

Glued laminated timber — Sizes — Permissible deviations

The European Standard EN 390:1994 has the status of a
British Standard

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee B/518, Structural timber, upon which the following bodies were represented:

British Timber Merchants' Association
 British Woodworking Federation
 Bureau de Promotion des Industries du Bois
 Council of the Forest Industries of British Columbia
 Department of the Environment (Building Research Establishment)
 Forestry Commission
 Institute of Building Control
 Institution of Structural Engineers
 National House-building Council
 Nordic Timber Council (UK)
 Timber Research and Development Association
 Timber Trade Federation
 Trussed Rafter and Fabricators' Association
 UK Softwood Sawmillers' Association

This British Standard, having been prepared under the direction of the Sector Board for Building and Civil Engineering, was published under the authority of the Standards Board and comes into effect on 15 June 1995

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National foreword

This British Standard has been prepared by Technical Committee B/518. It is the English language version of EN 390:1994 *Glued laminated timber — Sizes — Permissible deviations*, published by the European Committee for Standardization (CEN).

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 4 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

ICS 79.060.00

Descriptors: Laminated boards, dimensions, dimensional deviations, measurements, humidity

English version

Glued laminated timber — Sizes — Permissible deviations

Bois lamellé collé — Dimensions — Ecart
admissibles

Brettschichtholz — Maße — Grenzabmaße

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 124, Timber structures, the secretariat of which is held by DS.

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 May 1995, and conflicting national standards shall be withdrawn at the latest by May 1995.

NOTE It is considered important to maintain the same clause numbering throughout this series of standards. Consequently, some clauses are empty but it is envisaged that future editions may need to include text in these clauses.

No existing European Standard is superseded.

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1 Scope

This standard specifies tolerances on sizes of glued laminated timber for structural use and the reference moisture content at which sizes are established. It also gives a method for the calculation of corrected sizes for glued laminated timber with a moisture content differing from that of the reference moisture content.

It is applicable to glued laminated timber with rectangular cross sections having sizes in the range of:

- width: 50 mm to 300 mm
- depth: 100 mm to 2 500 mm

2 Normative references

None.

3 Definitions

For the purposes of this standard, the following definitions apply:

3.1

actual size

real size of a member

3.2

glued laminated timber (glulam)

structural member formed by bonding together timber laminations with the grain essentially parallel

3.3

target size

size of the glued laminated member specified by the purchaser at the reference moisture content

3.4

corrected size

actual size of a member corrected to the reference moisture content

3.5

moisture content

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

3.6

reference moisture content

the reference moisture content is 12 %

4 Symbols

b	width of cross section, in millimetres;
h	depth of cross section, in millimetres;
k	moisture deformation factor;
l	length, in millimetres;
l_a	actual size, in millimetres;
l_{cor}	corrected size, in millimetres;
ω_a	actual moisture content in %;
ω_{ref}	reference moisture content in %.

5 Sizes for glulam

5.1 Corrected sizes

If the actual moisture content differs from the reference moisture content, a corrected size is calculated from the actual size by:

$$l_{cor} = l_a (l + k (\omega_{ref} - \omega_a))$$

where the moisture deformation factor k is given in Table 1.

Table 1 — Moisture deformation factor k for a change in moisture content of 1 %

The values are valid for coniferous wood and poplar, and a moisture content in the range of 6 % to 25 %. The moisture deformation factor perpendicular to grain is an average of both tangential and radial deformation	
	k
Perpendicular to grain	0,0025
Parallel to grain	0,0001

5.2 Deviation in sizes

Any corrected sizes shall deviate from the target sizes by not more than

width of cross section: $\left(\begin{smallmatrix} +2 \\ -2 \end{smallmatrix}\right)$ mm for all widths

Depth of cross section for:

$h \leq 400$ mm $\left(\begin{smallmatrix} +4 \\ -2 \end{smallmatrix}\right)$ mm

$h > 400$ mm $\left(\begin{smallmatrix} +1 \\ -0,5 \end{smallmatrix}\right)$ %

Length of a straight for:

member: $l \leq 2,0$ m $\left(\begin{smallmatrix} +2 \\ -2 \end{smallmatrix}\right)$ mm

$2,0$ m $< l \leq 20$ m $\left(\begin{smallmatrix} +0,1 \\ -0,1 \end{smallmatrix}\right)$ %

$l > 20$ m $\left(\begin{smallmatrix} +20 \\ -20 \end{smallmatrix}\right)$ mm

The angles of the cross section shall deviate from the right angle by not more than 1 : 50.

6 Measurements

6.1 Moisture content

6.1.1 Until a European Standard on practical measuring of the moisture content is issued the following procedure shall be adopted.

6.1.2 The measurement shall be carried out using a calibrated electric moisture meter. It shall be done in accordance with the instrument manufacturer's instructions at a point not nearer than 1 m from either end, or in the centre of the piece if it is less than 2 m long. If an electric moisture meter with probes is used they shall be insulated and the penetration shall be not less than 20 min.

6.1.3 The moisture meter shall be regularly calibrated in accordance with the instrument manufacturer's instructions.

6.2 Measurement of actual sizes

The actual sizes shall be measured for a sample of glued laminated members selected at random either from the production or from a delivery on the building site.

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