



PRODUCT PROFILE

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2/2015

Glen-Gery Color Mortar Blend

Description

Glen-Gery Color Mortar Blend is a pre-colored blend of Portland Cement conforming to ASTM C150 and Type S Hydrated Lime conforming to ASTM C207, with Metallic Oxide Pigments conforming to ASTM C979. This type of mortar, portland cement and lime, is recommended by the Brick Institute of America and other brick masonry experts. The colors are provided to enhance the architectural and aesthetic appearance of brickwork by matching, contrasting, or complimenting the brick units.

Portland Cement-Lime (PCL) Mortars

Masonry experts know that PCL mortars have several advantages over current "masonry cement" mortars. These advantages are often important to the success of brickwork, yet are often overlooked. These advantages include:

Advantage #1: High Compressive Strength

- a) For every mortar Type (M, S, N, etc), PCL mortars have a higher percentage of cementitious materials.
- b) Compressive strengths of PCL mortars are uniformly higher than those required by codes.



Advantage #2: High Bonding Strength

Historically, the use of portland cement shown to produce mortars which consistently provide the highest bonding strengths.

Advantage #3: Better Rain Penetration Resistance

If there is water penetration through masonry, the penetration typically occurs between the brick and the mortar due to incomplete bonding and not through the brick units themselves. The PCL mortars create better bond because there is:

- a) Higher cement to aggregate ratio.
- b) Lower air content (5%-10% for PCL and 18%-24% for masonry cement mortars).

- c) The lime provides autogenous healing. The autogenous healing of hydrated lime is its ability to recarbonate when exposed to moisture and harden in an expanded state, thus helping to fill any small voids or bond breaks within the masonry.
- d) Mortars made with hydrated lime have excellent workability, resulting in better quality masonry.

Advantage #4: Predictability

The specific ingredients of masonry cements vary among manufacturers. These ingredients may also vary within one manufacturer. PCL mortars always use the same ingredients. Masonry cements can (and do) contain inert ingredients, plasticizers, air-entraining agents, etc. which reduce the cement to aggregate ratio and therefore reduce the strength and bonding properties of the mortar.



The reasons for using PCL mortars are clear and strong. Additional advantages that Glen-Gery Color Mortar Blend offer include:

- 1) No field mixing of individual bags of portland cement and lime and pigment. Rigid factory quality controlled mixing means consistency, uniformity and predictability.
- 2) Heavy duty plastic lined bags maintain a long shelf-life.
- 3) 21 standard colors and an infinite variety of custom colors and blends are readily available.
- 4) Ingredients include only portland cement, lime and approved pigments. There are no fillers or additives which tend to reduce strength and bond.
- 5) Excellent workability. Water retention, flow and other workability properties are excellent.
- 6) High strength and performance. Type S strength and performance is obtained with Type N workability and water penetration resistance.

Technical Data

Table 1 shows the results of laboratory tests on mortars made with Glen-Gery Color Mortar Blend, and the property and proportion requirements of ASTM and BIA standards.

Ingredients

Portland Cement:

ASTM C150 Type I

ASTM C150 Type II (Special Order)

Lime: ASTM C207 Type S

Synthetic Metallic Oxide Pigments:

ASTM C979

The colors of Glen-Gery Color Mortar Blend are obtained with synthetic metallic oxide pigments to assure maximum color permanence. No organic pigments are used. The metallic oxide pigments are less than 10% by weight of the amount of portland cement, in accordance with BIA Technical Notes on Brick Construction No. 8 "Portland Cement-Lime Mortars For Brick Masonry."

TABLE 1

Specification Requirements*					
Proportion Requirements	GLEN-GERY COLOR MORTAR BLEND		BIA MI Type N	ASTM C270 Type N	ASTM C270 Type S
	Std. Mix	Rich Mix			
- Portland Cement	-	-	1	1	1
- Hydrated Lime	-	-	1	1	1/2
- G-G Color Mortar Blend	1	1	-	-	-
- Damp Loose Sand**	3	2 1/2	6	6	4 1/2
			AND	OR	OR
Physical Requirements					
- 7 Day Compressive Strength	1600	-	450 min.	-	-
- 28 Day Compressive Strength	2000	-	750 min.	750 min.	1800 min.
- Water Retentivity	90%	90%	70% min.	75% min.	75% min.
- Air Content	6%	6%	14% max.	14% max.***	12% max.***

* Tests were conducted using mixes without color pigments.

** 2-1/4 - 3 times the total volume of cementitious materials is added as sand. Both Portland cement and lime are cementitious materials.

*** For masonry cements, ASTM C270 allows 20% air content for Type N and 18% air content for Type S.

Specifications

Since Glen-Gery Color Mortar Blend is not a masonry cement, the specifications should be written to require compliance with the appropriate standards for portland cement-lime mortars. The color may be selected by the sample number from the standard color sample kit. It is recommended that several colors be tried with the local sand specified for the project prior to final color selection. Special mixes of different proportions are also available but a variation in color compared to the sample kit should be expected.

Portland Cement-lime mortars may comply to either ASTM C270 or BIA M1-88 mortar types (M, S, N or O) either by proportion requirements or by physical requirements. PCL mortars made with one bag of Glen-Gery Color Mortar Blend and three cubic feet of sand conform to:

ASTM C270 Type N (by physical and proportion requirements)

ASTM C270 Type S (by physical requirements only)

BIA MI Type N (by physical and proportion requirements)

Although Glen-Gery Color Mortar Blend mortars also meet the physical requirements of BIA MI Type S, they do not meet the alternate requirements due to higher lime contents. Note, however, that Glen-Gery Color Mortar Blend meets ASTM C270 Type S by physical requirements. See Table 1.

Specification language may read:
"Mortar shall be portland cement-lime mortar conforming to (select one:

ASTM C270 Type S

ASTM C270 Type N

or

BIA MI Type N)

consisting of Glen-Gery Color Mortar Blend, Color Number (insert code number) and clean washed sand conforming to the requirements of (select one: ASTM C144 or BIA MI)."

(The specifier should note possible differences in sand grading requirements between ASTM C144 and BIA MI.)

Use

Glen-Gery Color Mortar Blend is intended for use where mortars conforming to ASTM C270 Type S or N are required.

Storage

Glen-Gery Color Mortar Blend should be stored in a cool dry place so as not to be in contact with earth and to be protected from the elements.

Mixing

A bag of Glen-Gery Color Mortar Blend should be mixed with 3 cubic feet of sand using accurate volumetric measuring methods and the maximum amount of water which produces a workable consistency. All ingredients should be mixed in a mechanical batch mixer for a period of not less than three minutes nor more than five minutes. Note that retempering the colored mortars may alter their color.

Yield

The yield will be slightly more than 3 cubic feet. An average of 5-1/2 to 6 bags of Glen-Gery Color Mortar Blend is used to lay 1000 standard brick and approximately 2-1/2 bags are used to lay 100 8" X 8" X 16" concrete block. The mortar quantities required will vary with the size of the units, the type and size of the mortar joints and the method of bedding.

Tooling

For exterior brickwork, all mortar joints should be finished with a metal jointer to improve appearance and increase weather resistance. Only concave, vee, or grapevine finishes are recommended. The joint must be tooled just before the mortar loses its plasticity i.e., when it becomes "thumbprint" hard. If tooled while still soft, the color may lighten; if tooled when too hard, the joint may darken.

Cleaning

Exercise caution to keep the walls as clean as possible during construction. Wash with clear water. A mild cleaning agent such as "Vanatrol" by SureKlean may be used with caution as deemed necessary. If any cleaning solution is to be used, the wall must be presoaked with clean water prior to applying the cleaning agent and thoroughly rinsed after cleaning. Any cleaning agents should be tested on an inconspicuous area prior to use throughout the project.

Technical Services

Technical inquiries regarding mortar should be directed to our Architectural Services Department, at (610) 374-4011.

Samples

Sample kits are available by contacting your Glen-Gery representative. Samples of Glen-Gery Color Mortar Blend may be available at no cost for field panels.

REMINDER...

- Sand color greatly affects finished mortar color
- Sand colors vary by locality
- Final mortar color may vary from sample kit
- It is recommended that several local sands be tried in field panels before final color selection



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