



*"Producing America's Best Stone Value"*

# Installation Instructions

Updated 03/30/2010

## Tools Needed

1. Staple/Nail gun
2. Metal Shears
3. Measuring Tape
4. Masonry Hammer
5. 6 cubic ft. wheelbarrow (for mixing mortar)
6. Pointed shovel (for shoveling sand into the mortar mix)
7. Mortar hoe (for mixing mortar)
8. 12" rectangular trowel (for applying scratch coat)
9. Pointed trowel (for sticking stone)
10. Nippers (for cutting stone)
11. 4' level (for leveling stone)
12. Grout bag (for filling joints)
13. Tuck pointer (for striking the joint)
14. Plastic bristled brush or whiskbroom (for cleaning the stone)
15. Gloves
16. Dust Mask
17. Safety Glasses
18. Wet Saw or Circular Saw with Carbide or Diamond Tip Blade

## Flashing

Install flashing in accordance with local building code requirements. All flashing and flashing accessories must be made of corrosion resistant material and integrated with the WRB materials. Approved flashing must be installed around all terminations and penetrations of the stone veneer applications. Reference the Masonry Veneer Manufacturers Association's "Installation Guidelines" for detailed drawings at [www.masonryveneer.org](http://www.masonryveneer.org)

## Calculating Mortar and Sand

**Scratch Coat** – 1 bag of Type "N" or "S" mortar per 100 sq. ft.

**Applying Stone** – 1 bag of Type "N" or "S" mortar per 100 sq. ft.

**Grouting** – 1 bag of Type "N" or "S" mortar per 100 sq. ft.

*Note: Do not use Type M mortar for grouting purposes.*

**Sand** – 2 ¼ parts sand per 1 part mortar.

*(Example: 80 lb. bag of mortar / 160 lbs. of sand)*

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## Step I. Determining and preparing the surface

Heritage Stone may be applied to any structurally sound bearing wall surface. Non-bearing walls may require alterations and we recommend you consult with a construction engineer. Heritage Stone may be applied directly to clean untreated porous concrete and masonry surfaces. All other surfaces must be covered with a 2.5# self furred metal lath meeting the requirements of ASTM C 847 or self-furred 17 or 18 gauge woven wire mesh meeting ASTM C1032. If applying over open studs use 3.4# self furred metal lath meeting the requirements of ASTM C 847. For exterior applications (with concrete and masonry surfaces being an exception) use two separate layers of water resistive barrier (WRB). The WRB must meet the requirements of ICC-ES AC 38: Acceptance Criteria for Water Resistive Barriers. When using felt paper it must meet the requirements of ASTM D 226 for Type 1 #15 felt (grade D building paper) or #30 asphalt saturated felt paper. One layer of house-wrap covered by 1 layer of WRB meeting the above criteria is acceptable. One layer of WRB for interior applications is acceptable. Local building code requirements supersede this instruction. Lath should be applied horizontally across the wall, with the small cups pointing upward. This can be determined by running your hand across the lath. Starting at the top, the lath should feel smooth. In the opposite direction it should feel rough. Apply lath as tight to surface as possible with a 2" inch overlap on horizontal seams and a 6" overlap on vertical joints. Inside and outside corners should be wrapped a minimum of 16". Lath fasteners should not penetrate exterior sheathing between the studs.



### Fasteners required when attaching metal lath to:

**Wood surfaces:** nail metal lath into studs on 6" centers vertically and not more than 16" centers horizontally, penetrating the studs 1" using corrosion resistant fasteners. Penetration into framing must be a minimum 1" for staples and 1 1/2" for nails. Apply fasteners with a minimum of 90 lbs. of air pressure when using pneumatic fastening tools. Wrap continuous metal lath a minimum of 16" around corners in adjacent wall applications or as much as possible in corner application with no return.

**Metal studs or metal buildings:** (18 gauge minimum), use # 8 galvanized self-tapping screws to penetrate 1/2" into metal studs. Screw metal lath on 6" centers vertically to studs or high point of metal siding, and horizontally at not more than 16" centers. **Masonry surfaces:** painted, sealed or treated, use corrosion resistant concrete pins and washers which are shot into the wall surface at 6" centers vertically and 16" horizontally.



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## Step II. Applying the bed coat over lath

Mix thoroughly 1 part Type N or S mortar meeting ASTM C 91 (or 1 bag cement with 10% lime) to 2 part clean mason sand (12 gallons) in a 6 cubic ft. wheelbarrow using your pointed shovel. Add clean potable water (approximately 2 ½ gallons) to achieve a trowelable mixture. Use a 12" trowel and spread mixture evenly over metal lath approximately 1/2" to 5/8" thick. After mortar is thumbprint dry, scratch or score the surface horizontally to create a rough scratch coat that ensures a good bond when the stone veneer is applied.





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## Step III. Applying the stone

Heritage Stone is packaged before the drying process is complete. As with natural stone, Heritage Stone will look darker if moisture is present. Before cause for alarm, examine the stone for moisture. If in doubt, place a few stone on an oven rack, in the middle of an oven at 160 degrees, for several hours. Allow the stone to cool before removing them from the oven. The stone will lighten to its true color as moisture dissipates.

Blend stone from several boxes during the application process as well as select stones so small stones are next to large stones, thick stones next to thinner stones and textures of stones vary throughout the application. This procedure will assure a desirable result.

During warm weather, the bed coat & the back of the stone may need to be moistened to prevent water from being drawn to rapidly from the applying mortar. Refer to section 2104.4 of the International Building Code for additional warm weather requirements. During cold weather (Below 40 degrees F), use only non-chloride accelerators, Reference section 2104.4 of the International Building Code for additional cold weather requirements. If a bonding agent is desired ensure that it meets the requirements of ASTM C 932 or ASTM C 1059 Type II.

Use nippers, hatchet, brick hammer, brick trowel, or a dry concrete blade in an electric circular saw to trim stone. If corner pieces are required, set them first by alternating the short and long leg of the corners on the wall. Start at the top and work sideways and down to keep stones clean. *For all grout less application, start at the bottom and work sideways and up when installing stone veneer.* Horizontal lines should be broken approximately every 6'. Use a 4' level to keep lines and stone level. Using your pointed trowel and the same mixture as the bed coat, apply approximately 1/2" of mortar, covering the entire back of the stone. By using gentle pressure and a slight wiggling action while applying the stone to the bed coat, you will assure a good bond. The stone installation must achieve a minimum of 50 lbs per sq inch shear bond. Check with the mortar manufacturer to ensure their mortar meets or exceeds ASTM C 91 requirements and meets minimum bond code requirements. To achieve a standard joint, space stone 1/2" apart. For dry stacked applications the stone should fit tight against each other, the entire back of each stone should be encapsulated with mortar to ensure future durability. The stone should be installed no closer than 4" to the final grade or 2" to a hard surface (sidewalk, driveway etc...). The use of a weep screed or other code compliant base flashing product is recommended.



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## Step IV. Grouting Joints

*Note: Steps 4-6 are not required when installing dry stack or grout less stone application.*

The grouting mixture shall consist of one part Type N or S mortar meeting the requirements of ASTM C 91 to 2 parts sand and clean potable water. This mixture is to be thoroughly mixed to provide a heavy cream-like consistency. Place the mixture in a plastic grout bag (somewhat like a cake decorating bag). Snip the pointed end to create a hole about the size of penny and no larger than a quarter. Fill the bag to within 8" from the top, twist the top and hold tight. With slight pressure from the other hand and twisting from the top, place opening in joint somewhat like using a caulking gun, and fill the joint flush with the stone. Do not get mortar on the finished faces of the stone. Let mortar set until it is firm yet workable.

***Caution: Be sure you can finish the entire grouted area before mortar sets.***



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## Step V. Finish Joint Procedure

When mortar joints become firm, the use of a wooden striking tool carved just a little smaller than the joint width or metal margin trowel may be used. The goal is to press gently and smoothly as to fill grout voids and remove excess mortar to desired depth. When using a metal margin trowel, the joint must be scratched after striking to roughen joint surface. This can be achieved by turning metal striking tool over and using the tip to scratch the joint.

Note: The mortar should be firm enough not to stain stone. If the mortar is struck prematurely, the joint will look like toothpaste or appear creamy, wait for the mortar to dry more.



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## Step VI. Brushing joints

This should be done within 2 hours after tooling the joints. The best way is with a clean whiskbroom or any plastic bristled brush. Do not use a metal bristled brush. Do not let mortar set overnight before tooling or brushing and do not brush wet mortar, as it will smear and look unsightly.



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## Cleaning

Do not pressure wash, sandblast, use wire brushes or acids for cleaning. If mortar dripping occurs, use a clean wet sponge within 4 hours of grouting. After 48 hours, it may be cleaned with a mild solution of warm water and tri-sodium phosphate. First, wet the wall thoroughly with water. Second, scrub the wall with T.S.P. solution using a stiff plastic bristled brush. Finally, rinse the wall thoroughly. If you need further assistance, contact your dealer or call Heritage Stone.



## Sealing

Sealing is unnecessary on most projects. A sealed surface is much easier to clean than an unsealed surface. If you have conditions that could discolor or stain the stone, sealing is an option. If you have questions about sealing, contact your dealer or Heritage Stone for assistance.



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## TIPS and SUGGESTIONS

### EFFLORESCENCE

Efflorescence is a white residue that sometimes appears on masonry surfaces. As moisture makes its way through concrete, from the inside out, it may bring with it any soluble salts residing in the concrete or mortar. When the moisture evaporates it leaves the soluble salts on the masonry surface.

To clean efflorescence off of a masonry surface, mix 1 part white vinegar to 5 parts clean water. With a soft bristled brush lightly scrub the masonry surface with the water/vinegar mixture. Do not use acids, power washing equipment or other cleaning agents to remove efflorescence.

### EXPANSION/CONTROL JOINTS

Do not span expansion or control joints with stone veneer. Terminate stone at the expansion or control joint. These exist to relieve pressure and allow for movement in the structure.

### DRAINING PLANE SYSTEMS

Heritage Stone does not require the use of rain screen drainage plane systems although some building codes require this. Reference the MVMA Installation guidelines at <http://www.masonryveneer.org/pdf/mvma010709.pdf>

### STAINS

Paint – use artists echo knife (looks like a scalpel). Gently lift paint splatter off.

Coffee – scrub with tri-sodium phosphate solution, rinse with water and cover with cat litter.

Oil – put paint thinner on the stain, scrub with small soft brush, cover with cat litter, flour or corn meal. Repeat process until stain is gone.

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