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

EN 315, *Plywood — Tolerances for dimensions*

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 326-3, *Wood based panels — Sampling, cutting and inspection — Part 3: Inspection of an isolated lot of panels*

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 408, *Timber structures — Structural timber and glued laminated timber — Determination of some physical and mechanical properties*

EN 635-2, *Plywood — Classification by surface appearance — Part 2: Hardwood*

EN 635-3, *Plywood — Classification by surface appearance — Part 3: Softwood*

EN 635-5, *Plywood — Classification by surface appearance — Part 5: Methods for measuring and expressing characteristics and defects*

EN 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 13986:2004 *Wood-based panels for use in construction — Characteristics, evaluation of conformity and marking*

EN 14374, *Timber structures – Structural laminated veneer lumber (LVL) – Requirements*

3 Terms and definitions

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

3.1
laminated veneer lumber – LVL
layered composite of wood veneers with fibres principally in the same direction

NOTE This definition does not preclude the inclusion of cross banded veneers.

3.2
lay-up
composition of LVL with regard to number of veneers and their direction

3.3
dry conditions
conditions corresponding to service class 1 of [A1] EN 1995-1-1 [A1] which is characterised by a moisture content in the material corresponding to a temperature of 20 °C and a relative humidity of the surrounding air only exceeding 65 % for a few weeks per year
[EN 13986:2004]

3.4
humid conditions
conditions corresponding to service class 2 of [A1] EN 1995-1-1 [A1] which is characterised by a moisture content in the material corresponding to a temperature of 20°C and a relative humidity of the surrounding air only exceeding 85 % for a few weeks per year
[EN 13986:2004]

3.5
exterior conditions
conditions corresponding to service class 3 of [A1] EN 1995-1-1 [A1] which is characterised by climatic conditions leading to higher moisture contents than in service class 2
[EN 13986:2004]

4 Classification

Three types of LVL are classified:

LVL/1 for use in dry conditions

LVL/2 for use in humid conditions

LVL/3 for use in exterior conditions

5 Requirements

5.1 General requirements

LVL shall comply with the general requirements listed in Table 1 when dispatched from the production factory.

The requirements in Table 1 shall be met by the mean or percentile value given, calculated in accordance with EN 326-1.

The bending properties according to Table 1 are used for quality control purposes only and shall not be used in design calculations.

For structural applications, the characteristic values of mechanical properties shall be determined according to EN 1058 from EN 789 test results or EN 408 or methods referred to EN 14374.

NOTE If it is made known by the purchaser that the boards are intended for specific use in flooring, walls or roofing, the performance standard EN 12871 also should be considered. This might result a need for compliance with additional requirements.

Table 1 — General requirements for all LVL Types

No	Property	Test method	Requirement
1[a]	Tolerances on dimensions — Thickness (sanded) within and between LVLs — Thickness (unsanded) within and between LVLs — Length and width	EN 324-1	EN 315
2[a]	Edge straightness tolerance	EN 324-2	≤ 1,5 mm/m
3[a]	Squareness tolerance	EN 324-2	≤ 2,0 mm/m
4	Moisture content	EN 322	6 % to 12 %
5	Tolerance on the mean density within a LVL	EN 323	± 10 %
6	Bending strength — major axis — minor axis	EN 310	5th percentile Value determined at the initial testing of the product with regard to actual lay-up, density, veneer thickness and veneer grades
7	Modulus of elasticity in bending — major axis — minor axis	EN 310	
8	Bonding quality	EN 314-1 In connection with Annex A	Shear strength and wood fibre failure in accordance with EN 314-2
9	Veneer grade — Hardwood — Softwood	EN 635-5	EN 635-2 appearance class EN 635-3 appearance class

[a] Certain uses of LVL can require other tolerances: see separate performance standards.

5.2 Formaldehyde

For use in construction, refer to EN 13986.

For use in non constructional applications, the following applies:

LVL shall be tested and classified into either class E 1 or E 2.

NOTE 1 In certain countries only products of the formaldehyde class E1 may be placed on the market (see the database “Legislation on substances in construction products” http://europa.eu.int/comm/enterprise/construction/internal/dangsub/dangmain.htm, for further information).

The test requirements for both initial type testing and factory production control/continuous surveillance are laid down in Table 2 for E1 products and Table 3 for E2 products.

NOTE 2 Boards of class E1 can be used without causing an indoor air concentration greater than $0,1 \times 10^{-6}$ (ppm) HCHO in conditions according to EN 717-1.

The test requirement does not apply to LVL which has not had formaldehyde containing materials added during production or in post-production processing. These may be classified E1 without testing.

NOTE 3 Example of such LVL (coated or uncoated) are those glued with resins emitting either no formaldehyde or negligible amounts of formaldehyde after production as e.g. isocyanate, or phenolic glue.

NOTE 4 The limit values for the class E1 are given in Table 2 and for class E2 are given in Table 3.

Table 2 — Definition of formaldehyde class E1

Initial type testing[a]	Test method	EN 717-1
	Requirement	Release ≤ 0,124 mg/m^3 air
Factory production control	Test method	EN 717-2
	Requirement	Release ≤ 3,5 mg/m^2 h or ≤ 5 mg/m^2 h within 3 days after production

[a] For established products, initial testing may also be done on the basis of existing data with EN 717-2 testing, either from factory production control or from external inspection.

Table 3 — Definition of formaldehyde class E2

Initial type testing	either	Test method	EN 717-1
		Requirement	Release > 0,124 mg/m^3 air
	or	Test method	EN 717-2
		Requirement	Release > 3,5 mg/m^2 h to ≤ 8 mg/m^2 h or > 5 mg/m^2 h to ≤ 12 mg/m^2 h within 3 days after production
Factory production control		Test method	EN 717-2
		Requirement	Release > 3,5 mg/m^2 h to ≤ 8 mg/m^2 h or > 5 mg/m^2 h to ≤ 12 mg/m^{2}h within 3 days after production

5.3 Additional requirements for LVL/1: LVL for use in dry conditions

5.3.1 Bonding quality

The bonding quality shall comply with the requirements of bonding class 1 of EN 314-2.

The evaluation of the bonding quality of LVL is given in Annex A.

5.3.2 Biological durability

LVL shall be appropriate for prevailing climatic conditions. The risk of attack is outlined in use class 1 of EN 335-3.

NOTE Guidance on factors effecting durability and on precautionary measures which may be considered as necessary can be found in A1⟩ CEN/TS 1099 ⟨A1.

5.4 Additional requirements for LVL/2: LVL for use in humid conditions

5.4.1 Bonding quality

The bonding quality shall comply with the requirements of bonding class 2 of EN 314-2.

The evaluation of the bonding quality of LVL is given in Annex A.

5.4.2 Biological durability

LVL shall be appropriate for prevailing climatic conditions. The risk of attack is outlined in use class 2 of EN 335-3.

NOTE Guidance on factors effecting durability and on precautionary measures which may be considered as necessary can be found in A1⟩ CEN/TS 1099 ⟨A1.

5.5 Additional requirements for LVL/3: LVL for use in exterior conditions

5.5.1 Bonding quality

The bonding quality shall comply with the requirements of bonding class 3 of EN 314-2.

The evaluation of the bonding quality of LVL is given in Annex A.

5.5.2 Biological durability

LVL shall be appropriate for prevailing climatic conditions. The risk of attack is outlined in use class 3 of EN 335-3. In this use class, the performance of most LVL will be compromised if suitable preservative treatment and/or relevant surface and edge coatings are not applied and if the panels are not properly maintained and installed.

NOTE Guidance on factors effecting durability and on precautionary measures which may be considered as necessary can be found in A1⟩ CEN/TS 1099 ⟨A1.

6 Supplementary properties

For certain applications information on some supplementary properties may be required. Some of these supplementary properties are listed in Annex B.