SLOVENSKI STANDARD
SIST EN 1995-1-1:2005/A1:2008

01-oktober-2008

Evrokod 5: Projektiranje lesenih konstrukcij - 1-1. del: Splošna pravila in pravila za stavbe

Eurocode 5: Design of timber structures - Part 1-1: General - Common rules and rules for buildings

Eurocode 5: Bemessung und Konstruktion von Holzbauten - Teil 1-1: Allgemeines - Allgemeine Regeln und Regeln für den Hochbau

Eurocode 5: Conception et calcul des structures en bois - Partie 1-1 : Généralités - Regles communes et regles pour les bâtiments

Ta slovenski standard je istoveten z: EN 1995-1-1:2004/A1:2008

ICS:

91.010.30	Tehnični vidiki	Technical aspects
91.080.20	Lesene konstrukcije	Timber structures

SIST EN 1995-1-1:2005/A1:2008 en,fr,de

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1995-1-1:2004/A1

June 2008

ICS 91.010.30; 91.080.20

English Version

Eurocode 5: Design of timber structures - Part 1-1: General - Common rules and rules for buildings

Eurocode 5: Conception et calcul des structures en bois - Partie 1-1 : Généralités - Règles communes et règles pour les bâtiments

Eurocode 5: Bemessung und Konstruktion von Holzbauten - Teil 1-1: Allgemeines - Allgemeine Regeln und Regeln für den Hochbau

This amendment A1 modifies the European Standard EN 1995-1-1:2004; it was approved by CEN on 10 April 2008.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant 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 amendment 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: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 1995-1-1:2004/A1:2008: E

Foreword

This document (EN 1995-1-1:2004/A1:2008) has been prepared by Technical Committee CEN/TC 250 "Structural Eurocodes", the secretariat of which is held by BSI.

This Amendment to the European Standard EN 1995-1-1:2004 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2008, and conflicting national standards shall be withdrawn at the latest by March 2010.

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.

Foreword

National annex for EN 1995-1-1

6.1.7(2) Shear

Drafting note: To be added to the list of clauses

1.2 Normative references

Delete paragraph (1) and replace with:

(1) 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 (including amendments).

ISO standards:

ISO 2081	Metallic coatings. Electroplated coatings of zinc on iron or steel
ISO 2631-2:1989	Evaluation of human exposure to whole-body vibration. Part 2: Continuous and shock-induced vibrations in buildings (1 to 80 Hz)

European Standards:

EN 300	Oriented Strand Board (OSB) – Definition, classification and specifications
EN 301	Adhesives, phenolic and aminoplastic for load-bearing timber structures; Classification and performance requirements
EN 312	Paricleboards – Specifications
EN 335-1	Durability of wood and wood-based 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 350-2	Durability of wood and wood-based products – Natural durability of solid wood – Part 2: Guide to natural durability and treatability of selected wood species of importance in Europe
EN 351-1	Durability of wood and wood-based products – Preservative treated solid wood – Part 1: Classification of preservative penetration and retention
EN 383	Timber structures – Test methods – Determination of embedding strength and foundation values for dowel type fasteners
EN 385	Finger jointed structural timber – Performance requirements and minimum production requirements
EN 387	Glued laminated timber – Large finger joints – Performance requirements and minimum production requirements
EN 409	Timber structures – Test methods. Determination of the yield moment of dowel type fasteners – Nails

EN 460	Durability of wood and wood-based products – Natural durability of solid wood – Guide of the durability requirements for wood to be used in hazard classes
EN 594	Timber structures – Test methods – Racking strength and stiffness of timber frame wall panels
EN 622-2	Fibreboards – Specifications. Part 2: Requirements for hardboards
EN 622-3	Fibreboards – Specifications. Part 3: Requirements for medium boards
EN 622-4	Fibreboards – Specifications. Part 4: Requirements for softboards
EN 622-5	Fibreboards – Specifications. Part 5: Requirements for dry process boards (MDF)
EN 636	Plywood – Specifications
EN 912	Timber fasteners – Specifications for connectors for timber
EN 1075	Timber structures – Test methods – Testing of joints made with punched metal plate fasteners
EN 1380	Timber structures – Test methods – Load bearing nailed joints
EN 1381	Timber structures – Test methods – Load bearing stapled joints
EN 1382	Timber structures – Test methods – Withdrawal capacity of timber fasteners
EN 1383	Timber structures – Test methods – Pull through testing of timber fasteners
EN 1990:2002	Eurocode – Basis of structural design
EN 1991-1-1	Eurocode 1: Actions on structures – Part 1-2: General actions – Densities, self-weight and imposed loads
EN 1991-1-3	Eurocode 1: Actions on structures – Part 1-3: General actions – Snow loads
EN 1991-1-4	Eurocode 1: Actions on structures – Part 1-4: General actions – Wind loads
EN 1991-1-5	Eurocode 1: Actions on structures – Part 1-5: General actions – Thermal actions
EN 1991-1-6	Eurocode 1: Actions on structures – Part 1-6: General actions – Actions during execution
EN 1991-1-7	Eurocode 1: Actions on structures – Part 1-7: General actions – Accidental actions due to impact and explosions
EN 10147	Specification for continuously hot-dip zinc coated structural steel sheet and strip – Technical delivery conditions
EN 13271	Timber fasteners – Characteristic load-carrying capacities and slip moduli for connector joints
EN 13986	Wood-based panels for use in construction – Characteristics, evaluation of conformity and marking
EN 14080	Timber structures – Glued laminated timber – Requirements
EN 14081-1	Timber structures – Strength graded structural timber with rectangular cross-section – Part 1, General requirements
EN 14250	Timber structures – Production requirements for fabricated trusses using punched metal plate fasteners
EN 14279	Laminated veneer lumber (LVL) – Specifications, definitions, classification and requirements

EN 14358	Timber structures – Fasteners and wood-based products – Calculation of characteristic 5-percentile value and acceptance criteria for a sample
EN 14374	Timber structures – Structural laminated veneer lumber – Requirements
EN 14545	Timber structures – Connectors – Requirements
EN 14592	Timber structures – Fasteners – Requirements
EN 26891	Timber structures – Joints made with mechanical fasteners – General principles for the determination of strength and deformation characteristics
EN 28970	Timber structures – Testing of joints made with mechanical fasteners; Requirements for wood density (ISO 8970:1989)

NOTE: As long as EN 14545 and EN 14592 are not available as European standards, more information may be given in the National annex.

1.6 Symbols used in EN 1995-1-1

Add following symbols at relevant places:

Latin lower case letters

$a_{1,CG}$	End distance of centre of gravity of the threaded part of screw in the member
$a_{2,CG}$	Edge distance of centre of gravity of the threaded part of screw in the member
d	Diameter; Outer thread diameter
d_h	Head diameter of screws
d_1	Inner thread diameter
$f_{ax,k}$	Characteristic pointside withdrawal strength for nails; Characteristic withdrawal strength
k_{cr}	Crack factor for shear resistance

Latin upper case letters

A_{ef}	Effective area of the total contact surface between a punched metal plate fastener and the timber; Effective contact area in compression perpendicular to the grain
$F_{t,Rk}$	Characteristic tensile resistance of connection

Greek lower case letters

ρ_a	Associated density

2.1.3 Design working life and durability

Paragraph (1), modify to read as follows:

EN 1990:2002 clauses 2.3 and 2.4 apply.

2.2.2 Ultimate limit state

Paragraph (2), delete

where K_{ser} is the slip modulus, see 2.2.3(3)P

and replace with the following:

where K_{ser} is the slip modulus, see 7.1(1).

2.2.3 Serviceability limit states

Paragraph (5), modify expression (2.2) to read as follows:

$$u_{fin} = u_{fin,G} + u_{fin,Q_1} + \sum u_{fin,Q_i}$$

3.2 Solid timber

Delete paragraph (1)P and replace with:

(1)P Timber members shall comply with EN 14081-1.

NOTE: Strength classes for timber are given in EN 338.

3.1.3 Strength modification factors for service classes and load-duration classes

Table 3.1, delete and replace with

Table 3.1 – Values of k_{mod}

Material	Standard	Service class	Load-duration class				
			Permanent action	Long term action	Medium term action	Short term action	Instanta-neous action
Solid timber	EN 14081-1	1	0,60	0,70	0,80	0,90	1,10
		2	0,60	0,70	0,80	0,90	1,10
		3	0,50	0,55	0,65	0,70	0,90
Glued laminated timber	EN 14080	1	0,60	0,70	0,80	0,90	1,10
		2	0,60	0,70	0,80	0,90	1,10
		3	0,50	0,55	0,65	0,70	0,90
LVL	EN 14374, EN 14279	1	0,60	0,70	0,80	0,90	1,10
		2	0,60	0,70	0,80	0,90	1,10
		3	0,50	0,55	0,65	0,70	0,90
Plywood	EN 636						
	Type EN 636-1	1	0,60	0,70	0,80	0,90	1,10
	Type EN 636-2	2	0,60	0,70	0,80	0,90	1,10
	Type EN 636-3	3	0,50	0,55	0,65	0,70	0,90
OSB	EN 300						
	OSB/2	1	0,30	0,45	0,65	0,85	1,10
	OSB/3, OSB/4	1	0,40	0,50	0,70	0,90	1,10
	OSB/3, OSB/4	2	0,30	0,40	0,55	0,70	0,90
Particle-board	EN 312						
	Type P4, Type P5	1	0,30	0,45	0,65	0,85	1,10
	Type P5	2	0,20	0,30	0,45	0,60	0,80
	Type P6, Type P7	1	0,40	0,50	0,70	0,90	1,10
	Type P7	2	0,30	0,40	0,55	0,70	0,90
Fibreboard, hard	EN 622-2						
	HB.LA, HB.HLA 1 or 2	1	0,30	0,45	0,65	0,85	1,10
	HB.HLA1 or 2	2	0,20	0,30	0,45	0,60	0,80
Fibreboard, medium	EN 622-3						
	MBH.LA1 or 2	1	0,20	0,40	0,60	0,80	1,10
	MBH.HLS1 or 2	1	0,20	0,40	0,60	0,80	1,10
	MBH.HLS1 or 2	2	–	–	–	0,45	0,80
Fibreboard, MDF	EN 622-5						
	MDF.LA, MDF.HLS	1	0,20	0,40	0,60	0,80	1,10
	MDF.HLS	2	–	–	–	0,45	0,80

3.1.4 Deformation modification factors for service classes

Table 3.2, delete and replace with

Table 3.2 – Values of k_{def} for timber and wood-based materials

Material	Standard	Service class		
		1	2	3
Solid timber	EN 14081-1	0,60	0,80	2,00
Glued Laminated timber	EN 14080	0,60	0,80	2,00
LVL	EN 14374, EN 14279	0,60	0,80	2,00
Plywood	EN 636			
	Type EN 636-1	0,80	–	–
	Type EN 636-2	0,80	1,00	–
	Type EN 636-3	0,80	1,00	2,50
OSB	EN 300			
	OSB/2	2,25	–	–
	OSB/3, OSB/4	1,50	2,25	–
Particleboard	EN 312			
	Type P4	2,25	–	–
	Type P5	2,25	3,00	–
	Type P6	1,50	–	–
	Type P7	1,50	2,25	–
Fibreboard, hard	EN 622-2			
	HB.LA	2,25	–	–
	HB.HLA1, HB.HLA2	2,25	3,00	–
Fibreboard, medium	EN 622-3			
	MBH.LA1, MBH.LA2	3,00	–	–
	MBH.HLS1, MBH.HLS2	3,00	4,00	–
Fibreboard, MDF	EN 622-5			
	MDF.LA	2,25	–	–
	MDF.HLS	2,25	3,00	–

3.3 Glued laminated timber

Paragraph (4)P, modify to read as follows:

Large finger joints complying with the requirements of EN 387 shall not be used for products to be installed in service class 3, where the direction of grain changes at the joint.

3.4 Laminated veneer lumber (LVL)

Paragraph (6)P, modify to read as follows:

Large finger joints complying with the requirements of EN 387 shall not be used for products to be installed in service class 3, where the direction of grain changes at the joint.

6.1.5 Compression perpendicular to the grain

Delete paragraphs (1) to (7) and replace with:

(1)P The following expression shall be satisfied:

$$\sigma_{c,90,d} \leq k_{c,90} f_{c,90,d} \tag{6.3}$$

with: