

# HERITAGE NATURAL HYDRAULIC LIME MORTAR

## NHL3.5

### Product Data Sheet

#### Description and Use

Heritage Natural Hydraulic Lime Mortar – NHL3.5 is an engineered factory-blended bedding and pointing (tuckpointing) mortar, designed to match the performance characteristics of traditional mixes, that facilitates safe and durable repairs of bedding and pointing mortar for solid load-bearing masonry buildings originally constructed without portland cement.

This single component product is pre-blended and ready to use, only water is needed. Formulated only from natural hydraulic lime 3.5, engineered aggregate blends, and mineral pigments (upon request), Heritage Natural Hydraulic Lime Mortar – NHL 3.5 contains no cements, polymers, or admixes of any kind. NHL mortar is a strong yet more permeable and flexible mortar than modern portland cement mortars, providing outstanding protection of masonry units from damage caused by building movement, thermal expansion/contraction, freeze-thaw cycles and salt migration (efflorescence).

NHL 3.5 is recommended for applications in areas of severe exposure, such as wall parapets, chimneys, basements and masonry elements exposed to severe weather. NHL 3.5 is suitable for low-fired historic masonry units with high rates of initial absorption. This product is moderately hydraulic (as indicated by the 3.5 rating). Characteristics of moderately hydraulic lime include a typical range of 12% to 18% of active hydraulic components (clay and/or silica). Moderately hydraulic can be re-worked up to 16 hours after initial mixing and expands slightly during the curing process. Hydraulic lime contains only trace amounts of soluble salts. This reduces the risk of sulfate damage and alkali silica reaction.

Repairs to load-bearing masonry should only be attempted using appropriate materials, tools and techniques and only by educated/trained installers. Many homeowners can successfully execute pointing and small repairs. Structural repair conditions should be evaluated by professionals. Installation guides and training/certification, offered by US Heritage Group, are strongly recommended for all installers.

#### Features and Benefits

- Authentic product formulation ensures compatibility with historic masonry units and mortar.
- Standard aggregate blends and color selection facilitates quick, convenient installation.
- Custom-matched aggregate profiles and colors produce unbelievable visual accuracy.
- USHG provides unmatched product and project support, for one pail or hundreds, to ensure excellent results for every installation.

#### Sales, Product and Project Support

US Heritage Group supports, sells and ships all products directly to ensure we consistently deliver the highest quality results possible. Contact USHG for a variety of support services:

- Specifier education
- Project-specific technical advice
- Specification guides and support
- Custom color and aggregate matching
- Installation guides and training

#### Product Standards (Conformance)

<b>EN459</b>	Natural Hydraulic Limes
<b>ASTM C144</b>	Aggregate for Masonry Mortar
<b>ASTM C1489</b>	Lime Putty for Structural Purposes
<b>ASTM C1713</b>	Mortars for the Repair of Historic Masonry
<b>ASTM E2260</b>	Guide for Repointing Historic Masonry
<b>NPS Preservation Brief #2</b>	Repointing Mortar Joints in Historic Masonry Buildings

#### Packaging and Coverage

3.5-gallon plastic pail (40lbs. material weight)	0.375 cubic feet of mixed material
80lbs. bag	0.75 cubic feet of mixed material

See USHG **Installer Guide to Products and Services** for unit coverage and cost estimations

#### Limited Warranty

U.S. Heritage Group, Inc. warrants this product to be of merchantable quality when used or applied in accordance with the manufacturer's instructions. This product is not warranted as suitable for any purpose or use other than the general purpose for which it is intended. Liability under this warranty is LIMITED to the replacement of the product (as purchased) found to be defective, or at the shipping companies' option, to refund the purchase price. In the event of a claim under this warranty, notice must be given in writing to U.S. Heritage Group, Inc., 3516 North Kostner Ave., Chicago, IL 60641. THIS LIMITED WARRANTY IS ISSUED AND ACCEPTED IN LIEU OF ALL OTHER EXPRESSED WARRANTIES AND EXPRESSLY EXCLUDES LIABILITY FOR CONSEQUENTIAL DAMAGES.

**US Heritage Group**  
3516 N. Kostner Ave, Chicago, IL 60641  
v. 773-286-2100 f. 773-286-1852  
info@usheritage.com or visit  
www.usheritage.com

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### Surface Preparation

Successful installation relies on proper surface preparation that involves careful evaluation, cleaning of masonry and mortar removal. Never install any mortar as a surface/skim coat. For additional surface preparation details see **Heritage Lime Mortar Installation Guide** then contact USHG with project-specific issues.

1. Clean masonry units as needed to remove soiling, efflorescence, coatings, etc.
2. Remove and repair or replace any unsound masonry units and bedding mortar.
3. Square-cut joints to min depth twice joint width.
4. Clean surfaces to remove all dust and debris.
5. Dampen masonry unit joints to surface-saturated dry condition
6. Protect installation area from rain, sun, high winds, extreme hot and cold temperatures before, during and after pointing.

### Mixing Instructions

NHL3.5 mortar ships pre-blended. Mortar should be mixed with water just prior to use, by hand using a mortar hoe, or shovel. Mechanical mixing can be accomplished by paddle drill or vertical shaft mixer. Standard paddle (horizontal shaft) mixers are not recommended for drier pointing mix.

1. Add 1.75 gallons of water to dry mortar per 80lb bag of mortar to achieve pointing consistency.
2. Mix material 5 minutes by hand and drill or 3 minutes in vertical shaft mixer
2. Evaluate Mix Consistency and add water to adjust. Only add water if necessary after mixing in measured increments. Weeping or flowing mortar is too wet.
  - a. **For bedding/laying only:** add enough water to achieve spreadable consistency.
  - b. **For pointing:** add enough water, if required for mortar to stick to hawk and pointer.

### Application

Mortar should be installed in layers or "lifts" where the joints are deeper than one and one quarter inch (1 1/4"). Do not attempt to remove any freshly installed wet mortar.

1. When installing mortar in lifts divide overall depth evenly for each lift.
2. Compact each layer thoroughly and allow it to become thumbprint hard before applying the next layer.
3. Scrape film from top of each mortar lift when thumbprint hard prior to installing additional lifts
4. Overfill final lift 1/8" (min) past final finish depth.

### Cleaning

This section applies only to removal of installed lime mortar residue. Masonry should be cleaned before repointing. Do not use metal scrapers or brushes. Do not use acidic or alkaline cleaners.

1. **Immediately after installation of mortar during thumbprint hard and surface dry condition:** thoroughly clean the exposed masonry surfaces of excess mortar. Use dry wood scrapers, stiff-nylon or fiber brushes. Do not use water to clean uncured mortar!
2. **During initial damp curing conditions and period:** Allow the mortar to time harden and test to check that cleaning can be accomplished without surface erosion or lime-run. Dampen with water then use wood scrapers, stiff-nylon or fiber brushes.
3. **After initial curing period:** Use appropriate masonry cleaner following manufacturer instructions.

### Finishing

For best results mortar joints should be finished immediately after installation as soon as initial "thumbprint hard" condition is reached.

1. Dampen joints prior to tooling.
2. Tool damp firm joints by scraping top of mortar from the joints using pointer end, wood handle or other stiff tool into desired profile, matching the original or surrounding joints.
3. Hit tooled joints with churn brush to consolidate mortar, expose aggregate and achieve natural weathered appearance.
4. Immediately dampen tooled joints to support curing process.

### Curing

NHL3.5 mortar cures by hydration through reaction with water and by carbonation through reaction with carbon dioxide. Uninterrupted execution of the curing process, immediately after installation, is essential to achieve proper mortar performance. Protect mortar from driving rain, sun, high winds, and temperatures above 90 or below 40 degrees during initial curing cycles. NHL3.5 mortar from freezing for 28 days after installation.

1. Dampen fresh mortar using pump sprayer or garden hose on mist setting.
2. Repeat the misting procedure if the wall begins to dry out.
3. Keep mortar damp for the first 3 days after application.

### Storage and Shelf life

Save any unused dry material and return it to the original shipping bucket. Protect from freezing, extreme heat, moisture and direct sunlight. This material can be kept in the original factory sealed containers for 6 months. Dispose of containers with any material that has hardened.