



**International
Standard**

ISO 7567

**Bamboo structures — Glued
laminated bamboo — Product
specifications**

*Structures en bambou — Bambou lamellé-collé — Spécifications
du produit*

**First edition
2024-10**

Reference number
ISO 7567:2024(en)

Full document details: [ISO 7567-2024](#)

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

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

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

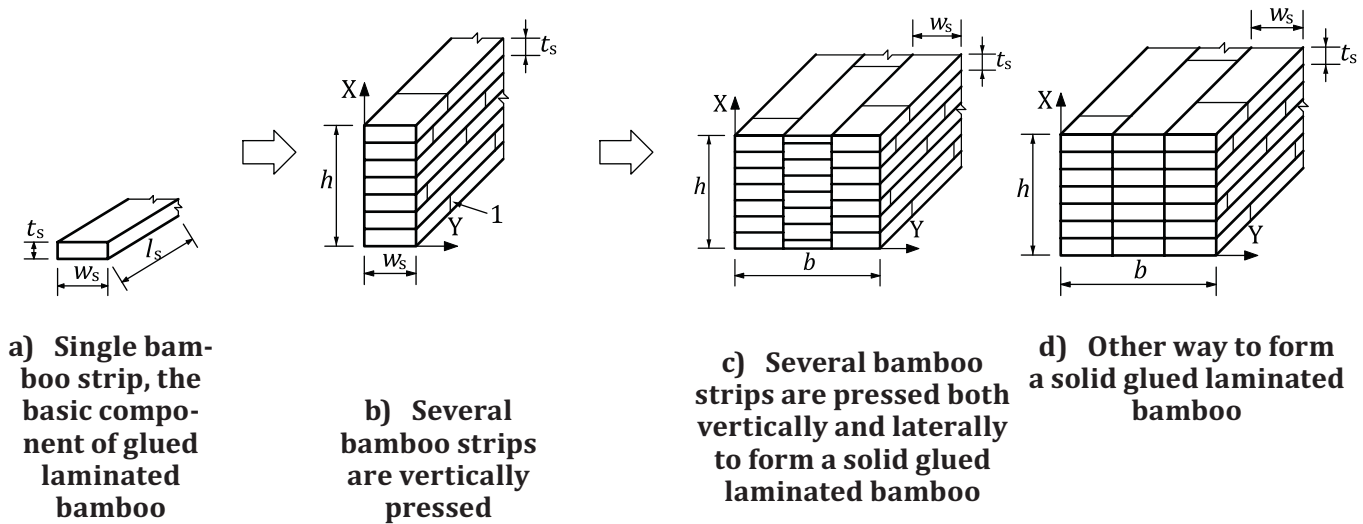
Introduction

Glued laminated bamboo is produced by bonding together bamboo strips with their fibres parallel to each other. A member with a rectangular or non-rectangular solid cross-section can be produced through this manufacturing process.

The purpose of the requirements in this document is to provide minimum product specifications to achieve adequate in-service performance of glued laminated bamboo building structures.

Figure 1 shows the typical manufacturing steps of glued laminated bamboo. Figure 1 a) shows a single bamboo strip (also known as ‘lamina’) with rectangular cross section ($w_s \times t_s \times l_s$ as shown in Figure 1 a) which is typically lengthened by adding bamboo strips using non-structural joints (see 6.1). Figure 1 b) shows a multiple layered glued laminated bamboo “board” (having width w_s and height h) component that results from bonding together bamboo strips. The boards are subsequently assembled into glued laminated bamboo components (having width b and height h) as shown in Figure 1 c) and Figures 1 d). The layup shown in Figure 1 c) is the commonly used glued laminated bamboo arrangement. Other arrangements permitted by this document are shown in Figures 1 d).

When producing multiple-board glued laminated bamboo, care shall be taken that the extension joints in adjacent boards are staggered by at least the greater of $10w_s$ and $2h$ (see Figure 2).



Key
1 extension joint

Figure 1 — Key manufacturing process for the products covered by this document

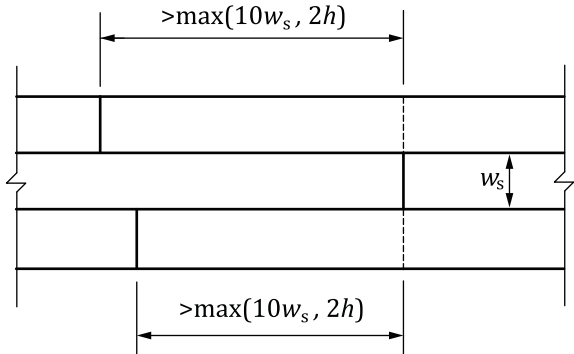


Figure 2 — Requirement for the staggering of extension joints in adjacent boards in the longitudinal direction

Bamboo structures — Glued laminated bamboo — Product specifications

1 Scope

This document specifies requirements for the components of glued laminated bamboo members intended for structural use.

Although currently most glued laminated bamboo is made from *Phyllostachys edulis* (Moso), this document also applies to other bamboo species (e.g. *Guadua angustifolia*, *Dendrocalamus asper*) if the performance required by this document can be shown to have been achieved.

The basic requirements apply to structural members of all service classes; however, special precautions are necessary for service class 3, for example, the use of weather resistant adhesives (see 5.2).

[Annex C](#) contains informative references for formaldehyde emission.

The requirements will need to be supplemented to take into consideration any relevant special conditions as well as material and/or functional requirements.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 12579, *Timber structures — Glued laminated timber — Method of test for shear strength of glue lines*

ISO 12580, *Timber structures — Glued laminated timber — Methods of test for glue-line delamination*

ISO 20152-1, *Timber structures — Bond performance of adhesives — Part 1: Basic requirements*

ISO 21625, *Vocabulary related to bamboo and bamboo products*

ISO 23478, *Bamboo structures — Engineered bamboo products — Test methods for determination of physical and mechanical properties*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 21625 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

bamboo failure percentage

at the plane of shear failure, the ratio of failed bamboo material to the total failure surface expressed as a percentage

3.2

total delamination

sum of delamination lengths of all glue lines around the perimeter of a test piece

3.3

lamination

piece or pieces of bamboo, with or without extension joints forming part of a glued laminated bamboo product

3.4

service class

group designation characterized by the moisture content of the members corresponding to the temperature and relative humidity of the surrounding air

3.4.1

service class 1

characterised by an equilibrium moisture content in the glued laminated bamboo not exceeding 12 %

Note 1 to entry: Service class 1 is representative of indoor air-conditioned or heated environments in which relative humidity is maintained below 65 %.

3.4.2

service class 2

characterised by an equilibrium moisture content in the glued laminated bamboo not exceeding 20 %

Note 1 to entry: Service class 2 is representative of indoor unheated or uncooled environments in most locations except those with relative humidity regularly or for prolonged periods exceeding 85 %.

3.4.3

service class 3

characterised by ambient or climatic conditions leading to moisture contents in glued laminated bamboo higher than *service class 2* ([3.4.2](#)), such as when a member is fully exposed to the weather

3.5

characteristic value

value of a material or product property having a prescribed probability of non-exceedance in a hypothetical unlimited test series

Note 1 to entry: The value is expressed in terms of a specified fractile of the assumed statistical distribution of the property expressed with a specified confidence.

3.6

density

characteristic mean density obtained at 75 % confidence limit determined at conditions of equilibrium moisture content of 12 %

3.7

modulus of elasticity

characteristic mean modulus at a 75 % confidence limit obtained from the results of tests using test specimens at an equilibrium moisture content resulting from a temperature of 20 °C and an equilibrium moisture content of 12 %

3.8

strength

modulus of rupture

ultimate strength of beam element tested in flexure determined by first occurrence of tensile rupture or compression failure of extreme fibres

Note 1 to entry: Expressed as a characteristic 5th-percentile value at a 75 % confidence limit.

3.9

moisture content

portion of material weight consisting of water expressed as percentage of oven-dry weight