
**Timber structures — Glued laminated
timber — Method of test for shear
strength of glue lines**

*Structures en bois — Bois lamellé-collé — Méthode d'essai de
cisaillement des plans de collage*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 12579 was prepared by Technical Committee ISO/TC 165, *Timber structures*.

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Introduction

This International Standard was developed by TC 165 as a production quality-control test to be used for structural glulam. It is meant to be used in conjunction with ISO 12578 and to be applied to each production batch. The frequency of testing and the pass/fail criteria are detailed in ISO 12578. There is nothing, in principle, that would prevent the test method from being applied to non-structural glulam.

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Timber structures — Glued laminated timber — Method of test for shear strength of glue lines

1 Scope

This International Standard specifies a production quality-control test method for measuring the shear strength of the glue line of glued laminated timber.

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.

ISO 12578, *Timber structures — Glued laminated timber — Component performance and production requirements*

3 Terms and definitions

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

3.1

glued laminated timber

glulam

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

3.2

test sample

one or more test specimens taken from a press load or production lot detailed in ISO 12578

3.3

test specimen

test piece of rectangular prismatic or cylindrical form

See Figures 2 to 5.

3.4

wood failure

rupture in or between wood fibres

3.5

wood-failure percentage

percentage of the wood-failure area in relation to the total sheared area

4 Symbols and abbreviated terms

A : area, in square millimetres;

b : width of test specimen, in millimetres;

d : diameter of cylindrical cored specimen, in millimetres;

F_u : ultimate load, in newtons;

f_s : shear strength, in newtons per square millimetre;

l : length of test specimen, in millimetres;

s : step height in a stepped rectangular-prism specimen, in millimetres;

t : thickness of shear plane, in millimetres;

w : full width of glulam timber member, in millimetres.

5 Principle

A shear stress is applied at the glue line until failure occurs. The load at failure is recorded and the wood-failure percentage is evaluated.

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6 Test samples and test specimens

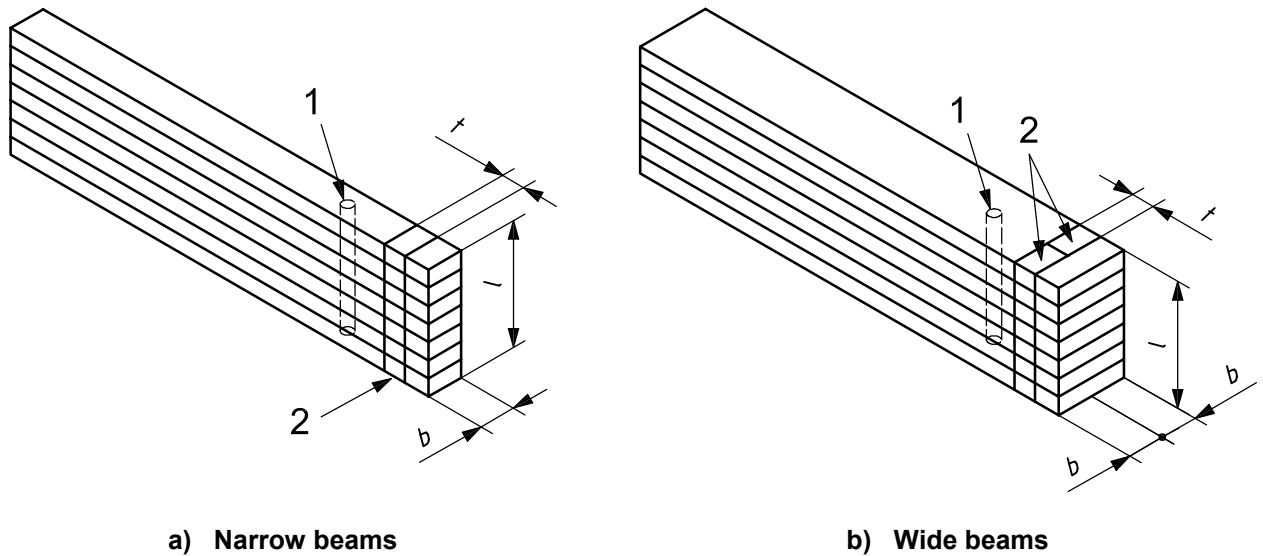
6.1 Test samples

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Test samples shall be taken from production at a sampling rate detailed in ISO 12578. One or more test specimens shall be taken from the glued laminated timber member as illustrated in Figure 1.

NOTE Rectangular-prism specimens from wider members can require a reduction in width to fit into the shearing apparatus. See also 6.5 and Figure 6.

It is recommended that the specimens be taken within areas of the glulam member where sufficient clamping pressure has been established. In practice, the specimens are frequently cut from the end of the glulam members where the clamping pressure may be variable and insufficient. If the required shear strength is obtained from test pieces of this nature, the quality of the glue lines in the member shall be deemed adequate.

**Key**

- 1 cut cylindrical specimen clear of the manufactured end
- 2 cut rectangular specimen clear of the manufactured end

Figure 1 — Sampling from glued laminated members

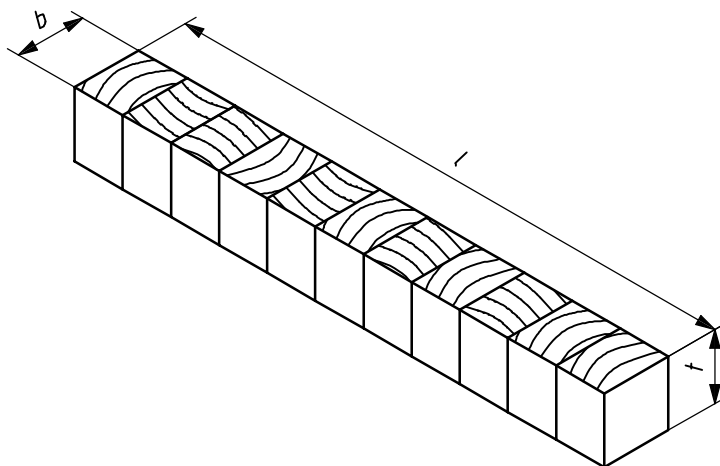
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6.2 Test specimens

The standard test specimen shall be the rectangular-prism specimen shown in Figure 2. The width, b , and thickness, t , of the shear plane shall be a nominal 50 mm. Actual dimensions shall be measured for each shear plane tested. The specimen length, l , is not critical. Alternative test specimens shall be permitted in accordance with 6.3.

Special care shall be taken in preparing the test specimens to ensure that the loaded surfaces are smooth and parallel to each other and perpendicular to the grain direction.

At least three glue lines in each of the top one-third, center one-third, and bottom one-third of the cross-section shall be included in the sampling. If there are fewer than 10 laminations, all glue lines shall be included.

**Figure 2 — Standard rectangular-prism specimen**