
**Wood — Sampling methods and
general requirements for physical and
mechanical testing of small clear wood
specimens**

*Bois — Méthodes d'échantillonnage et conditions générales pour les
essais physiques et mécaniques de petites éprouvettes de bois net*

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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 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 218, *Timber*.

This third edition cancels and replaces the second edition (ISO 3129:2012), which has been technically revised.

The main changes compared to the previous edition are as follows:

— [Clause 2](#) and Bibliography were updated.

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.

Wood — Sampling methods and general requirements for physical and mechanical testing of small clear wood specimens

1 Scope

This document specifies methods for the extensive and limited sampling of wood, conditioning and preparation of test pieces. It also specifies the general requirements for physical and mechanical testing of small clear wood specimens. The sampling guidance provided in this document can be applied for timber taken from either trees, logs, or pieces of ungraded/graded/presorted sawn timber for non-structural applications, such as furniture, windows, doors, etc., only.

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 24294, *Timber — Round and sawn timber — Vocabulary*.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 24294 apply.

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

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <http://www.electropedia.org/>

4 General principles

This document covers procedures of sampling for obtaining small clear specimens which, when tested in accordance with methods specified under relevant International Standards, may provide information on the influence on mechanical properties of such factors as moisture content, density, position in cross-section, height in the tree and locality of growth.

5 Sampling

5.1 Selection of material

The material intended for physical and mechanical tests shall be selected taking into account the purpose of the test, as well as the requirements to ensure that the properties obtained from the test pieces represent the sample population.

5.2 Sampling of wood material

5.2.1 General

The material selected shall be in the form of either logs or sawn timbers.

5.2.2 Logs

Trees or logs shall be selected to represent the population. For each species to be tested, at least five trees or logs representative of that species or species group shall be selected.

A heart plank shall be cut from a log of acceptable diameter. For a log having a concentric structure, the heart plank shall cover the geometrical centre (see [Figure 1](#)). In the case of a log having a diameter of 180 mm or less, the heart plank shall be cut in the direction of two mutually perpendicular diameters (see [Figure 2](#)).

For a log having an eccentric structure, the plank shall include the pith and not the geometrical centre.

The thickness of the heart plank shall be at least 60 mm, except for logs with a diameter of 180 mm or less, where the thickness shall be 40 mm. In this case, to obtain test pieces with a cross-sectional dimension greater than 30 mm, a disc that is at least 100 mm thick shall be cut from one end of the log prior to sawing out heart planks. This disc may be used for the hardness test.

5.2.3 Matching for test of dry material

If one purpose of the sampling is to provide comparison of green and dry properties, provisions shall be made for matching of specimens within the tree. The collection of the material shall be arranged to provide for tests of both green and dry specimens that are closely matched by selection from adjacent parts of the same tree.

To afford matching, the sticks of one heart plank shall be interchanged with the other sticks from the next adjacent heart plank from the same tree to form two composite heart planks, each being complete and made of equal portions of the adjacent heart planks. The sticks from one of these composite heart planks shall be tested green and those from the other shall be tested after drying. Thus, the sticks of each composite heart plank shall be regarded as if they were from the same heart plank.

This procedure provides for end-to-end matching (end matching) of sticks to be tested dry with those to be tested green, which is to be preferred when practicable. If, because of the nature of the material, end matching is not practicable, side matching may be used.

5.2.4 Sawn timber

In sampling of sawn timber, sticks shall be cut parallel to the direction of the grain. A sufficient number of sticks shall be cut to ensure that the sample and its statistical properties are representative of the population. The sticks shall be not less than 35 mm thick with sides in radial and tangential directions. Sticks containing pith shall be discarded.

6 Conditioning of material

6.1 Test pieces with a standardized moisture content (air-dry)

Before conversion into test pieces, the wood shall be thoroughly dried (at a temperature lower than 60 °C) to a moisture content close to that of the equilibrium state and shall be conditioned at a temperature of (20 ± 2) °C and a relative humidity of (65 ± 5) % to bring the moisture content of the wood to that of equilibrium. It is desirable that the ends of the sticks be covered with a moisture-protective substance to prevent splitting.

NOTE In certain climatic conditions, wood can be conditioned at a temperature above 20 °C with the appropriate change in relative humidity to obtain the same equilibrium moisture content.

6.2 Test pieces with moisture content of equal to or above fibre saturation point (green)

Prior to cutting into test pieces, the sticks shall be kept under controlled conditions to prevent further drying of the wood.