

Boral Stone Division

Large Format Stone Installation

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Installation of large format stone units require a few key differences which will be outlined in this addendum. This addendum is intended to be used in concert with the standard **NCMA-MSV Installation Guide**, available at www.NCMA.org. All wall preparation requirements, material requirements, cautions, disclaimers and general information should be reviewed and followed. A Large Stone Unit is defined by NCMA as a stone with greater than 1 sq. ft. area or one dimension at 24" or greater, require additional skill and attention.

Large Format Stone Units provide the installer with a couple challenges related to wall preparation and setting the units. These units can be more challenging to install than conventional units. Proper bonding materials and techniques are essential. A key to good bond is achieving a full setting bed of quality mortar with ample squeeze out.

Larger format stone units tend to telegraph any irregularities in the wall/scratch coat through to finished surface. Take time to make sure scratch coat is level, plumb and straight, even adding a second coat if required. Alternatively, install cement board as a replacement for lath and scratch coat. The cement board method may appear to add cost, but the advantages of this planar surface will increase install speed and improve final appearance. Cement board applications must be installed with modified mortar as discussed next.

Modern textures, with a tile or limestone look, often have a flat face. When installed the unit must be level on top and plumb on the sides but also checked for plumb on the face. To achieve an even face plane and avoid odd shadows, start with thicker stones to set face plane and then use mortar setting bed thickness to even face plane of thinner stones. This will minimize edge to edge shadowing. Setting bed mortar will also help absorb variations in the substrate surface.

The **NCMA-MSV Installation Guide** recommends any unit 1 sq. ft. or larger, or a unit with a single dimension at 24" or longer, be installed using modified mortars. Modified mortars meeting **ANSI A118.4** or **118.15** mortar provide three characteristics that aid in the installation of large format units.

1. Increased bond strength
2. Increased flexibility compared to standard mortar
3. Minimal sag/slip
4. Ability to "re-position" a unit for up to 5 minutes after setting it.

By comparison, if using a building code minimum mortar, **ASTM C 270** type N or type S any disturbed unit must be removed and re-set. No "re-positioning" is allowed after setting.

Modified mortars, when used as setting bed, will typically be applied to a prepared surface by notched towel in vertical ribbons. In addition, the units are back buttered and then pressed into the ribbons with a back and forth sliding motion. This minimizes sag and increases initial grab.



In the event of any conflict or inconsistency between the tips, recommendations and installation techniques set forth in this guide with the NCMA-MSV Installation Guide and any local code requirements, the NCMA-MSV Installation Guide and local code shall prevail. The tips and recommendations provided here are meant to improve the aesthetics and efficiency of the installation and do not replace required practices as defined in the NCMA-MSV Installation Guide. This guide does not, is not intended to, and shall not be construed to create or establish any additional product warranties including, but not limited to, any with respect to the Boral Stone Division products referenced herein.

Large format installations also benefit from use of a temporary straight and true starter board. This provides a solid and level starting point without having to rely on a chalk line. Where required, be sure to install weep screed and maintain proper clearance.



Extra care should be taken to avoid mortar droppings and smears as modified mortar is difficult to remove. Be prepared to clean the stone immediately before the mortar has time to set. Do not use acidic cleaners. Consult the modified mortar manufacturer for additional cleaning information.

Many of these large format stones are laid with a mortar joint. It is extremely critical to maintain consistent head and bed joints. While a joint can be as small as $\frac{3}{16}$ ", that dimension is difficult to completely fill with mortar. For that reason, consider a $\frac{3}{8}$ " minimum joint gap. To maintain uniform mortar joint gap during installation and curing, spacers are often used. Add spacers for all 4 sides and use caution removing spacers and do not disturb the bonded units. Soaking wooden dowel stock in advance, will make the dowel smaller/easier to remove when dry. Hard/wedge shaped shims should be avoided. Since these shims will not actually support weight, even foam shim/spacer materials can be used. Once shims removed be sure to completely fill joints with mortar. Voids or half filled joints will potentially crack or prematurely fail.

Finish corners out with flat stones

Flat product can be used to create attractive outside corner applications. There are 3 options for this application.

1. **Straight Butt Joint.** Where the flats on one wall plane all extend past the corner and the flats on the adjacent wall butt into the back of them. **Fig. 1**
2. **Bonded Corner.** Similar to a straight butt joint, however the extending course is alternated between the two meeting walls. **Fig. 2**
3. **Quirk-Miter Corner.** Start with a factory end or clean straight cut stone. Miter the end of each stone at a 45 degree angle. The miter cuts end $\frac{1}{4}$ " short of the face of the stone to create the quirk notch as shown in **Fig. 3**.

Fig 1

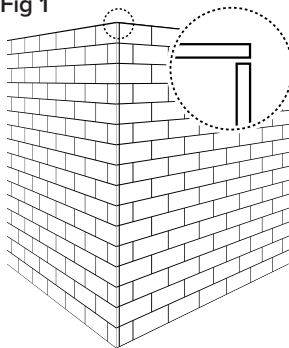


Fig 2

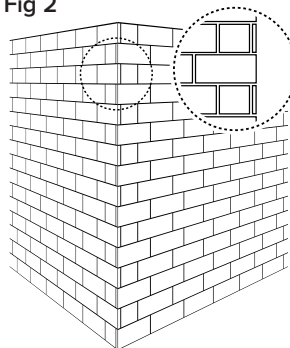
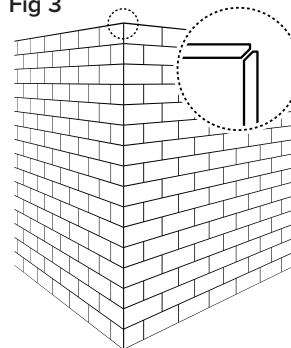


Fig 3



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Summary

1. Achieve full coverage utilizing modified mortar compliant with **ANSI A118.4** or **A118.15** to provide significant installation advantage and increased bond.
2. Consider a mortar joint $\frac{3}{8}$ " minimum
3. Utilize spacers to hold joint gap
4. Keep the face of the stone clean and free of setting mortar. Modified mortar smears and droppings will be very difficult to remove.
5. A new masonry saw blade will reduce chipping of stone unit edges.



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