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**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

LY/T 3144-2019

**Timber structures -- Testing of joints made with mechanical
fasteners -- Requirements for wood density**
(English Translation)

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard uses the translation method equivalent to ISO 8970.:2010 "Wood Structure-Metal Fastener Connection Test-Specimen Density Requirements.

The documents of our country that have consistent correspondence with the international documents referenced normatively in this standard are as follows.

GB/T 1933-2009 Wood density determination method (ISO 3131. 1975, MOD) the following editorial changes have been made to this standard.

- Modify the standard name to "Density Requirements for Connection Test Specimens for Structural Wood Metal Fasteners";

- Removed the introduction and references of ISO 8970.:2010;

- The normative reference document is changed to the national standard GB/T 1933 (see Chapter 2) for easy use.

Please note that some elements of this document may involve patents. The issuer of this document is not responsible for identifying these patents.

This standard was proposed and managed by the National Timber Standardization Technical Committee Structural Timber Subcommittee (SAC/TC41/SC4).

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1 Scope

This standard specifies the method for selecting specimens based on the density of wood. It is used for the connection strength and stiffness of metal fasteners for structural wooden members.

Can test. This standard shall be used in conjunction with the test method standard.

This standard applies only to structural wood samples.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this article Pieces. For undated references, the latest version (including all amendments) applies to this document.

GB/T 1933 Wood density measurement method (ISO 3131, MOD)

3 Symbols and units

k correction factor

sigma standard deviation, kg/m³ rho Density of wood used in test results, kg/m³ rho_m average density of wood used in test results, kg/m³ rho_m, sel The average density of the wood of all selected specimens applied in the test results, kg/m³

4.1 General

The density of all selected test pieces is similar to the density of the wood applied in the future. The test data can be directly used to calculate the joints.

Bit eigenvalue and other indicators. The wood density is assumed to be normally distributed and the offset data is reported.

Specimen density is applicable to different woods of the same tree species or combination of tree species. The material of the test piece shall be uniform, without local defects (wood Knots, twills, cracks, etc.).

4.2 Sampling methods and requirements

Determine wood density according to GB/T 1933. The mass and volume of the test material should be at the temperature (20 ± 2) °C and the relative humidity (65 ±

5) Determination of equilibrium conditions. The results measured under other conditions need to be adjusted based on the moisture content relationship.

The wood density (rho) of all selected specimens shall meet the requirements of formula

(1).

$(1 - k) \rho_{\text{m}} \leq \rho \leq (1 + k) \rho_{\text{m}}$... (1) in the formula.

ρ_{m} -average density of wood used in the test results, unit is kg/m³ (kg/m

3), accurate to 0.01 kg/m³;

k --1.6 σ/ρ_{m} or 0.25 (σ is unknown);

σ -the standard deviation of the density of the wood to which the test results apply.

The average wood density (ρ_{m} , ρ_{sel}) of all selected specimens should meet the requirements of formula (2).

$0.95\rho_{\text{m}} \leq \rho_{\text{m}}, \rho_{\text{sel}} \leq 1.05\rho_{\text{m}}$... (2) in the formula.

ρ_{m} -the average density of the wood used in the test results, in kg/m³ (kg/m

3), accurate to 0.01 kg/m³;

ρ_{m} , ρ_{sel} -the average density of all selected specimens.

5 Test report

The test report should include.

- a) The species of wood or all species of a group of different woods, the moisture content at the time of specimen selection, the density distribution of the selected specimens, all Select the average density of the test pieces;
- b) the average density and standard deviation of the wood used in the test results;
- c) the standards used (including the year of publication or publication);
- d) whether the test specimen meets the requirements of this standard;
- e) abnormal phenomena and problems that need to be explained during the test;
- f) Test date.