



SLOVENSKI STANDARD
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Design, preparation and application of external rendering and internal plastering - Part 2:
Design considerations and essential principles for internal plastering

Planung, Zubereitung und Ausführung von Innen- und Außenputzen - Teil 2: Planung
und wesentliche Grundsätze für Innenputz

Conception, préparation et mise en oeuvre des enduits intérieurs et extérieurs - Partie 2:
enduits intérieurs

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EUROPEAN STANDARD
NORME EUROPÉENNE
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EN 13914-2

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ICS 91.100.10

English version

**Design, preparation and application of external rendering and
internal plastering - Part 2: Design considerations and essential
principles for internal plastering**

Conception, préparation et mise en oeuvre des enduits
intérieurs et extérieurs - Partie 2: enduits intérieurs

Planung, Zubereitung und Ausführung von Innen- und
Außenputzen - Teil 2: Planung und wesentliche Grundsätze
für Innenputz

This European Standard was approved by CEN on 3 March 2005.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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Foreword

This document (EN 13914-2:2005) has been prepared by Technical Committee CEN/TC 125 "Masonry", the secretariat of which is held by BSI.

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 October 2005, and conflicting national standards shall be withdrawn at the latest by October 2005.

The initial draft of this document was prepared by the European section of International Union of Contractors of Plastering, Dry Lining, Stucco and Related Activities (UIEP) at the request of the CEN Technical Sector Board (Resolution No.BTS1/56/1991). It has been revised by CEN/TC125/JWG5 in conjunction with CEN/TC 241. Relevant data are summarized in a series of tables. This part of EN 13914 applies to design for plaster made of mortars containing inorganic and organic binders and mineral aggregate¹⁾, applied on internal vertical and soffit surfaces of structures.

Aspects of this document where basic recommendations may need to be complemented by additional recommendations are indicated by a footnote referencing the Foreword.

Because this standard is a code-like document as opposed to the more conventional EN product standard, it is appropriate to mention that, as with product standards, the use of the verbal form 'shall' denotes a requirement for which verification of compliance has to be able to be demonstrated. Recommendations are denoted by the verbal form 'should' and should be followed unless there is a justifiable reason for not doing so.

It is not the function of this standard to assign responsibility for the design and application of any work or actions mentioned within to any specific party. Such responsibility is a matter for other documentation associated with the work, e.g. the contract.

It has been assumed in the drafting of this document that the application of its provisions is entrusted to appropriately qualified and experienced people, for whose guidance it has been prepared.

Separate CEN Technical Reports containing guidance relating to the design, preparation and application of plaster and plastering systems for gypsum, cement and/or lime (CEN/TR 15125) and polymer plasters (CEN/TR 15123) are available.

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

1) The aggregate can be omitted from mortars made from gypsum plaster or anhydrite binders.

EN 13914-2:2005 (E)**1 Scope**

This standard concerns the design considerations and essential principles for internal plastering systems and application of plastering systems.

The standard gives in different parts requirements and recommendations for building details, design and materials considerations, the selection of mixes and the application of gypsum plasters; gypsum/lime plasters; premixed lightweight plasters; anhydrite plasters; lime/gypsum; cement and cement/lime based plasters; lime based plasters, silicate plasters, polymer plasters and polymer modified plasters.

This standard does not deal with the following:

- external finishes;
- painting and or preparation;
- impregnations;
- structural repair of concrete;
- fibrous plasterwork

Because of the many and varied materials and practices in Europe it is not possible for certain aspects of the standard to enter into sufficient detail to be fully usable to practitioners in each country. Such guidance to complement, but not alter any basic European recommendations are given in documentation prepared by each country. Aspects of this European Standard whose basic recommendations may need to be complemented are indicated where they occur by a footnote referencing this clause. Further information is given in Technical Reports as follows:

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CEN/TR 15124 'Design, preparation and application of internal gypsum plastering systems';

CEN/TR 15125 'Design, preparation and application of internal cement and/or lime plastering systems';

CEN/TR 15123 'Design, preparation and application of internal polymer plastering systems'.

2 Terms and definitions

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

2.1**plaster**

mixture based on one or more binders, that is applied while plastic and that hardens after application, used to obtain an internal surface finish. It does not acquire its final characteristics until it has set and/or hardened on the building component

2.2**plastering**

the application of plaster

2.3**plaster coat**

obtained by application of one or more layers with one or more mixes of the same product

2.4**plaster layer**

plaster applied wet on wet to obtain the final thickness with one or more mixes of the same product, when all operations are completed before the plaster has set

2.5**plastering system**

plaster coat or sequence of plaster coats applied to a background, including the possible use of a support and/or reinforcement and/or pre-treatment

2.6**undercoat**

lower plaster coat or plaster coats of a plastering system

2.7**final coat**

last plaster coat of a multicoat plastering system

2.8**one coat plaster**

plaster applied to a non-plastered background in one coat which fulfils all the functions of an undercoat and a final coat

2.9**skim coat**

thin (e.g. 2 mm or 3 mm) plaster coat applied to a non-plastered background

2.10**background**

surface of a construction element to which a plastering system is to be applied

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2.11**reinforcement**

material incorporated within a plaster coat to improve resistance to cracking (e.g. mesh)

2.12**support**

product attached to the background to which a plaster is applied so that the plastering system is largely independent of the background (e.g. lathing)

2.13**lining**

true representation of a frame which was to be plastered up to

2.14**depth gauge**

a band of plaster or bead used in setting for a required thickness or evenness

2.15**bonding agent**

proprietary material used to improve adhesion of the plastering system to the background where necessary

2.16**primer to reduce suction**

material for pretreatment, to reduce the suction of the background where necessary

EN 13914-2:2005 (E)**2.17****spatterdash or stipple**

pretreatments to prepare a background for plastering. They do not form a coat in the plastering system

2.18**crazing**

network of short, irregular and very fine cracks

2.19**efflorescence**

formation of crystals on a surface during drying caused by the presence of soluble salts

3 Essential principles and building programme**3.1 Essential principles**

The design shall include drawings and specifications, e.g. quantities, prepared in detail to afford proper guidance in the preparation of estimates and the execution of the work.

Prior to the commencement of the contract there should be an exchange of information between all parties concerned.

When preparing plastering details the design shall take into account the following points:

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- a) nature and condition of the background, including any necessary pretreatment;
 - b) functional requirements;
 - c) type of plaster and other materials to be used in the plastering system. It is recommended that these materials should conform to appropriate documents where available and where not available should conform to standards accepted in the place of use. See also prCEN/ TRs for gypsum; cement and/or lime and polymer plasters;
 - d) type of finish/appearance;
 - e) thickness required including:
 - 1) the finished sizes and heights of rooms or other spaces;
 - 2) details of the nature of the junctions with door frames, ceilings, linings etc;
 - 3) the positioning of installations and fittings;
 - 4) any other situations which may affect the plaster thicknesses.
 - f) preparation of the different building surfaces to receive the various types of cornices, arrises, corner treatments, metal accessories (such as angles and beads), expansion joints, etc.;
 - g) work of other trades, particularly in connection with service pipes, conduits, wiring and so forth, that are to be covered by or buried in the plaster;
 - h) compatibility of the plaster with adjacent materials.

A record should be kept of the dates of completion of each area in larger projects by the plastering contractor.

Adequate lighting shall be provided during the plastering work. See Annex A.

3.2 Building programme

In preparing a time schedule for the work involved in a building, each operation should be considered in relation to the others.

Agreement shall be obtained between all the various parties on the programme times for all the necessary operations and the correct sequence for carrying out these operations. The programme should be kept up-to-date as the project proceeds and damage by subsequent trades should be avoided.

The following items shall be considered by those involved in planning the programme.

- a) plastering should only commence in those parts of the building which are weather tight;
- b) time for the background to be completed and for all the preceding trades to be complete;
- c) time for the background to be investigated and to dry out;
- d) time to allow for any periods when the background and air temperatures fall below 5 °C. (Alternatively heating may be provided to keep the temperatures above 5 °C);
- e) sufficient area of background to be available at any one time for plastering;
- f) time for the preparation of the background, application and drying out of each coat of plaster;
- g) time for inspection and repair, if necessary;
- h) time for drying out the plaster prior to painting or other decoration;
- i) avoid late alterations.

4 Design

4.1 Factors influencing the plastering system

4.1.1 Design functions and properties of a plastering system

A plastering system may need to fulfil one or more of the following functions or properties:

- to have sufficient resistance to abrasion (see 4.2.6).
- to even out any small unevenness in the background and provide a flat surface (see 4.9.3);
- to provide a decorative finish or a background for such a finish;
- to be vapour permeable;
- to have sufficient surface strength;

Special plasters can provide enhanced properties for the following aspects:

- to improve the thermal properties of a building element (see 4.3);

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- to improve the acoustic properties of a building element (see 4.4);
- to improve the fire resistance of a building element (see 4.5);
- to enhance the protection against radiation from radioactive materials (see 4.6).

4.1.2 Factors influencing the choice of a plastering system

Consideration shall be given to all functional and aesthetic aspects of the building so as to arrive at the correct choice of plastering system

4.1.3 Background characteristics as part of a plastering system

In deciding the system to be chosen consideration shall be given as to whether the background provides adequate support, strength, rigidity and adhesion. See Annex B.

If these characteristics of the background are inadequate, then other means of providing support and/or additional adhesion/pre-treatment shall be used (for guidance see CEN/TRs 15123, 15124 and 15125 (Polymer, Gypsum, Cement and/or lime).

If a pre-treatment is required and it is not included in the contract specification then the designer shall be notified.

Difficulty in application can sometimes be experienced when plastering on high-suction backgrounds due to rapid moisture loss from the plaster. Special measures are required to remedy this problem (e.g. primer to reduce suction, spatterdash, additive, bonding agent).

4.1.4 Service conduits

Service conduits and similar items that are to be built within a wall should be positioned within the thickness of the background. Only if this is not possible should conduits be positioned on the surface of the background. Consideration should be given to the provision of reinforcement or supports in the plaster over any deep or wide conduit.

4.1.5 Compatibility of backgrounds and plaster coats

Consideration shall be given to the compatibility between plastering systems and the background and, where appropriate, between successive plaster coats.

To achieve compatibility, consideration shall be given to:

- a) movement of the background caused by load dependent and load independent deformations, e.g. structural movement, moisture and thermal movements;
- b) efflorescence, salt formation at the interface (for guidance see CEN/TRs 15123, 15124 and 15125 (Polymer, Gypsum, Cement and/or lime);
- c) defects in the background, e.g. lack of adequate key, weakness, contamination;
- d) inadequate suction control;
- e) films of unset plaster produced by premature drying;
- f) any combination of these causes.

NOTE Such compatibility is necessary to avoid bond failure either between successive coats or between the plaster and the background.

4.1.6 Drying and hardening times

Sufficient time shall be given for the drying and hardening process and before the ultimate finish, e.g. decoration and for the length of time available for these processes and the likely ambient conditions.

It is essential that the background and plaster shall have dried sufficiently before permanent decorative coats e.g. wall papering, painting can be applied.

Guidance on suitable plastering systems is given in CEN/TRs 15123, 15124 and 15125 (Polymer, Gypsum, Cement and/or lime).

4.2 Durability

4.2.1 General

When the background has been erected and the plastering prepared and applied in accordance with relevant standards, then the plastering system will perform satisfactorily. The durability of the plaster can be affected by movement in the background.

As plastering is an internal finish, it should not be subjected to extremes of temperature, water ingress (see 4.2.2) or frost.

4.2.2 Effects of moisture

Walls, ceilings and other backgrounds to be plastered should be sufficiently dry²⁾ for plastering to be applied without adverse effects, be contained within a weather-resistant shell, and where appropriate be designed and built to contain a damp proof course or other means of preventing damp rising from the ground.

If backgrounds are not in the condition described, then before plastering commences steps should be taken to rectify the situation.

4.2.3 Condensation

Condensation in a building can be of a temporary or permanent nature. If adequate ventilation is not provided during the drying of the plaster, then the strength of the plaster may be impaired and the time at which decoration may start may be delayed

4.2.4 Corrosive effect on metals in contact with plasters

Any embedded metal e.g. service pipes shall be compatible with the plaster system chosen. Matured plasterwork may be regarded as dry and therefore non-corrosive.

Under persistently wet conditions, corrosion-resistant materials shall be used.

4.2.5 Resistance to cracking

The design of the structure shall have taken into account the need for preventative measures to avoid possible movements of the background.

NOTE 1 Cracking may occur at positions of higher stresses e.g. at corners of openings. The use of reinforcement in the plaster will not prevent cracking caused by structural factors.

²⁾ Refer to final paragraph of Clause 1 for further information.