



SLOVENSKI STANDARD
oSIST prEN 15303-1:2007
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Design and application of plasterboard systems on frames - Part 1: General

Planung und Ausführung von Gipsplattensystemen auf Unterkonstruktionen - Teil 1:
Allgemeines

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Conception et mise en oeuvre d'ouvrages en plaques de plâtre sur ossatures - Partie 1:
Généralités

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ICS:

91.100.10 Cement. Mavec. Apno. Malta Cement. Gypsum. Lime.
Mortar

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EUROPEAN STANDARD
NORME EUROPÉENNE
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Design and application of plasterboard systems on frames - Part 1: General

Conception et mise en oeuvre d'ouvrages en plaques de
plâtre sur ossatures - Partie 1: Généralités

Planung und Ausführung von Gipsplattensystemen auf
Unterkonstruktionen - Teil 1: Allgemeines

This draft European Standard is submitted to CEN members for second enquiry. It has been drawn up by the Technical Committee CEN/TC 241.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (prEN 15303-1:2006) has been prepared by Technical Committee CEN/TC 241 "Gypsum and gypsum based products", the secretariat of which is held by AFNOR.

This document is currently submitted to the second Enquiry.

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 EU Directive 89/106.

This standard is one of a series of documents for construction products based on gypsum and their intended uses :

- prEN 15303-1 : *General principles of design of plasterboards systems on frames*
- TR 15303-2 : *Nonload bearing metal frame partitions*
- TR 15303-3 : *Nonload bearing timber frame partitions*
- TR 15303-4 : *Loadbearing metal frame partitions*
- TR 15303-5 : *Loadbearing timber frame partitions*
- TR 15303-6 : *Metal frame wall linings*
- TR 15303-7 : *Timber frame wall linings*
- TR 15303-8 : *Non loadbearing metal frame ceilings*
- TR 15303-9 : *Non loadbearing timber frame ceilings*
- TR 15303-10 : *Non loadbearing shaftwall systems*

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Introduction

The properties of gypsum plasterboards make them particularly suitable for use in situations where fire protection, sound and thermal insulation are required. To obtain full advantage of these properties in partitions, their design and installation have to be correct.

Following the recommendations for the design and installation given in this part of the standard will enable expected performances to be achieved for non load bearing metal frame partitions.

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1 Scope

This Standard provides recommendations for the design of gypsum plasterboard to meet the performance requirements of the completed works. The products described are covered by harmonised technical specifications.

Recommendations on the installation of plasterboard as wall lining partitions and ceilings are given in parts 2 to 10.

2 Normative references

The following referenced documents are indispensable for the application 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.

EN 520, *Gypsum plasterboards – Definitions requirements and test methods.*

EN 13950, *Gypsum plasterboard thermal/acoustic insulation composite panels – Definitions, requirements and test methods.*

EN 13963, *Jointing materials for gypsum plasterboards – Definitions, requirements and test methods.*

EN 14195, *Metal framing components for gypsum plasterboard systems – Definitions, requirements and test methods.*

EN 14190, *Gypsum plasterboard products from reprocessing – Definitions, requirements and test methods.*

prEN 14566, *Mechanical fasteners for gypsum plasterboard systems – Definitions, requirements and test methods.*

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prEN 14209, *Pre-formed plasterboard cornices – Definitions, requirements and test methods.*

3 Definitions

For the purposes of this European Standard, the following definitions apply.

3.1

lining

dry covering to any internal building surface

3.2

plasterboard dry lining

lining constructed of gypsum plasterboard

3.3

plasterboard seamless dry lining

plasterboard dry lining that incorporates plasterboard seamless joints

3.4

gypsum plasterboard type P (gypsum baseboard)

boards which have a face intended to receive gypsum plaster

3.5

gypsum plasterboard type A

gypsum plasterboard with a face to which suitable gypsum plaster or decoration may be applied

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**3.6
gypsum plasterboard type F**
gypsum plasterboard with a face to which suitable gypsum plaster or decoration may be applied. These boards have mineral fibres and/or others additives in the gypsum core to improve core cohesion at high temperature

**3.7
gypsum plank**
gypsum wallboard or gypsum baseboard of narrow width and large thickness

**3.8
gypsum plasterboard type H**
type of boards which have additives to reduce the water absorption rate

**3.9
gypsum coreboard**
gypsum plasterboard specifically for use between the studs in a shaft wall system

**3.10
plasterboard cornice**
preformed paper covered gypsum section with profiled face supported by shoulders

**3.11
vapour control gypsum plasterboard according to EN 14190**
gypsum plasterboard composite that incorporates a film of low water vapour permeability

**3.12
plasterboard systems**
part of the work made up of components (stud, plasterboard, jointing, screws, etc.) and assembled on site

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4 Design**4.1 General**

Prior to the commencement of the contract there shall be an exchange of pertinent information between all parties concerned. The designer shall include working drawings and specifications, prepared in sufficient detail to afford proper guidance in the preparation of estimates and the execution of the work:

- a) when selecting and designing dry lining systems the designer shall take into account the following points:
The nature and condition of the building elements to which the system will be attached, including any necessary pre-treatment;
- b) the functional requirements;
- c) the type of finish / appearance;
- d) the dimensions required including:
 - i) the finished widths, heights and thicknesses of the systems;
 - ii) details of the nature of junctions with other building elements and construction details (e.g., doors, windows, ceiling junctions, etc.);
 - iii) the positioning of installations and fittings;
 - iv) any other situations that will affect the choice and design of dry lining systems;

- e) the preparation of other building elements to provide adequate fixing points for dry lining systems as necessary;
- f) the work of other trades, particularly concerning services (e.g., pipes, wires, etc.) that are intended to connect with or run within the dry lining system;
- g) manufacturing and building tolerances that may affect the design of the dry lining system or the elements to which it is joined.

National regulations state certain requirements of dry linings that have to be met.

The performance of a dry lining system is determined by calculation or testing in accordance with the relevant European Standard.

The designer shall consider the systems selected for use and the effect this may have on the co-ordination of all trades and the overall building programme.

4.2 Functions

The following are examples of factors that can influence the choice of a dry lining system and shall be considered:

- a) type of building, occupancy and use;
- b) dimensions (height, width, thickness) of the system;
- c) accuracy of background;
- d) provision for services;
- e) decoration.
- f) loadings, to be carried by the system and imposed by the system on the structure;
- g) exposure to knocks and abrasions;
- h) space utilisation (optimum use of space);
- i) temperature and humidity conditions;
- j) thermal insulation;
- k) sound insulation - Fire protection, fire resistance, surface spread of flame, cavity barriers;
- l) type of construction.

It is important that a decision is made as early as possible as a partition is to be constructed as an integral part of the building to take full advantage of the systems available, e.g. non-load bearing partitions and wall and ceiling linings incorporating thermal and sound insulation.

Table 1 summarises the properties of common systems and highlights points to be considered.

Table 1 — Primary functions and properties

Function or property	Points to be considered	Partitions	Wall Linings	Ceilings	Duct & Shaft
Separation	Layout of linings or partitions				
Access	Location and types of doors and hardware, hatches, etc., movable partition				
Strength and stiffness	Ability to support fixtures, e.g. cupboards, basins, services, etc. Resistance to impacts from objects, door slamming and occupants. Resistance to wind pressure. Strength of the fixings to the supporting structure				
Load bearing	Ability to support or stiffen other elements of the structure. Resistance to wind pressure. Resistance to crowd pressure. Racking strength				
Fire protection	Regulations for fire resistance and reaction to fire and smoke control				
Acoustics	Sound insulation in conjunction with other elements. Acoustic control				
Visibility, privacy and lighting	Arrangement and type of glazing. Borrowed light				
Hygrothermal separation	Thermal resistance in conjunction with other elements. Reduced air movement through joints, access panels, etc. Water vapour control				
Distribution of services	Within partitions or linings or surface mounted				
Durability	Selection of materials. Frequency and ease of maintenance/repair				
Appearance	Colour, texture and decoration				
Utilisation of space	Thickness of partition or lining system. Accuracy of the background				
Security	Resistance to intrusion				

4.3 Design considerations

4.3.1 Fire protection

Consideration shall be given to the fire protection properties of the system, including its components and materials to satisfy current building legislation.

Properties may include:

- a) reaction to fire;
- b) the Euroclass of the products used to construct the system is stated by the manufacturer and relevant materials shall be selected to satisfy particular requirements;
- c) fire Resistance;
- d) where fire resistance is required the designer shall ensure that the system used fulfils the requirement and provides relevant or required documentation there of;
- e) cavity barriers and closures;
- f) the designer shall consider whether cavity barriers and cavity barrier closures will be required to be installed to resist the spread of smoke and flames in the cavities;
- g) fire stopping;
- h) fire stopping may be required to seal any imperfection of fit between fire resisting systems and other elements such as adjoining structure or cavity barriers and to seal around any services that may penetrate the system. To maintain an effective seal an adequate allowance shall be made for any differential movement;
- i) smoke control;
- j) where there is a requirement for smoke control the system shall be imperforate and sealed against the passage of smoke at ambient temperatures at all boundaries, junctions, service and structural penetrations making adequate allowance for all differential movement.

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4.3.2 Protection against noise

The designer shall consider the sound insulation of systems in conjunction with the purpose and detailed design of the building.

Elements in the system construction will have differing effects but the area having the least resistance to the transmission of sound will largely determine the net performance. If sound insulation is important all openings, joints, penetrations and perimeters shall be provided with effective seals.

NOTE Figure 1 shows some possible routes of sound transmission within a building.