



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

GB/T 1927.12-2021

**Test methods for physical and mechanical properties of small
clear wood specimens - Part 12: Determination of strength in
compression perpendicular to grain**

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foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules of Standardization Documents"

drafted:

This document is part 12 of GB/T 1927 "Test Methods for Physical and Mechanical Properties of Small Specimens of Wood without Defects": GB/T 1927 has been issued

The following parts are distributed:

- Part 1: Collection of test materials;
- Part 2: Sampling methods and general requirements;
- Part 3: Determination of growth ring width and latewood rate;
- Part 4: Determination of moisture content;
- Part 5: Density determination;
- Part 6: Determination of dry shrinkage;
- Part 7: Determination of water absorption;
- Part 8: Determination of swelling properties;
- Part 9: Determination of flexural strength;
- Part 10: Determination of flexural modulus of elasticity;
- Part 12: Determination of transverse grain compressive strength;
- Part 17: Determination of impact toughness;
- Part 18: Determination of impact indentation;

--- Part 19: Determination of hardness;

--- Part 20: Determination of splitting resistance:

This document replaces GB/T 1939-2009 "Wood cross-grain compression test method", compared with GB/T 1939-2009, except for structural adjustment

In addition to editorial changes, the main technical changes are as follows:

- a) Changed the principle (see Chapter 4, Chapter 3 of the:2009 edition);
- b) Added the test equipment "Pressure plate" (see 5:3);
- c) Added requirements for wood moisture content and density measurement equipment (see 5:5);
- d) Added green wood samples (see 6:1:4);
- e) The method of determining the proportional ultimate load has been changed (see 6:3:1, 5:2:4 of the:2009 edition);
- f) Added Figure 2, Figure 3 and Figure 4;
- g) Added the content of air-dry density measurement (see 6:2:2 and 7:2:2);
- h) Appendix A is changed to informative:

This document is modified to adopt ISO 13061-5:2020 "Test methods for the physical and mechanical properties of wood with small defect-free specimens - Part 5: Cross-grain resistance

Determination of Compressive Strength:

Compared with ISO 13061-5:2020, this document has the following structural adjustments:

- a) 6:1 corresponds to Chapter 6 of ISO 13061-5:2020;
- b) 6:2 corresponds to Chapter 7 of ISO 13061-5:2020;
- c) 6:3 corresponds to Chapter 8 of ISO 13061-5:2020;
- d) Chapter 8 corresponds to Chapter 9 of ISO 13061-5:2020:

The technical differences between this document and ISO 13061-5:2020 and their reasons are as follows:

- a) changed the source of terminology (see Chapter 3) to ensure professionalism and uniformity of terminology;
- b) Added the local compressive test of wood transverse grain (see Chapter 7), because this test method has been used in the historical versions of Chinese standards, and it has been applied

value;

c) Changed the principle (see Chapter 4), the national standard does not consider "the direction of the growth wheel is at an angle of 45°" to apply the load, because this direction

less test applications;

d) Figure 1, Figure 2 and Figure 4 are added to help understand the test equipment, samples and test operation steps;

e) Added the test equipment "Pressure plate" (see 5:3), because the pressure plate is an accessory that must be used in the test;

f) Changed the sample size requirements (see 6:1), because the specific sample size is specified to facilitate the test;

g) The specific requirements for sample preparation for the determination of the moisture content of the sample are added (see 6:2:7), because it is beneficial to the implementation of the moisture content test;

h) The method for determining the proportional limit load is added, that is, the point on the load-deformation diagram that deviates from the straight line is taken as the proportional limit load

load (see 6:3:1), because this method is a traditional method for determining the proportional limit load and has application value;

i) Changed the test loading speed range (see 6:2:4), the loading speed still meets the requirements of ISO 13061-5:2020, because it is related to the

Historical versions remain consistent:

The following editorial changes have been made to this document:

a) In order to harmonize with the existing standards, the name of the standard is changed to "Test methods for physical and mechanical properties of wood with small samples without defects - Part 12: Horizontal

Determination of grain compressive strength";

b) Added Appendix A (informative) "Record Table of Compression Test of Wood Horizontal Grain (Partial)";

Please note that some content of this document may be patented: The issuing agency of this document assumes no responsibility for identifying patents:

Introduction

The standard of test methods for physical and mechanical properties of wood is used in wood scientific research, teaching, wood inspection, wood structure design, wood

processing and production, etc:

It is widely used and is an important basic standard in the wood industry: In 1980, my country issued the first edition of the test methods for physical and mechanical properties of wood:

The domestic standard (GB/T 1927~GB/T 1943) was revised twice in:1991 and:2009 respectively: In recent years, with the development of wood science and technology

The development of technology, the International Organization for Standardization (ISO) on ISO 3129:2012 "Sampling methods and

"General Requirements" has been revised, and ISO 3130:1975 "Determination of moisture content by physical and mechanical tests of wood", ISO 3131:1975 "Wood physical and mechanical tests"

15 international standards for test methods such as "Determination of Density in Mechanical Tests" have been integrated and revised: Based on this, in order to be in line with international standards, this time

The third revision of the national standard for test methods for physical and mechanical properties of wood, the integration of 22 scattered test methods into GB/T 1927

Part of the document, in revision to adopt the latest edition of the International Standard:

GB/T 1927 aims to establish a test method for the physical and mechanical properties of small sample wood without flaws, and is intended to be composed of 21 parts:

--- Part 1: Collection of test materials: The purpose is to describe the sample collection method for testing the physical and mechanical properties of wood with small samples without defects:

--- Part 2: Sampling methods and general requirements: The purpose is to establish a suitable test for the physical and mechanical properties of small wood samples without defects:

Specimen sawing, interception methods and general requirements to be observed when testing methods:

--- Part 3: Determination of growth ring width and latewood rate: The purpose is to characterize the growth ring width and latewood rate of small samples of clear wood method of determination:

--- Part 4: Determination of moisture content: The purpose is to describe a method for the determination of the moisture content of small wood samples without defects:

--- Part 5: Density determination: The purpose is to describe the density, air-dry density, absolute dry