



HERITAGE RESTORATION MORTAR

Heritage Limestone **15 HL**

Fast-Setting Mineral Based Natural Repair Mortar For Limestone

Description and Use

HL15 is a natural repair mortar specifically formulated for the patching and restoration of limestone. Designed to repair any surface of limestone, including traffic areas, windowsills, steps and surface areas less than 1/4" in depth. HL15 can be feather-edged, to repair small chips and spalls in limestone.

HL15 is a mineral-based, single component product that is mixed with water. It is formulated using only natural binders; no synthetic polymers or additives are used. HL15 has excellent freeze-thaw and salt resistance. It is vapor permeable. Skilled masons can easily apply HL15; no special certification is required.

Application and finishing of HL15 repair mortar is 8 to 12 times faster than for other commonly specified repair mortars. With HL15, most small repairs can be completed within 15 minutes at room temperature, greatly reducing labor, mobilization and staging costs. This can produce considerable savings, especially where a repair is challenging or access to the repair site is difficult. With a commonly specified repair mortar, the same job could take 1 to 2 days to complete, due to lengthy curing procedures and low maximum lift requirements. HL15 is specially formulated to set quickly.

HL15 is specifically formulated to allow build up to a thickness of 3" at one time.

Advantages of HL15

- Can be applied in 15 minutes on small areas.
- No minimum application depth requirement.
- Manufactured using natural binders.
- Contains no synthetic polymers or additives; contains no Portland cement.
- Mineral-based formulation and natural binders make it completely compatible with substrate.
- Produces excellent adhesion to substrate.
- Does not create a vapor barrier.
- Provides good freeze-thaw and salt resistance.
- Easily used by skilled masons; no manufacturer's certification required.
- Requires no special curing in normal weather conditions.
- Custom colors available.

HL15 Package

1-gallon plastic pails 9 lbs.
5-gallon plastic pails 44 lbs.
Available in Indiana Gray.
Custom colors available.

HL15 Technical Data

Application Time:	Approximately 15 minutes after mixing - depending on temperature, relative humidity and type of finish specified
Compressive Strength: (ASTM C-109)	3 days 2,180 psi
	7 days 4,360 psi
	28 days 5,100 psi
Bond Strength:	1,670 psi (ASTM C-882)
Flexural Strength:	1,581 psi (ASTM C-348)
Modulus of Elasticity:	2000 to 2400 ksi (ASTM C-469)
Porosity:	10%
Absorption:	10-15%
Linear Coefficient of Thermal Expansion:	3.6 to 4.6 x 10 ⁻⁶ /°C
Length Change:	0.005 to 0.010 % (28 days) (ASTM C-157)
Specific Gravity:	1.8
Mixing Ratio:	Approximately 5 parts powder to 1 part water by volume
Coverage:	5 gallons (44 lbs.) will cover 6 square feet at 1" thickness or 0.5 cubic feet

Surface Preparation

Cut away all loose and deteriorated stone. Clean the area to be repaired with clean water and a bristle brush to remove any loose stone particles. Neutralize any salt deposits (efflorescence) with distilled water. Sound off and chisel out delaminated stone. Dampen with clean water until glistening with no standing water.

Mixing

All repairs require a minimum two-coat application consisting of a skim coat and a build-out coat. Additional build-out coats may be applied to meet the required thickness.

Skim coat: For the initial skim coat, mix approximately 5 parts dry powder to approximately 1 part potable water. The prepared mixture should be the consistency of peanut butter. Temperature and humidity will affect the amount of water required. Mixing may be done by hand or by using a low-speed drill (300 to 450 rpm) for 2 to 4 minutes. Do not over mix.

Build-Out Coat: The consistency of the mortar for the build-out coat should be similar to wet sand. For any additional build-out coats use slightly less water in the mix. Working time is approximately 15 minutes depending on temperature, humidity and wind conditions.

Installation & Finishing

Skim coat: Pre-wet the stone surface, so that it is glistening wet, with no standing water. Remove loose material from the stone and wash down the stone a second time. We recommend the installation of non-corrosive screws and wires when the stone repair exceeds 4" in thickness. Use trowels and plaster detailing tools to apply the skim coat to small areas.

IMPORTANT: Make sure the skim coat adheres to all surfaces of the repair area of the stone. Check the skim coat after 5 minutes. Do not allow the surface of the skim coat to dry completely. If it does dry out, moisten the surface with clean water. The drying time will be affected by weather conditions, so monitor carefully.

Additional Coats: Scoop wet mix from the mixing container by hand (wear latex gloves) or with a small trowel and apply it by pressing and rubbing it into the skim coat. Make sure to fill all pores and voids of the stone. The repair mortar may be built up to a thickness of 3" in one lift. Finger test each coat before applying the next. If the mortar moves under your finger, wait until it sets before applying the next coat. If additional coats are applied the next day or later, you must wet and scratch the previous coat before adding additional coats.

Windowsills and Steps: HL15 can be used to repair limestone windowsills, steps and traffic areas. Surface imperfections such as chips or spalls can be repaired using HL15.

Finishing: The surface of the repair may be either tooled or scraped to the required finish. You may finish the same day or wait until the following day. For soft edges, carve the mortar when it is wet. For sharp edges, carve with sharp carving tools when it is partially cured. It may be desirable to wait longer for particular finishes. Always test finishing techniques before applying to large areas. Craftsmen should understand the timing of the finishing techniques, and make adjustments for weather conditions. Air chisels may be used to create the desired finishes.

Curing Procedure: No special procedures required.

Limitations of HL15

- Cannot be mixed or applied at temperatures below 40°F or above 90°F.
- Cannot be used to consolidate loose stone.
- Cannot be used with other bonding agents.
- HL15 should be used for the full depth of the repair.
- Cannot be re-tempered. (Mix only as much as you can use in 15 minutes.)

Clean Up

Remove mortar from tools and mixing equipment with water immediately after use. Repair mortar is difficult to remove after it has set.

Storage & Handling

Storage: HL15 repair mortar should be stored in a dry location, at a temperature above 32°F. Product shelf life is one year in the original, unopened container.

Safety Recommendations: Precautions should be taken to avoid eye contact, prolonged skin contact and inhalation of dust during mixing. Protective eyewear and gloves should be worn while mixing and applying this product. A dust mask with NIOSH-approved silica dust filters/P-2 filters should be worn while mixing. For complete safety and handling information, see MSDS information. **Caution:** Not for human consumption. Keep out of reach of children and animals.

WARRANTY: THE INFORMATION AND RECOMMENDATIONS PROVIDED HERE ARE BASED ON OUR RESEARCH AND IN-FIELD APPLICATIONS. HERITAGE STONE REPAIR MORTARS ARE SUITABLE FOR THE PURPOSES FOR WHICH THEY HAVE BEEN DESIGNED. HOWEVER, NO GUARANTEE, EXPRESSED OR IMPLIED, CAN BE GIVEN BECAUSE EVERY POSSIBLE APPLICATION OF THESE PRODUCTS, THE CONDITIONS UNDER WHICH THEY ARE APPLIED, AND THE NATURE OF SPECIFIC MASONRY SURFACES AND CONDITIONS CANNOT BE ANTICIPATED. U.S. HERITAGE'S LIABILITY SHALL BE LIMITED TO REPLACEMENT OF THE PRODUCT IF FOUND TO BE DEFECTIVE.

Additional information and illustrated examples of projects using Heritage Restoration Mortars can be found at www.usheritage.com



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