

BRITISH STANDARD

Design, preparation and application of internal gypsum, cement, cement and lime plastering systems – Specification

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Foreword

Publishing information

This British Standard was published by BSI and came into effect on 29 September 2006. It was prepared by Technical Committee B/544, *Plastering, rendering, dry lining*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This British Standard together with BS EN 13914-2 and PD CEN/TR 15123 supersedes BS 5492:1990, which is withdrawn.

Relationship with other publications

BS 8481 is largely based on an amalgamation of two CEN Technical Reports:

- CEN/TR 15124:2005, *Design, preparation and application of internal gypsum plastering systems*.
- CEN/TR 15125:2005, *Design, preparation and application of internal cement and/or lime plastering systems*.

However certain additions and deletions have been made to these texts to make them appropriate to working conditions found in the UK.

Information about this document

Where the guidance for the use of gypsum plastering systems differ from that for plastering systems based on cement, cement and lime, the guidance for the former precedes that for the latter. It is essential that the design clauses are read in conjunction with the clauses on background and preparation.

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.

A CEN Technical Report is also available which gives the equivalent information for internal polymer plastering systems:

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

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is “shall”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

1 Scope

This British Standard specifies the design, preparation and application of plaster based on gypsum, cement, cement and 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 gypsum, cement, cement and lime plastering systems, methods of application and inspection and testing of plastering.

Recommendations on gypsum, cement, cement and lime plastering mixes with special properties intended to enhance thermal insulation, fire resistance, acoustic insulation and to increase radiation absorption maintenance and repair are also covered.

NOTE Relevant data are summarized in a series of tables.

This standard should be read in conjunction with BS EN 13914-2 especially regarding surface, requirements, flatness, verticality, angularity, types of finish and smoothness which are not dealt with in this standard.

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.

BS 4027, *Specification for sulfate-resisting Portland cement*

BS EN 197-1, *Cement – Part 1: Composition, specifications and conformity criteria for common cements*

BS EN 413-1, *Masonry cement – Part 1: Composition, specifications and conformity criteria*

BS EN 459-1, *Building lime – Part 1: Definitions, specifications and conformity criteria*

BS EN 934-3, *Admixtures for concrete, mortar and grout – Part 3: Admixtures for masonry mortar – Definitions, requirements, conformity, marking and labelling*

BS EN 998-1:2003, *Specification for mortar for masonry – Part 1: Rendering and plastering mortar*

BS EN 10223-3, *Steel wire and wire products for fences – Part 3: Hexagonal steel wire netting for engineering purposes*

BS EN 10230-1, *Steel wire nails – Part 1: Loose nails for general applications*

BS EN 10244-1, *Steel wire and wire products – Non-ferrous metallic coatings on steel wire – Part 1: General principles*

BS EN 10244-2, *Steel wire and wire products – Non-ferrous metallic coatings on steel wire – Part 2: Zinc or zinc alloy coatings*

BS EN 12878, *Pigments for the colouring of building materials based on cement and/or lime – Specifications and methods of test*

BS EN 13055-1, *Lightweight aggregates – Part 1: Lightweight aggregates for concrete, mortar and grout*

BS EN 13139, *Aggregates for mortar*

BS EN 13279-1:2005, *Gypsum binders and gypsum plasters – Part 1: Definitions and requirements*

BS EN 13496, *Thermal insulation products for building applications – Determination of the mechanical properties of glass fibre meshes*

BS EN 13658-1, *Metal lath and beads – Definitions, requirements and test methods – Part 1: Internal plastering*

BS EN 13658-2, *Metal lath and beads – Definitions, requirements and test methods – Part 2: External rendering*

BS EN 13914-2:2005, *Design, preparation and application of external rendering and internal plastering – Part 2: Design considerations and essential principles for internal plastering*

3 Terms and definitions

For the purposes of this British Standard, the terms and definitions given in BS EN 13914-2 and the following apply.

3.1 Plaster definitions

3.1.1 plaster

mixture based on one or more binders, applied while plastic and hardens after application, used to obtain an internal surface finish

NOTE Plaster does not acquire its final characteristics until it has set on the building component.

3.1.2 gypsum plaster

plaster consisting of at least 50% gypsum binder as the principle active binding component

NOTE Additives and aggregates might be added by the manufacturer.

3.1.3 designed mixes

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

3.1.4 prescribed mixes

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

3.2 Application definitions

3.2.1 plastering

application of plaster

3.2.2 plaster coat

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

3.2.3 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

3.2.4 one-coat plaster

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

3.2.5 multi-coat plaster

plaster system using a sequence of plaster coats to achieve the required thickness when all operations are completed after the plaster has set but not dry

3.2.6 undercoat

lower plaster coat or plaster coats of a plastering system

3.2.7 final coat

last plaster coat of a multi-coat plastering system

3.2.8 dubbing out

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

3.3 Background definitions**3.3.1 background**

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

3.3.2 key

roughness of a surface which enables plaster to make a bond

3.3.3 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)

3.3.4 reinforcement

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

3.3.5 bonding agent

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

3.3.6 spatterdash and stipple

pre-treatments to prepare a background for plastering

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

3.4 Other definitions**3.4.1 efflorescence**

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

3.4.2 crazing

network of short, irregular and very fine surface cracks up to approximately 0.2 mm in width

NOTE 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 Gypsum binders and gypsum plasters

If specified, only gypsum binders and gypsum plaster conforming to BS EN 13279-1 shall be used.

4.1.1.2 Common cements including coloured cement

Where used, common cements, including coloured and pigmented cements, shall conform to the requirements of BS EN 197-1.

NOTE Not all types and classes of cement are suitable for each and every application.

4.1.1.3 Masonry cement

Where used, masonry cement shall conform to the requirements of BS EN 413-1.

4.1.1.4 Sulfate resistant cements

If specified, sulfate resistant cements conforming to BS 4027 shall be used.

4.1.1.5 Building lime

Where used, building lime shall conform to the requirements of BS EN 459-1.

4.1.2 Aggregates

Where used, aggregates with established suitability for use plasters shall be used.

Aggregates shall conform to BS EN 13139 for dense aggregates or BS EN 13055-1 for light aggregates as appropriate.

4.1.3 Admixtures for cement and/or lime based plasters

Where appropriate, admixtures with established suitability for plasters shall be used.

Admixtures conforming to the requirements of BS EN 934-3 shall be used; however, admixtures falling outside the scope of BS EN 934-3 can be used given established usage and shall be applied in accordance with manufacturers' instructions.

4.1.4 Additions

4.1.4.1 Bonding agents

Bonding agents suitable for the individual application shall be used.

The manufacturers' instructions shall be followed.

4.1.4.2 Pigments

Pigments conforming to BS EN 12878 shall be used however; pigments falling outside the scope of BS EN 12878 can be used given established usage and shall be applied in accordance with manufacturers' instructions.

For both the manufacturers' instructions shall be followed.

4.1.4.3 Fibres

COMMENTARY ON 4.1.4.3

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

Only fibres which do not affect the chemical or physical stability of the plaster shall be used.

NOTE *Fibres should be compatible with the binder.*

4.2 Water

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

NOTE 1 *Water fit for drinking is suitable for mixes for plastering.*

NOTE 2 *Attention is drawn to the requirements of BS EN 1008 in cases where water supplies are of doubtful quality.*

4.3 Types of cement, cement and lime plasters based on BS EN 998-1

4.3.1 General

COMMENTARY ON 4.3.1

Ready mixed cement, cement and lime plasters can be mixed entirely in the factory or partly in the factory and then completed on site.

Alternatively plaster can be mixed entirely on site.

4.3.2 Factory made and semi-finished factory made cement, cement and lime plasters

When using mixes based on cement, cement and lime, factory made and semi-finished factory made plasters conforming to BS EN 998-1 shall be used for those parts of the process either wholly or partly carried out in the factory.

NOTE *For those parts of the process for semi-finished factory made plasters completed on site see 4.1 and 4.2.*

4.3.3 Site-made cement, cement and lime plasters

4.3.3.1 General

Site-made plasters shall be made from constituents given in **4.1** and **4.2** and mixed in accordance with **10.2** with the correct proportions (see **10.1**).

4.3.3.2 Site-made, designed mixes

COMMENTARY ON 4.3.3.2

Site-made, designed mixes should not be made on site unless the contractor has taken special measures to exercise the necessary degree of control (see Clause 11).

4.3.3.3 Site-made, prescribed mixes

NOTE 1 Other than ensuring and checking that these mixes are correctly batched, prescribed mixes are not required to meet any test criteria.

Site-made, prescribed mixes shall be made by batching the specified binders and aggregates in appropriate proportions (see Table 6).

NOTE 2 It should be made clear whether mix proportions are by weight or by volume and whether they are based on the use of dry or damp sand and aggregates.

NOTE 3 Mixes can be made and selected according to their use.

4.4 Reinforcement, lathing and beads

Lathing, reinforcement and beads of whatever type shall be of stainless steel, galvanized steel, aluminium conforming to BS EN 13658-1.

Reinforcement of alkali resistant glass fibre net shall conform to BS EN 13496.

Welded wire mesh reinforcement conforming to BS EN 13658-2 shall be used.

4.5 Fixings

Fixings for lathing and beads such as nails, screws, staples and steel wire shall conform to BS EN 10223-3, BS EN 10230-1, BS EN 10244-1 or BS EN 10244-2.

Fixings for lathing and beads such as nails, screws, staples and steel wire shall be of compatible material.

4.6 Firings

COMMENTARY ON 4.6

Firings should consist of galvanized or stainless steel channels, rods, steel wire or timber. Firings made of timber should be given a preservative treatment.

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