



SLOVENSKI STANDARD
SIST-TP CEN/TR 15125:2005

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Design, preparation and application of internal cement and/or lime plastering systems

Planung, Zubereitung und Ausführung von Kalk-, Zement- und Kalkzement-Innenputzsystemen

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ICS:

91.100.10	Cement. Mavec. Apno. Malta	Cement. Gypsum. Lime. Mortar
91.180	P[dæ bæ æ b } æ^æ	Interior finishing

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Design, preparation and application of internal cement and/or lime plastering systems

Planung, Zubereitung und Ausführung von Kalk-, Zement-
und Kalkzement-Innenputzsystemen

This Technical Report was approved by CEN on 13 May 2005. It has been drawn up by the Technical Committee CEN/TC 125.

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 (CEN/TR 15125:2005) has been prepared by Technical Committee CEN/TC 125 "Masonry", the secretariat of which is held by BSI.

This document has been initially 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.

It is not the function of this document 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.

This TR should be read in conjunction with EN 13914-2.

The following similar Technical Reports are also available:-

CEN/TR 15123:2005 *Design, preparation and application of internal polymer plastering systems*

CEN/TR 15124:2005 *Design, preparation and application of internal gypsum plastering systems.*

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Report: 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 the United Kingdom.

CEN/TR 15125:2005 (E)**1 Scope**

This document concerns the design, preparation and application of internal plaster and plastering systems based on cement and/or lime for internal plastering on all types of background used under normal conditions. It includes plastering onto both new and old backgrounds and the maintenance and repair of existing work. It concerns materials, backgrounds, preparation of the surface to be plastered, choice of suitable cement and/or lime plastering system, methods of application and inspection and testing of plastering.

Cement and/or lime plastering mixes with special properties intended to enhance thermal insulation, fire resistance, acoustic insulation and to increase radiation absorption are also covered.

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.

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 998-1, *Specification for mortar for masonry — Part 1: Rendering and plastering mortar*

EN 13914-2, *Design, preparation and application of external rendering and internal plastering - Part 2: Design considerations and essential principles for internal plastering*

3 Terms and definitions [SIST-TP CEN/TR 15125:2005](#)

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For the purposes of this document, the terms and definitions in EN 13914-2 and the following apply.

3.1**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 on the building component

3.2**mineral plaster**

mixture of aggregates, additives, admixtures and one or more binders

3.3**cement and/or lime plaster coat**

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

3.4**cement and/or lime plaster layer**

cement and/or lime 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 cement and/or lime plaster has set

3.5**designed plaster**

plaster designed and manufactured to fulfil stated properties and subjected test requirements (performance concept)

3.6**prescribed plaster**

plaster made in predetermined proportions the properties of which are assumed from the stated proportions of the constituents (recipe concept)

3.7**plastering**

application of plaster

3.8**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 pretreatment

3.9**undercoats**

lower plaster coat or plaster coats of a plastering system

3.10**final coat**

last plaster coat of a multicoat plastering system

3.11**dubbing out**

process of filling large localized irregularities in the background, such as hollows, prior to the application of an undercoat

3.12**one coat plaster**

plaster applied in one coat which fulfils all the functions of a plastering system

3.13**background**

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

3.14**reinforcement**

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

3.15**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)

3.16**bonding agent**

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

3.17**spatterdash and stipple**

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

NOTE Stipple is only used in the form of site plaster.

3.18**lining**

true representation of a frame which was to be plastered up to e. g. doors, frames

CEN/TR 15125:2005 (E)**3.19****depth gauge**

mortar screed or metal bead used in setting for a required thickness

3.20**crazing**

network of short, irregular and very fine cracks up to approximately 0,2 mm in width. Hairline cracks do not impair the function of the plaster and are therefore acceptable to a limited extent

4 Materials and accessories**4.1 Materials for site-made plasters****4.1.1 Binders****4.1.1.1 Common cements including coloured cement**

Common cements, which include coloured and pigmented cements, should conform to the requirements of EN 197-1. It should, however, be noted that not all types and classes will be suitable for each and every application.

4.1.1.2 Masonry cement

Masonry cement should conform to the requirements of EN 413-1.

4.1.1.3 Sulphate resistant cements

Sulphate resisting cements should conform to the requirements of relevant national standards or provisions valid in the place of use of the plaster until a European Standard (EN 197) for sulphate resisting cements is available.

4.1.1.4 Lime

Building lime should conform to the requirements of EN 459-1.

4.1.2 Aggregates

Aggregates should conform to the requirements of EN 13139 or EN 13055-1 as appropriate. Other aggregates may be used which do not exert a harmful influence on the plaster.

4.1.3 Admixtures for cement and /or lime based plasters

Where available admixtures should conform to the requirements of EN 934-3.

Only those admixtures should be used which do not exert any harmful influence on the plaster. They should not impair the strength or durability of the plaster and where applicable, the protection against corrosion of the reinforcement or lathing. In addition they should not modify, other than in the manner intended, the setting or hardening of the binder.

With all admixtures it is essential that the manufacturers instructions should be precisely followed. Overdosage should be avoided.

4.1.4 Additions

4.1.4.1 Bonding agents

Only bonding agents with a proven performance should be used. With all bonding agents it is essential that the manufacture's instructions should be precisely followed.

4.1.4.2 Pigments

Pigments should comply with the requirements of EN 12878. Other pigments should be used only if they are known to be satisfactory.

4.1.4.3 Fibres

Fibres can be used in specialised applications such as restoration work, sprayed plasterings and plasterings on lathing or insulation board.

The fibres should not affect the chemical or physical stability of the plaster.

4.2 Water

The water should be of a quality such that it does not adversely affect the plaster.

Water fit for drinking is suitable for mixes for plastering. Attention is drawn to the requirements of EN 1008 in cases where water supplies may be of doubtful quality.

4.3 Types of plaster

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4.3.1 General

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Ready mixed plasters can be mixed entirely in the factory or partly in the factory and then completed on site. Alternatively plaster may be mixed entirely on site.

4.3.2 Factory made and semi-finished factory made plasters

For mixes based on cement and/or lime, factory made and semi-finished factory made plasters should conform to EN 998-1 for those parts of the process either wholly or partly carried out in the factory.

For those parts of the process for semi-finished factory made plasters completed on site, the materials should conform to the recommendations of 4.1 and 4.2.

4.3.3 Site made plasters

4.3.3.1 General

Site made plasters should be made from constituents given in 4.1 and 4.2 and mixed in accordance with 9.2 with the correct proportions (see 9.1).

4.3.3.2 Site made, designed mixes

It is recommended that such mixes should not normally be made on site unless the contractor has taken special measures to exercise the necessary degree of control.

CEN/TR 15125:2005 (E)**4.3.3.3 Site made, prescribed mixes**

These mixes should be made by batching the specified binders and aggregates in appropriate proportions. These proportions are not given in this document. Other than ensuring and checking that these mixes are correctly batched prescribed mixes are not required to meet any test criteria.

NOTE It is recommended that other documentation should give a range of different mix proportions to produce a range of plasters of different strengths. This will provide suitable products for backgrounds of different strengths and suction/absorptions and also for successive undercoats and final coats. The proportions given should be the national traditional values for which there are many years of experience of successful use.

In some cases it might be appropriate to provide the mix proportions for a range of alternative binders to produce mixes of equivalent strengths, for example:

- cement:lime:sand;
- cement:premixed lime/sand;
- cement:sand plus plasticizer;
- lime:sand.

Mixes can also be made and selected according to their use.

In stating the mix proportions it should be explained whether these are by weight or by volume and whether they are based on the use of dry or damp sand and aggregates.

4.4 Reinforcement, lathing and beads

Lathing, reinforcement and beads of whatever type should be of stainless steel, galvanized steel, aluminium or plastics, should conform to EN 13658-1. Reinforcement of alkali resistant glass fibre net should conform to EN 13496.

Welded wire mesh reinforcement should conform to EN 13658-2.

4.5 Fixings

Fixings for lathing and beads such as nails, screws, staples and steel wire should be made of compatible material and should conform to prEN 10223-3, EN 10230-1, EN 10244-1 or EN 10244-2.

4.6 Firrings

Firrings should consist of galvanized or stainless steel channels, rods, steel wire or timber.

Firrings shall be of sufficient size so that the lathing and the plaster applied to the lathing is held rigidly.

5 Design – factors influencing the selection of cement and/or lime plastering systems**5.1 Functions and properties that may be required**

The function and properties achievable are determined by the choice of cement and/or lime type and mixes.

A cement and/or lime plastering system will need to fulfil some of the following functions or properties:

- to even out any small unevenness in the background and provide a flat surface (see **Table 5**);
- to provide a decorative finish or a background for such a finish;
- to have enhanced strength;
- to have enhanced resistance to abrasion.

Special plasters can provide enhanced properties for the following aspects:

- to improve the thermal properties of a building element (see **6.4**);
- to enhance the protection against water penetration;
- to enhance the protection against soluble salts and moisture (renovation plaster).

5.2 Factors influencing the choice of cement and/or lime plaster type or systems

The designer should consider all functional and aesthetic aspects of the building.

The choice of cement and/or lime plaster(s) or cement and/or lime plaster system is determined principally by the plaster mix according to:

- a) type of building (private houses, buildings); purpose of building (flat, school, hospital, office); uses (for example: wet room);
- b) the characteristics of the background;
- c) the ambient and operating conditions;
- d) the traditional usage in any particular area;
- e) the type of finish required.

5.3 Background

Consideration should be given to the compatibility between cement and/or lime plastering systems and the background. To achieve this compatibility, the following items should be considered:

- a) The background should provide adequate support: strength, rigidity and adequate key and suction for the adhesion of the cement and/or lime plaster.
- b) Masonry should conform to the requirements of ENV 1996-2.
- c) Boards, slabs and polystyrene should be fixed securely and should only be plastered when they are dry and dimensionally stable.
- d) It is important to avoid:
 - 1) movement of the background, including structural, moisture and thermal movements;
 - 2) defects in the background, e.g. lack of adequate key, weakness, contamination.
 - 3) inadequate suction control;
 - 4) efflorescence

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Such compatibility is necessary to avoid bond failure between successive coats or between the first cement and/or lime plaster coat and the background.

If any of these inadequate characteristics of the background exist, then other means of providing support and/or additional adhesion should be used.

If it is necessary to plaster over an existing substrate, ensure that it will have sufficient bond strength to support and provide adhesion for the new plaster. For most plaster types adhesion is provided by key and suction from the background.

Care should be taken in the following circumstances:

- high and/or variable suction: when the suction is high a pre-treatment incorporating a primer agent should be used;
- low key and suction: when the key and suction of a background is insufficient, then a pre-treatment incorporating a bonding agent should be used.

When a cement or cement lime background is to receive a gypsum plaster coat, it is important that the entire cement or cement/lime background is mature, clean and dry and a proper key provided, otherwise difficulty with decoration due to the migration of alkalis may be experienced and in extreme cases complete de-bonding of the gypsum plaster coat can occur.

6 Characteristics of cement and/or lime plastering systems

6.1 General

6.1.1 Cement and/or lime plasters

Cement and/or lime plasters have a controlled set. During the drying out process shrinkage may take place depending on the materials of the plaster mix. Cement and/or lime plasters may be decorated with most proprietary finishes when dry.

The appropriate cement and/or lime plaster can be used in most areas. Plasters for special designed requirements are described in EN 998-1. Cement and/or lime undercoats should be scratched to provide a key for subsequent coats. Each undercoat should be allowed to harden and dry before applying the subsequent coat.

6.1.2 Lightweight cement and cement/lime plasters

Lightweight cement plasters have the general characteristics as described in **6.1** but are less brittle.

6.1.3 Mixes based on lime, or lime and cement, or lime and gypsum

Plasters containing a high percentage lime set relatively slowly by reaction of lime with carbon dioxide from the air. Lime plasters are not hard or brittle.

Such lime plasters should not be used under persistently damp conditions.

Lime may be mixed with either cement or gypsum. Lime/cement and lime/gypsum plasters set faster than lime plasters.

Products made with hydraulic lime harden in a similar manner to cement, i.e. without carbon dioxide from the air. Hydraulic lime shall not be mixed with gypsum.