
**Timber structures — Determination
of characteristic values —**

**Part 4:
Engineered wood products**

Structures en bois — Détermination des valeurs caractéristiques —

Partie 4: Produits bois reconstitués

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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 documents 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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 165, *Timber structures*.

A list of all the parts in the ISO 12122 series can be found on the ISO website.

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Introduction

This document sets out a framework for establishing characteristic values from test results on a sample drawn from a clearly defined reference population of engineered wood products. The characteristic value is an estimate of the property of the reference population with a consistent level of confidence prescribed in the standard.

This document is intended to be used in conjunction with ISO 12122-1.

This document permits the evaluation of characteristic values on testing on commercial engineered wood products.

In some cases, characteristic values determined in accordance with this document may be modified to become a design value.

The document has the following annexes:

- [Annex A](#) presents a commentary on this document;
- [Annex B](#) presents information on methods for calculating characteristic values from component properties.

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Timber structures — Determination of characteristic values —

Part 4: Engineered wood products

1 Scope

This document gives methods of determination of characteristic values for a defined population of engineered wood products calculated from test values.

This document presents methods for the determination of

- a) characteristic value of material properties, where the determined property is multiplied by a geometric parameter to give a component capacity or component stiffness, or
- b) characteristic value of component properties directly, where the determined property is a component capacity or component stiffness.

This document presents methods for determination of

- a) characteristic value of mean-based properties, and
- b) characteristic value of 5th percentile-based properties.

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 12122-1:2014, *Timber structures — Determination of characteristic values — Part 1: Basic requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12122-1 and the following apply.

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

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

3.1

engineered wood product

item manufactured from wood, namely plywood, oriented strand board, I beams, laminated veneer lumber or structural insulated panel walls

Note 1 to entry: These products that are defined in ISO 12465, ISO 16894, ISO 22389-1, ISO 22390 and ISO 22452.

4 Symbols

Symbols defined in the relevant ISO product or test standard shall be used. Other symbols are defined in ISO 12122-1.

5 Reference population

In addition to the requirements for definition of the reference population in ISO 12122-1, the following attributes of engineered wood products may be described:

- a) sources of raw material;
- b) seasoning method (if seasoned);
- c) grading or production method for components of the engineered wood product where it is made of previously graded components (including lamellae);
- d) specification of adhesives, method of application and method of curing adhesives;
- e) quality control measures;
- f) secondary processing, such as preservative treatment, fire retardant treatment, profiling, etc.;
- g) variations in the configuration of the product (if any).

6 Sampling

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6.1 Sampling method

The sampling method shall comply with the performance objective of sampling defined in ISO 12122-1.

Representation of each of the variants in the sample shall approximate the representation of the same variants in the reference population.

See [Clause 10](#) and ISO 12122-1 for reporting requirements on the sampling method. The report should indicate a response to each of the identified attributes of the reference population listed in compliance with [Clause 5](#) or otherwise important to the description of the reference population.

6.2 Sample size

The sample size shall comply with requirements of ISO 12122-1 and shall take into account the coefficient of variation (V) expected for the sawn timber in the reference population.

NOTE 1 See notes under the relevant clause in ISO 12122-1.

Engineered wood products' properties generally have lower population coefficients of variation (V) in structural properties and should therefore have a smaller sample size.

NOTE 2 ISO 12122-1 gives some guidance on selecting sample size.

7 Sample conditioning

The sample storage and testing environment shall reflect conditioning in accordance with the definition of the reference population as indicated in ISO 12122-1.

8 Test data

8.1 Test method

The test data shall be obtained from

- a) tests in accordance with the ISO test standard relevant to the product, or
- b) a standard test method appropriate for the reference population, provided equivalency factors with the relevant ISO test standard can be established.

NOTE See notes under the relevant clause in ISO 12122-1.

Test methods involve many variables that will affect results including loading configuration and rates, specimen positioning and measurement methods. The level of precision of these variables should be appropriate to the objectives of the testing and the adjustments required in 8.2.

8.2 Test data compatible with product description

Where the characteristic value is applicable to a standard size or moisture content, adjustments to the test data may be required. Any adjustment shall be in accordance with ISO 12122-1 and shall be detailed in the report.

NOTE These adjustments include those required to pool data from different test programs as outlined in ISO 12122-1.

8.3 Failure modes

The failure modes obtained in the tests shall be recorded.

The data shall only be included in the analysis if it comes from a test in which the failure mode appropriate to the property was obtained.

NOTE The same test method may produce different failure modes on different products. The characteristic value may be underestimated by tests that produce failure modes that are different to the ones that the test method was intended to produce.

9 Evaluation of characteristic values for structural properties

9.1 Structural properties

For engineered wood products, either material properties or component properties shall be evaluated.

NOTE 1 [Annex A](#) gives guidance on the type of property that is appropriate for some common engineered wood products.

NOTE 2 Where component properties are reported, they are in general specific to a given size of product. Different sized products will have different component properties.

Determination of the characteristic values for structural properties shall be in accordance with ISO 12122-1 unless specifically specified in the reference product standard.

9.2 Characteristic values of material properties

9.2.1 Characteristic modulus of elasticity and shear modulus

The characteristic modulus of elasticity and shear modulus shall be the mean value, taken as the average of the test values evaluated in accordance with ISO 12122-1.