

Guide to Portland Cement-Based Plaster

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This guide provides information on the plastering process. The facets of plastering covered are the prequalification of materials, plaster tool and equipment requirements, plaster mixture proportions, plaster application procedures, types of finishes, and troubleshooting and repair. Portland cement-based plastering differs in many ways from that of the concrete trade. Differences in terminology are of key importance; therefore, a familiarization of plastering terminology is needed. Definitions of plastering terms are provided for this reason. This guide is intended for use by architects, engineers, designers, specification writers, contractors, plasterers, laboratory personnel, and public authorities for familiarization with the plastering processes and as an aid in specification writing.

Keywords: admixture; base; bond; brown coat; cement; cracking; curing; finish coat; furring; hydration; masonry; plaster; proportion; reinforcement; scratch coat; shrinkage; stucco; texture.

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CHAPTER 1—INTRODUCTION AND SCOPE**1.1—Introduction**

Portland cement-based plaster is a versatile and weather-resistant surfacing material. Portland cement-based plaster may be applied to flat, curved, or rusticated bases made from concrete, clay masonry, concrete masonry, woven or welded-wire mesh, or expanded metal lath. It can be applied by hand or pumped directly from a mixer hopper and sprayed onto a wall. Portland cement-based plaster has a long history of satisfactory performance. Proportions and workability of the plaster mixture allow for a variety of shapes, designs, and textures to be created. When plaster hardens, these features are preserved in a rigid, permanent form.

Plaster is categorized by the type of cement binder, number of coats, and total thickness. Traditional materials include portland cement and lime, blended cement and lime, masonry cement, or plastic cement mixed with sand and water. Additives to control time of set, reduce shrinkage cracking, increase workability, or increase durability can also be present.

This guide provides information and recommends minimum expectations for satisfactory lathing and plastering. Architects, engineers, designers, specification writers, contractors, plasterers, and public authorities can use this guide for familiarization with the plastering processes and as an aid in specification writing. Stricter requirements based on long-term successful field service or controlled laboratory experimentation and documentation can be imposed when a project warrants such treatment. This guide also addresses the prequalification of plaster materials, tool and equipment requirements, mixture proportions, application procedures, types of finishes, and troubleshooting and repair.

This guide refers to the structural integrity of plaster only when referring to the ability of plaster to perform the intended function as a coating. Plaster is not a member of construction having structural value, except as provided by local code.

The terms “stucco” and “portland cement-based plaster” are often used interchangeably in the trade. This guide, however, refers to stucco as plaster that is applied to an exterior surface, and portland cement-based plaster as plaster that is applied to either an interior or exterior surface.

1.2—Scope

Exterior insulation and finish systems (EIFS) are exterior wall-cladding systems that consist of an insulation board covered with an integrally reinforced base coat and a textured protective finish coat. Portland cement may be used in these systems, but their application and suitability are not covered in this guide. *Exterior Insulation and Finish Systems Design Handbook* (Robert 1997) provides useful information on this class of product.

The use of one-coat portland cement-based plastering systems and other such proprietary portland cement-based systems are acknowledged; however, they are beyond the