

Timber structures — Test methods — Determination of mechanical properties of wood-based panels

The European Standard EN 789:1995 has the status of a
British Standard

ICS 79.040; 91.080.20

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by Technical Committee B/518, Structural timber, to Subcommittee B/518/1, Test methods, upon which the following bodies were represented:

- Department of the Environment (British Board of Agrément)
- Department of the Environment (Building Research Establishment)
- Institution of Civil Engineers
- Institution of Structural Engineers
- Timber Research and Development Association
- Wood Panel Industries Federation

This British Standard, having been prepared under the direction of the Sector Board for Building and Civil Engineering, was published under the authority of the Standards Board and comes into effect on 15 July 1996

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National foreword

This British Standard has been prepared by Subcommittee B/518/1, and is the English language version of EN 789:1995 *Timber structures — Test methods — Determination of mechanical properties of wood-based panels*, published by the European Committee for Standardization (CEN).

The standard describes tests specifically designed for establishing the characteristic values of the mechanical properties of wood-based panels used in load-bearing timber structures. It does not supersede any existing British Standard.

Cross-references

Publication referred to	Corresponding British Standard
EN 322:1992	BS EN 322:1993 <i>Wood-based panels. Determination of moisture content</i>
EN 323:1992	BS EN 323:1993 <i>Wood-based panels. Determination of density</i>
EN 325:1992	BS EN 325:1993 <i>Wood-based panels. Determination of dimensions of test pieces</i>
EN 1058:1995	BS EN 1058:1996 <i>Wood-based panels. Determination of characteristic values of mechanical properties and density</i>

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 16, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

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English version

Timber structures — Test methods — Determination of mechanical properties of wood-based panels

Structures en bois — Méthodes d'essai —
Détermination des propriétés mécaniques des
panneaux à base de bois

Holzbauwerke — Prüfverfahren —
Bestimmung der mechanischen Eigenschaften
von Holzbauwerkstoffen

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Comité Européen de Normalisation
Europäisches Komitee für Normung

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Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 124, Timber Structures, of which the secretariat is held by DS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 1996, and conflicting national standards shall be withdrawn at the latest by June 1996.

In accordance with the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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1 Scope

This standard specifies test methods for determining some mechanical properties of commercial wood-based panel products for use in load-bearing timber structures. These properties are intended for the calculation of characteristic values for use in obtaining material design values.

For each type and grade of panel product, as defined for example in an EN wood-based panel standard, it is necessary to determine characteristic values of mechanical properties to enable it to be used for structural purposes. This standard details the necessary testing which may only need to be carried out once for each product, unless there is a reason to suspect a significant change has occurred in the properties of the product.

This standard is not intended to be used for quality control testing, for which smaller test pieces than specified herein, are adequate.

Due to the limited experience in use with the tests, the test methods for panel and planar shear are included in Annex B and Annex C (normative).

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 322, *Wood-based panels — Determination of moisture content.*

EN 323, *Wood-based panels — Determination of density.*

EN 325, *Wood-based panels — Determination of dimensions of test pieces.*

EN 1058, *Wood-based panels — Determination of characteristic values of mechanical properties and density.*

3 Definitions

For the purposes of this standard, the following definitions apply:

3.1

specimen

piece of the panel from which a test piece will be fabricated

3.2

test piece

specimen or aggregate of parts from a sample fabricated to the size and shape required for testing

4 Symbols

A	full cross-sectional area, equal to bt , in square millimetres;
b	measured width of test piece, in millimetres;
E	modulus of elasticity, in newtons per square millimetre;
EA	direct stiffness, in newtons;
EI	bending stiffness, in newtons times square millimetres;
F	load, in newtons;
f	strength, in newtons per square millimetre;
G	shear modulus of rigidity, in newtons per square millimetre;
I	second moment of area, equal to $bt^3/12$, in millimetres to the fourth power;
l	length of test piece, in millimetres;
l_1	gauge length, in millimetres;
l_2	distance between an inner load point and the nearest support, in millimetres;
M	moment, in newton millimetres;
t	measured thickness of test piece, in millimetres;
t_1	measured thickness of panel being tested, in millimetres;
u	deflection or deformation, in millimetres;
W	section modulus, equal to $bt^2/6$, in cubic millimetres.

Subscripts applied to loads, capacities, strengths, stiffness, and moduli of elasticity:

c	compression;
m	bending;
max.	maximum;
p	panel shear;
r	planar shear;
t	tension.

5 Sampling

5.1 Sampling of panels

All panels in a sample shall be of the same type, grade, thickness range and composition or lay-up. The method of sampling and the number of panels required is given in EN 1058.