INTERNATIONAL STANDARD

ISO 5257

First edition
2023-12

Bamboo structures — Engineered bamboo products — Test methods for determination of mechanical properties using small size specimens

Structures en bambou — Produits en bambou reconstitués — Méthodes d'essai pour la détermination des propriétés mécaniques à partir d'éprouvettes de petites tailles

Reference number
ISO 5257:2023(E)

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Published in Switzerland

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Foreword

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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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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

Engineered bamboo products are processed bamboo-based composites designed for structural applications, including bamboo scrimber and glued laminated bamboo. For each type of engineered bamboo product, it is necessary to measure mechanical properties. This document is intended to provide manufacturers, regulatory agencies, and end-users with a means to evaluate the mechanical properties of engineered bamboo products intended for structural applications using small size specimens.

This document is an internationally agreed reference standard for the measurement of mechanical properties of engineered bamboo products as defined in 3.1 and 3.2. Other standards related to the measurement of material properties may be deemed to comply with this document, provided that the adjustments necessary to establish equivalency between this and other standards are applied appropriately.

Bamboo structures — Engineered bamboo products — Test methods for determination of mechanical properties using small size specimens

1 Scope

This document specifies test methods, using small size specimens, suitable for determining the following mechanical properties of engineered bamboo products: tensile strength parallel-to-fibre; tensile modulus parallel-to-fibre; compressive strength parallel-to-fibre; tensile strength perpendicular-to-fibre; tensile modulus perpendicular-to-fibre; compressive strength perpendicular-to-fibre; compressive modulus perpendicular-to-fibre; shear strength parallel-to-fibre and shear modulus parallel-to-fibre.

NOTE This document provides an alternative test method to ISO 23478.

This document specifies test procedures for currently manufactured products as defined in 3.1 and 3.2 to evaluate material properties. The methods specified in this document are applicable to small size test specimens. The methods required to determine characteristic values, design values, or allowable values of the mechanical properties for a population are out of the scope of this document. Materials that do not conform to the definitions of bamboo scrimber or glued-laminated bamboo are beyond the scope of this specification.

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

ASTM D2915, *Sampling and data-analysis for structural wood and wood-based products*

3 Terms and definitions

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

3.1
bamboo scrimber
panel or lumber made of compressed bamboo fibre bundle strips or compressed bamboo fibre bundle sheet which has three mutually perpendicular axes

Note 1 to entry: The three axes are shown in Figure 1.

Note 2 to entry: Bamboo scrimber can be approximately deemed as orthotropic material; hence it has two mutually orthogonal minor axes in the plane perpendicular to the major axis. Unless otherwise stated, the properties of two minor axes can be ideally considered to have same properties because the differences between them are trivial for structural use.