



**SLOVENSKI STANDARD**  
**oSIST prEN 14080:2009**  
**01-marec-2009**

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**Lesene konstrukcije - Lepljeni lamelirani les in lepljeni lamelirani brunasti les -  
Zahteve**

Timber structures - Glued laminated timber and glued laminated solid timber -  
Requirements

Holzbauwerke - Brettschichtholz und Balkenschichtholz - Anforderungen

Structures en bois - Bois lamellé-collé et bois massif reconstitué - Exigences

**Ta slovenski standard je istoveten z: prEN 14080**  
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<https://standards.iteh.ai/catalog/standards/sist/828e9b5b-f932-4e88-bab3-ce2d9ceed3c8/osist-pren-14080-2009>

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**ICS:**

79.060.99	Druge lesne plošče	Other wood-based panels
91.080.20	Lesene konstrukcije	Timber structures

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 14080**

January 2009

ICS

Will supersede EN 14080:2005

English Version

## Timber structures - Glued laminated timber and glued laminated solid timber - Requirements

Structures en bois - Bois lamellé collé et bois massif  
reconstitué - Exigences

Holzbauwerke - Brettschichtholz und Balkenschichtholz -  
Anforderungen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 124.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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## Foreword

This document (prEN 14080:2009) has been prepared by Technical Committee CEN/TC 124 “Timber structures”, the secretariat of which is held by SFS.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 14080:2005.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EC Directive.

For relationship with EC Directive(s), see informative Annex ZA, which is an integral part of this document.

This standard supersedes the following standards:

EN 385: 2001-10

EN 386: 2001-10

EN 387: 2001-10

EN 390: 1994-11

EN 391: 2002-04

EN 392: 1996-04

EN 1194: 1999-04

EN 14080: 2005-06

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The content of the standards mentioned above has been changed considerably. The following list shows the relevant changes and amendments.

- The standards mentioned above have been merged.
- Glued members made of glulam-components and glued laminated solid timber have been included.
- The scope has been limited to glulam made of certain coniferous timber species listed in this standard and poplar.
- For moisture curing one-component polyurethane adhesives reference is now made to EN 15425 and EN 15416-5.
- Requirements for EPI- and Epoxy resin adhesives and for gap-filling adhesives are given.
- Rules for the splitting of glulam by length have been introduced.
- A uniform denomination for lamella strength classes has been included.



- New values for tension and compression strength perpendicular to the grain, for shear strength and shear modulus, modulus of elasticity parallel and perpendicular to the grain are given for glued laminated timber. Values for rolling shear strength and modulus have been introduced.
- With respect to durability against biological attack reference has been made to prEN 15228: 2007.
- Maximum permissible deviations for curved members are given.
- The performance requirements for finger joints in lamellas have been changed.
- Requirements for the machinery for the separate application of resin and hardener have been introduced.
- The rules for lamellas side by side and for grooves in lamellas have been changed.
- The required cramping pressure for large finger joints has been changed.
- The evaluation of conformity section and the Annex ZA has been changed according to the relevant guidance papers of the European commission.
- The rules for marking and labelling have been adopted to the changes mentioned above.

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## prEN 14080:2009 (E)

## 1 Scope

This European Standard lays down the performance requirements and minimum requirements for the production of glued laminated timber, glued laminated solid timber, glued members made of glulam components and large finger joints in glued laminated timber members for use in buildings and bridges.

The requirements will need to be supplemented to take into consideration special production conditions, materials or functional requirements.

This European standard is applicable for glued laminated timber made of certain listed coniferous timber species or poplar consisting of two or more lamellas having a thickness between 6 mm and 45 mm.

This European standard is applicable for glued laminated solid timber made of certain listed coniferous timber species or poplar consisting of two or three lamellas having a thickness greater than 45 mm and less than or equal 85 mm. The maximum height of the glued laminated solid timber is 240 mm, the maximum width 280 mm.

This European Standard is applicable for glued members made of glulam-components having solid rectangular cross sections.

The specifications of this European standard are valid for large finger joints in glued laminated timber members with a finger length of at least 45 mm.

This European Standard lays down the requirements for glued members produced from untreated timber or from timber treated against biological attack. Glued members treated with fire retardants are not covered.

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## 2 Normative references

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).

EN 301, *Adhesives, phenolic and amino plastic, for load-bearing timber structures — Classification and performance requirements*

EN 302-1, *Adhesives for load-bearing timber structures — Test methods — Part 1: Determination of bond strength in longitudinal tensile shear strength*

EN 302-2, *Adhesives for load-bearing timber structures — Test methods — Part 2: Determination of resistance to delamination*

EN 302-3, *Adhesives for load-bearing timber structures — Test methods — Part 3: Determination of the effect of acid damage to wood fibres by temperature and humidity cycling on the transverse tensile strength*

EN 302-4, *Adhesives for load-bearing timber structures — Test methods — Part 4: Determination of the effect of wood shrinkage on the shear strength*

EN 302-6, *Adhesives for load-bearing timber structures — Test methods — Part 6: Determination of the conventional pressing time*

EN 338: 2003, *Structural timber — Strength-classes*

EN 350-1, *Durability of wood and wood-based products — Natural durability of solid wood — Part 1: Guide to the principles of testing and classification of the natural durability of wood*

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 384, *Structural timber — Determination of characteristic values of mechanical properties and density*

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

EN 717-1, *Wood-based panels — Determination of formaldehyde release — Part 1: Formaldehyde emission by the chamber method*

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

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

EN 13183-3, *Moisture content of a piece of sawn timber — Part 2: Estimation by capacitance method*

EN 13238, *Reaction to fire tests for building products — Conditioning procedures and general rules for selection of substrates*

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using test data from reaction to fire tests*

EN 14081-1, *Timber structures — (Strength graded structural timber with rectangular cross section — Part 1: General requirements*

EN 14358, *Timber structures — Fasteners and wood-based products — Calculation of characteristic 5-percentile values and acceptance criteria for a sample*

prEN 15228: 2007, *Structural timber — Structural timber preservative treated against biological attack*

EN 15416-5, *Adhesives for load bearing timber structures with the exception of phenolic and amino plastic adhesives — Test methods — Part 5: Determination of conventional pressing time*

EN 15425, *Adhesives — One component polyurethane adhesives for load bearing timber structures — Classification and performance requirements*

ISO 554, *Standard atmospheres for conditioning and/or testing — Specifications*

### 3 Terms and definitions

For the purpose of this European standard the following terms and definitions apply.

#### 3.1

##### **actual size**

measured size of a member at a related measured moisture content

#### 3.2

##### **combined glued laminated timber**

glued laminated timber with a cross section comprising inner and outer lamellas of different strength classes or strength profiles

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- 3.3**  
**corrected size**  
actual size of a member corrected to the reference moisture content
- 3.4**  
**delamination length**  
sum of the lengths of delaminated glue lines on both end-grain surfaces of each test piece
- 3.5**  
**finger angle**  
inclination of the fingers of a finger joint (see Figure 1)
- 3.6**  
**finger joint**  
self locating end joint formed by machining a number of similar, tapered, symmetrical fingers in the ends of timber members, which are formed by a finger joint cutter and then bonded together (see Figure 1)
- 3.7**  
**finger length**  
distance between the finger base and the tip of the finger, measured along the centre line of the finger (see Figure 1)



## Key

- $l$  finger length
- $p$  pitch
- $\alpha$  finger angle
- $l_t$  tip gap
- $b_t$  tip width

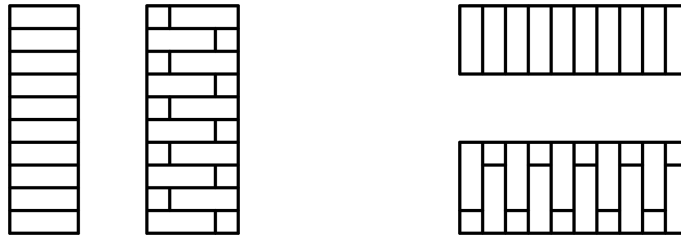
Figure 1 — Typical profile of finger joint

- 3.8**  
**gap filling adhesive**  
adhesive that fulfils the requirements for glue lines in lamellas and the additional requirements for glue line thicknesses up to 2 mm

**3.9****glued laminated timber**

Glulam

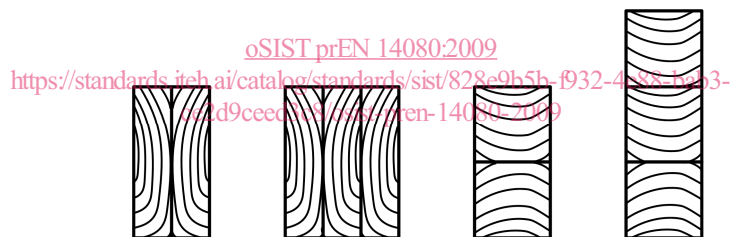
structural member composed by at least two timber lamellas bonded together parallel to the axis of the lamellas (see Figure 2), whose lamellas are made of coniferous timber or poplar, being untreated or treated against biological attack and having thicknesses between 6 mm and 45 mm

**Figure 2 — Glued laminated timber**

NOTE Due to planing of the glued laminated timber member the outermost lamellas may have reduced thicknesses compared to the inner lamellas.

**3.10****glued laminated solid timber**

structural timber member composed by two or three lamellas bonded together parallel to the axis of the lamellas (see Figure 3), whose lamellas are made of coniferous timber or poplar, being untreated or treated against biological attack, having the same strength class or profile and a lamella thickness greater than 45 mm and not more than 85 mm (standards.iteh.ai)

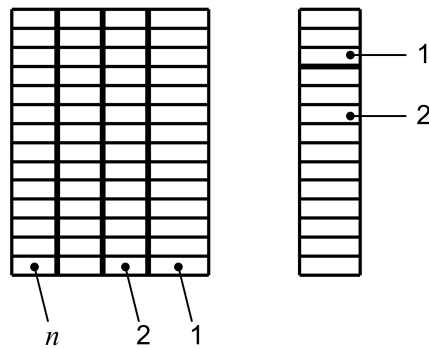
**Figure 3 — Glued laminated solid timber**

NOTE Due to planing of the glued laminated solid timber member the outermost lamellas may have reduced thicknesses compared to the inner lamella.

**3.11****glued members made of glulam-components**

member made of glulam-components glued together using a gap filling adhesive, and having a solid rectangular cross-section

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Key

1 Glulam-component 1

2 Glulam-component 2

n Glulam-component n

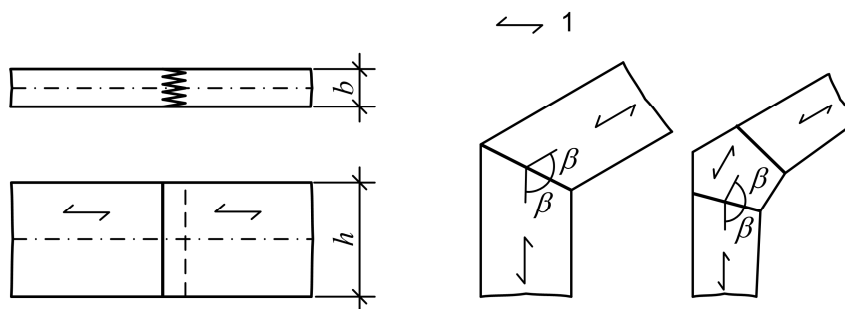
Figure 4 — Glued member made of glulam-components

### 3.12 homogeneous glued laminated timber

glued laminated timber with a cross section where all lamellas are of the same strength class or strength profile

### 3.13 large finger joint

finger joint through the full cross-sectional area at the ends of glued laminated timber members bonded together at any angle between  $90^\circ$  and  $180^\circ$  (see Figure 5)



Key

1 Direction of grain

 $\beta$  angle between the large finger joint and the grain direction

Figure 5 — Large finger joints in a beam and in frame corners

### 3.14 longitudinal warping

maximum gauge measured over a length of 2000 mm

**3.15****maximum delamination length**

largest delamination length in one glue line in the test piece

**3.16****mean moisture content**

mean value of the moisture content of glued laminated timber estimated from at least two measurements (see Annex J)

**3.17****minimum mean density**

required value for the weighted mean density of a glued laminated timber member at a reference moisture content of 12 % used for the classification of the reaction to fire (according to Annex B)

**3.18****moisture content**

amount of water present in timber, expressed as percentage of oven dry mass

**3.19****pitch**

distance between fingers, measured from centre to centre (see Figure 1)

**3.20****reference moisture content**

moisture content at which target sizes are established

NOTE For glued laminated timber and glued laminated solid timber the reference moisture content is 12 %.

**3.21****relative tip gap**

ratio between the distance between finger tip and the opposite slot base in a bonded finger joint and the finger length (see Figure 1)

**3.22****rolling shear**

stress were both stress components are perpendicular to the grain

**3.23****strength-profile**

a set of characteristic strength and stiffness properties

**3.24****target size**

size of the glued laminated timber member at the reference moisture content

**3.25****tip width**

distance between finger faces, measured at the tip of the finger (see Figure 1)

**3.26****total delamination length**

sum of all delamination lengths of all glue lines in the test piece

**3.27****weakening factor**

ratio between tip width and pitch (see Figure 1)