

September 24, 1928.

MEMORANDUM FOR FILES:

IX-8

The attached letter of September 19, 1928 from the Board of Education, City of New York, should be jointly answered by Divisions V and IX. A great part of this letter is devoted to specifications for plaster. It is, therefore, suggested that Division IX answer the letter inserting the following:

In regard to the painting of plaster, we quote the following from page 44 of Technologic Paper 274:

"Too much emphasis can not be laid on the thorough drying of all plaster, concrete, cement, etc., before painting. It must be remembered that such structures when new contain much water, and unless sufficient time, under proper conditions of temperature and humidity, is allowed for thorough drying the water remaining in the wall will eventually seriously injure any paint coating. It should be pointed out that a wall may appear to be dry on the surface but be still damp in the interior. Even when properly dried, new structures of this kind may contain free lime; hence, it is advisable when the structure is less than a year old, even if it is known to be dry, to apply before painting, an aqueous solution of zino sulphate (3 to 4 pounds crystallized zinc sulphate to 1 gallon of water). Allow this to thoroughly dry before applying paint."

It is noted that the plastered surfaces are painted two or three months after the plaster is applied. Apparently the plaster is frequently applied directly to the tile or brick wall. We very much doubt the advisability of attempting to paint plaster that is applied directly on brick wall. The plaster should have air space back of it so as to assure drying.

In regard to the painting procedure, it is noted that you propose to use lead and oil paint for the second and third coats. There is nothing better that can be used for these coats. The specification for the first or primer coat is indefinite. There is no reason why if lead and oil paint is used for the second and third coats, that it should not also be used for the priming coat.

The correspondent is referred to Technologic Paper 274, page 36, for formula for priming coat for plaster using white lead.

We are enclosing a copy of our Letter Circular 59, which lists the Bureau's publications on paint and varnish and gives information as to how they may be obtained.


Percy H. Walker.

Enclosures:
Letter.
LC 59

BOARD OF EDUCATION
THE CITY OF NEW YORK, N. Y.
BUREAU OF CONSTRUCTION AND MAINTENANCE

Walter C. Martin,
~~VICE PRESIDENT~~ ARCHITECT
SUPERINTENDENT OF SCHOOL BUILDINGS

FLATBUSH AVENUE EXT. AND CONCORD STREET, BROOKLYN
TELEPHONE CUMBERLAND 10220

Brooklyn, N.Y., September 19, 1928

REFERENCE NO.

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SUBJECT:

Painting Formulae

SEP 20 1928

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To the Director of the Bureau of Standards
Department of Commerce
Washington, D.C.

Dear Sir:

The Bureau of Construction and Maintenance, Board of Education, City of New York, are very much interested in the question of painting on plastered walls and ceilings. We have a great amount of this work to do in connection with new school building construction in New York City.

Our experience in the past of painting on plastered walls and ceilings has not been entirely satisfactory. Generally, when the painting work has been completed these walls and ceilings show up well but in a very short space of time, frequently before the building is ready for occupancy, stains and discolorations appear on the painted surfaces.

Our specifications for painting first require the contractor to apply as a first coat, a priming coat of an approved brand. The brands of primer approved by this Department are those manufactured by reputable concerns, especially for use as a priming coat on plastered surfaces. On this priming coat we specify a second and third coat of lead and oil paint.

On new buildings painting of plastered surfaces is usually started two to three months after the plaster has been applied. While the plastered surface is dry when the priming coat is applied, there is a possibility that the plastered walls retain some moisture or that the cinder concrete ceiling slabs, to which plaster is applied, are not thoroughly dried out. We also have to contend with humidity in the air and consequent condensation of moisture on wall surfaces which is bound to occur in new building construction.

What we now contemplate doing is to specify, by formula, just what ingredients can be used for paint which is to be applied as the priming coat or first coat, also for the second and for the third coat. Would it be possible for you to furnish this Bureau, formulae giving the ingredients which you would recommend for the paint to be used on each of the three coats to be applied on plastered walls and ceilings under conditions as given above?

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If, in your opinion, an excess of any particular ingredient, which you might incorporate in these formulae, would be a detriment to the paint, will you please so state.

For your information in furnishing this Bureau with these formulae, the following quotations are given from our specification in connection with plaster work and painting:

"PLASTER FINISHES: The contractor has the option of using a machine made lime mortar mixed at the building or an approved gypsum plaster for all surfaces required to be plastered, excepting such surfaces as are specifically specified to have other finishes.

"The walls and ceiling of auditorium shall be plastered with lime plaster.

"Lime Plaster: The mortar shall be a mixture of lime putty, sand and hair or fibre binder. Lime putty shall be made from properly slaked quicklime which has been run through a 10 mesh sieve and allowed to cool for at least 10 days before sand and binder are incorporated; or from hydrated lime wet into paste and allowed to stand for 24 hours before sand and binder are incorporated. The mortar shall be machine mixed in the following proportions: For scratch coat mortar, 10 cu.ft. of lime putty, 2½ barrels of sand and binder in the proportions of 2 lbs of hair or 3 lbs. of fibre to 3 cu.ft. of lime putty; for the brown coat, 10 cu. ft. of lime putty, 5 barrels of sand with binder in the proportion of 1 lb. of hair or fibre to 3 cu. ft. of lime putty. Scratch and brown coat mortars shall be gaged with Portland cement in the proportion of 10% by volume of cement for scratch coat and 5% by volume for brown coat. The binder shall be either water-soaked, well beaten, clean, long cattle hair or approved vegetable fibre cut in 2-inch or 3-inch lengths.

"Gypsum Plaster. -- Gypsum plaster shall be applied in accordance with the manufacturer's directions, which directions are hereby made part of this specification.

"White Finishing Coat -- All plastered surfaces, unless otherwise specified, shall be finished with a white finishing coat troweled to a hard, smooth, polished surface. The mortar for the white finishing coat shall be a mixture of lime putty, white sand and Plaster of Paris. The lime putty shall be made from properly slaked quicklime which has been run through a 10 mesh sieve and allowed to cool at least 10 days before Plaster of Paris is incorporated; or from finishing hydrated lime wet into a paste and allowed to stand for 24 hours before Plaster of Paris is incorporated; hydrated lime shall be sieved into a watertight box three-quarters full of water. A small portion of white sand shall be added to lime putty before Plaster of Paris is incorporated. The sand may be added while quicklime is being slaked or to hydrated lime, while being sieved into water.

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"Keene's Cement Plaster. -- The walls of the pupils' stair enclosures, except where otherwise specified, shall be plastered 2 coats. Both the brown and finished coats shall be of Keene's cement mixed and applied in accordance with the manufacturer's directions. The finished coat shall be troweled to a hard, smooth, polished surface.

"PLASTER WALLS. -- All plaster walls shall be painted 3 coats unless otherwise specified.

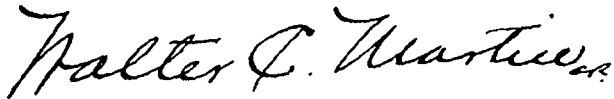
"The first coat or primer shall be a semi-gloss pigment primer which has lime resisting properties. It shall be applied in accordance with the printed instructions of the manufacturer and shall not be recoated until it has dried hard and absolutely free from tack. Succeeding coats of paint shall not be applied until the priming has been inspected and approved by the Superintendent.

"The second coat, except where otherwise specified shall be lead and oil paint.

"The third coat, except where otherwise specified, shall be lead and oil paint with an eggshell finish."

Thanking you in advance for your assistance in this matter, I am

Very truly yours,



WALTER C. MARTIN, Architect,
Superintendent of School Buildings.