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Mavčne plošče - Stenski predizdelani elementi s celičastim jedrom - Definicije, zahteve in preskusne metode

Prefabricated gypsum plasterboard panels with a cellular paperboard core - Definitions, requirements and test methods

Gipsplatten-Wandbaufertigtafeln mit einem Kartonwabenkern - Begriffe, Anforderungen und Prüfverfahren

Panneaux de cloison préfabriqués en plaques de plâtre à âme cellulaire en carton - Définitions, prescriptions et méthodes d'essai

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Prefabricated gypsum plasterboard panels with a cellular paperboard core - Definitions, requirements and test methods

Panneaux de cloison préfabriqués en plaques de plâtre à âme cellulaire en carton - Définitions, exigences et méthodes d'essai

Gipsplatten-Wandbaufertigtafeln mit einem Kartonwabenkern - Begriffe, Anforderungen und Prüfverfahren

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European foreword

This document (EN 13915:2017) has been prepared by Technical Committee CEN/TC 241 “Gypsum and gypsum based products”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by January 2018, and conflicting national standards shall be withdrawn at the latest by April 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13915:2007.

The main changes that have been made in this new edition of EN 13915 are the following:

a) deletion of the Introduction;

b) normative references have been updated;

c) Clause 6 and Annex ZA have been revised to be in line with the Construction Products Regulation (CPR);

d) document has been editorially revised.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of Regulation (EU) No. 305/2011.

For relationship with Regulation (EU) No. 305/2011, see informative Annex ZA, which is an integral part of this document.

This European standard includes:

— informative Annex A concerning sampling procedure for testing;

— normative Annex B concerning SBI mounting and fixing for prefabricated panels made of plasterboard facings and a cellular paperboard core.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the characteristics and performance of prefabricated panels made of gypsum plasterboard facings complying with EN 520 and a cellular paperboard core intended to be used as a lightweight partition, lining and encasement for general use in buildings.

This standard covers the following characteristics: reaction to fire, water vapour permeability, flexural strength (breaking load) and thermal resistance to be measured according to the corresponding European test methods.

This Standard covers only prefabricated panels installed so that the core is not exposed.

The following performance characteristics are linked to systems assembled with prefabricated panels made of gypsum plasterboard facings and a cellular paperboard core: shear strength, fire resistance, direct airborne sound insulation, acoustic absorption and air permeability to be measured according to the corresponding European test methods. If required, tests should be done on assembled systems simulating the end use conditions.

This document covers also additional technical characteristics that are of importance for the use and acceptance of the product by the Building Industry.

It provides the assessment and verification of constancy of performance of the products.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 520:2004+A1:2009, *Gypsum plasterboards — Definitions, requirements and test methods*

EN 12664:2001, *Thermal performance of building materials and products — Determination of thermal resistance by means of guarded hot plate and heat flow meter methods — Dry and moist products of medium and low thermal resistance*

EN 13501-1:2007+A1:2009, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 13501-2:2016, *Fire classification of construction products and building elements — Part 2: Classification using data from fire resistance tests, excluding ventilation services*

EN 13823:2010+A1:2014, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*

EN 13963:2014, *Jointing materials for gypsum boards — Definitions, requirements and test methods*

EN ISO 354:2003, *Acoustics — Measurement of sound absorption in a reverberation room (ISO 354:2003)*

EN ISO 717-1:2013, *Acoustics — Rating of sound insulation in buildings and of building elements — Part 1: Airborne sound insulation (ISO 717-1:2013)*

EN ISO 10140-2:2010, *Acoustics — Laboratory measurement of sound insulation of building elements — Part 2: Measurement of airborne sound insulation (ISO 10140-2:2010)*

EN ISO 10456:2007, *Building materials and products — Hygrothermal properties —Tabulated design values and procedures for determining declared and design thermal values (ISO 10456:2007)*

EN ISO 11925-2:2010, *Reaction to fire tests — Ignitability of products subjected to direct impingement of flame — Part 2: Single-flame source test (ISO 11925-2:2010)*

EN ISO 12572:2016, *Hygrothermal performance of building materials and products — Determination of water vapour transmission properties — Cup method (ISO 12572:2016)*

ISO 7892:1986, *Vertical building elements — Impact resistance tests — Impact bodies and general test procedures*

3 Terms and definitions

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

3.1
prefabricated gypsum plasterboard panel
panel that is made up of two gypsum plasterboards according to EN 520, possibly up to 15 mm thick, bonded to both sides of a cellular paperboard core

Note 1 to entry: It is commonly named “panel” in this standard.

3.2
panel facing
exposed surface of plasterboard to receive either coating or finishing

3.3
length
dimension of the panel parallel to the paper covered edges, measured on the panel facing

3.4
width
dimension of the panel perpendicular to the paper covered edges, measured on the panel facing

3.5
thickness
distance between the panel facings

4 Requirements

4.1 Fire behaviour

4.1.1 Reaction to fire

When subject to regulatory requirements, prefabricated gypsum plasterboard panels shall be tested and classified in accordance with EN 13501-1.

Prefabricated gypsum plasterboard panels tested according to EN 13823 (SBI test) shall be mounted and fixed in accordance with Annex B or when the producer wishes to claim performance for a specific intended use, the mounting and fixing shall be representative of that intended use.

Prefabricated gypsum plasterboard panels tested according to EN ISO 11925-2 (Ignitability) shall be tested with surface attack only due to the fact that edge attack cannot occur in end use conditions.

4.1.2 Fire resistance

NOTE Resistance to fire is a characteristic dependent on an assembled system and not of the product in isolation.

When required, the fire resistance of a system including prefabricated gypsum plasterboard panels shall be classified according to EN 13501-2.

4.2 Impact resistance

NOTE Impact resistance is a characteristic dependent on an assembled system and not of the product in isolation.

When the manufacturer wishes to declare the impact resistance performance of a system that includes prefabricated gypsum plasterboard panels, the performance of the system shall be determined in accordance with ISO 7892.

4.3 Water vapour permeability (expressed as water vapour resistance factor)

Water vapour permeability is not a characteristic of heterogeneous products like panels therefore water vapour resistance is used instead.

When the manufacturer wishes to declare a performance for moisture diffusion control, tabulated design values of water vapour resistance for gypsum plasterboards given in EN ISO 10456 may be used for calculation.

Alternatively, the water vapour resistance factor shall be determined in accordance with EN ISO 12572.

4.4 Flexural strength (expressed as deflection under a defined load)

When determined in accordance with the test method described in 5.4, the deflection shall not exceed the values given in Table 1.

Table 1 — Deflection values

Panel thickness mm	Deflection (max) mm
$50 < e < 60$	37,5
$60 \leq e < 70$	30
$70 \leq e \leq 80$	15

4.5 Direct airborne sound insulation

NOTE Direct airborne sound insulation is a characteristic dependent on the assembled system and not of the product in isolation.

When the manufacturer wishes to declare the performance for the direct airborne sound insulation of an installed system including prefabricated gypsum plasterboard panels, the performance of the system shall be determined according to EN ISO 10140-2 or EN ISO 717-1 as appropriate.

4.6 Acoustic absorption

NOTE Acoustic absorption is a characteristic dependent on an assembled system and not of the product in isolation.

When the manufacturer wishes to declare the performance of prefabricated gypsum plasterboard panels to be used for acoustic conditioning, the performance of acoustic absorption shall be determined according to EN ISO 354.

4.7 Thermal resistance (expressed as thermal conductivity)

When the manufacturer wishes to claim the intended use of panels is to contribute to thermal resistance in building construction works (walls, partitions, etc.), he/she shall use for calculation, the design values of thermal resistance for gypsum plasterboards given in EN ISO 10456 or the thermal conductivity shall be determined according to EN 12664.

4.8 Dimensions and tolerances

The usual dimensions of panels are:

— **widths:** 1 200 mm, 900 mm and 600 mm:

When determined by the method described in 5.2.1 the tolerance on each panel shall be: $\begin{cases} 0 \\ -5\ \text{mm} \end{cases}$.

— **lengths:** Up to 3 600 mm:

When determined by the method described in 5.2.2 the tolerance on each panel shall be: $\begin{cases} 0 \\ -5\ \text{mm} \end{cases}$

— **thicknesses:** panels are normally available in thicknesses of 46 mm to 80 mm:

NOTE Preferred thicknesses are 46 mm, 50 mm, 57 mm, 60 mm, 63 mm and 72 mm.

When determined by the method described in 5.2.3 the tolerance for specified thickness on each panel shall be: ± 1 mm.

4.9 Alignment

When determined by the method described in 5.3 the measured deviation from one gypsum plasterboard facing the other shall not exceed:

— 5 mm on the length;

— 3 mm across the width.

4.10 Core adhesion

When determined by the test method described in 5.5, the adhesion shall meet the following values:

— average value higher than 0,01 MPa;

— individual values higher than 6×10^{-3} MPa.

4.11 Release of dangerous substance

National regulations on dangerous substances may require verification and declaration on release, and sometimes content, when construction products covered by this standard are placed on those markets.

In the absence of European harmonized test methods, verification and declaration on release/content should be done taking into account national provisions in the place of use.

NOTE An informative database covering European and national provisions on dangerous substances is available at the Growth website on EUROPA accessed through: https://ec.europa.eu/growth/tools-databases/cp-ds

4.12 Flatness of panels

The deviation of the panel's flatness, determined according to 5.7 shall not exceed 3 mm in width direction and 5 mm in length direction.

5 Test methods

5.1 Sampling

Testing shall require three panels of each thickness. Whole panels are used for 5.2 and 5.3. For testing flexural strength (5.4) specimens shall be cut out from three different panels, for testing core adhesion (5.5) three specimens shall be cut out from one single panel.

5.2 Dimensional measurements

5.2.1 Width

5.2.1.1 Principle

The distance between the extremities of the shorter linear dimension of the panel facing shall be measured.

5.2.1.2 Apparatus

A metal rule or a metal tape permitting readings to 1 mm.

5.2.1.3 Procedure

Take two measurements to the nearest 1 mm on each facing of each panel (see Figure 1 a)).

5.2.1.4 Expression of results

The width of each panel is determined by the average of the four measurements expressed in millimetres.

5.2.2 Length

5.2.2.1 Principle

The distance between the ends of the longer linear dimension of the panel facing shall be measured on each face.

5.2.2.2 Apparatus

A metal rule or a metal tape permitting readings to 1 mm.

5.2.2.3 Procedure

Take two measurements to the nearest 1 mm on each facing of each panel (see Figure 1 b)).

5.2.2.4 Expression of results

The length of each panel is determined by the average of the four measurements expressed in millimetres.

5.2.3 Thickness

5.2.3.1 Principle

The distance between the two faces of the panel shall be measured.