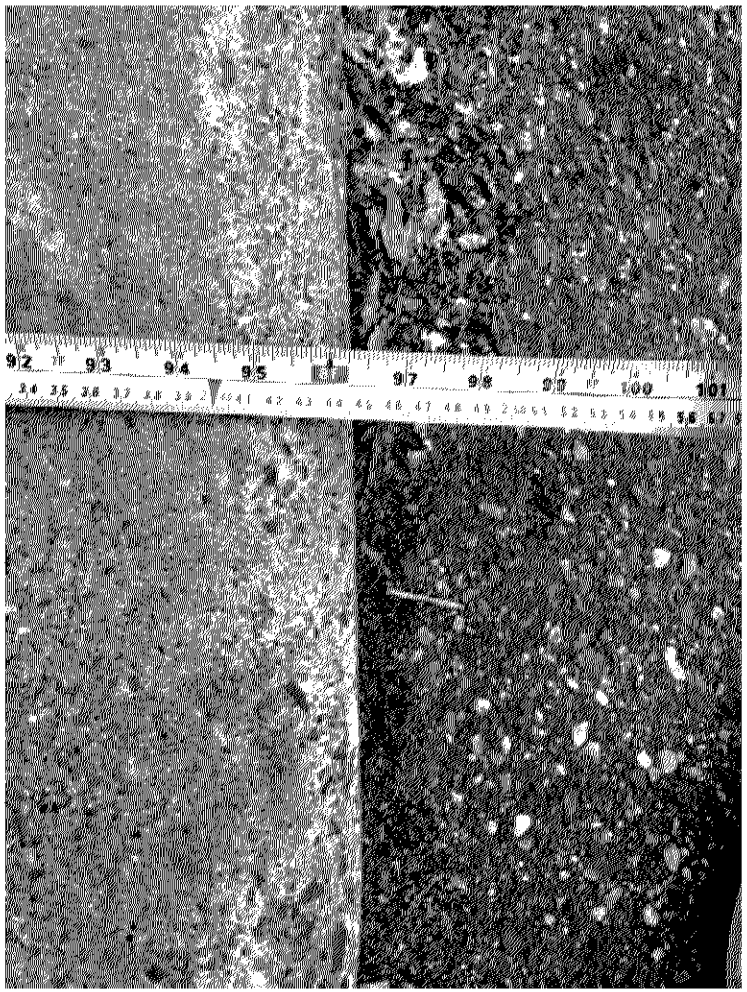

Existing Facade
PL2016-52
PL201600052

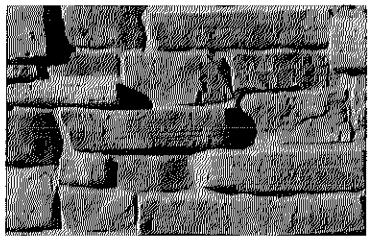
Sidewalk Width

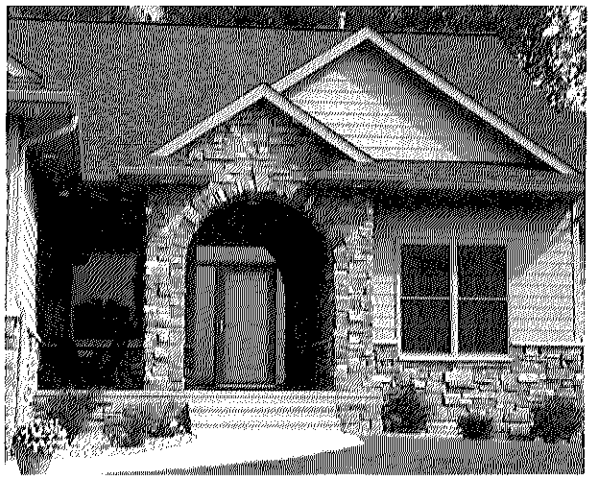
PL2016-52
PL201600052



CAST NATURAL STONE

Green Lake Weatheredge





Color Ratio Chart

20% Grey
20% Brown
20% Light Brown
20% Half Chocolate
10% Marsh Green
10% Plain

Suggested Accessory Colors

Natural
Brown

Sku #	Coverage	Size of Box	Weight per Carton
144-5080	10 SF	24" x 20" x 12"	110 #
144-5084	100 SF	Pallet Box 48" x 40" x 30"	1100 #
144-5088	8 LF	24" x 20" x 12"	100 #

Stone color and sizes should be completely laid out to get desired effect before installing.

See brochure or website for Installation, Warranty and Technical Information.

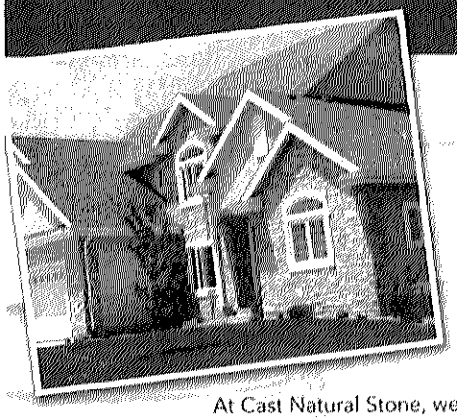
Product should be applied at 45 degrees or above, or in a tarped heated environment.

Product, if purchased during colder months, should be kept inside a covered, heated building.

Read entire Installation Section prior to Installing.

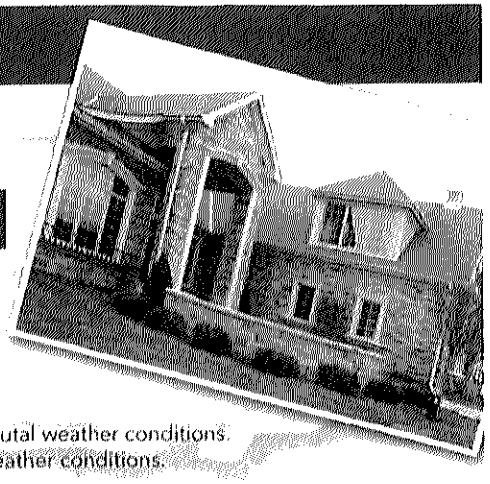
Availability within approx. 2-3 weeks.

www.CastNaturalStone.com



CAST NATURAL STONE

BEAUTY STRENGTH DURABILITY



At Cast Natural Stone, we build each and every stone to stand up to the most brutal weather conditions. And with our manufacturing and headquarters located in Wisconsin, we know weather conditions.

How do we know Cast Natural Stone is strong and durable?
We test it under the most intensive standards in the industry, as guided by ICC-ES, the leader in providing independent evaluation of building products, components and systems.

AC51
The foundation of testing is AC51, a set of rigorous tests designed to ascertain the long-lasting durability of manufactured stone veneer. Combined, the entire AC51 series of tests encompasses every characteristic of stone veneer necessary to ensure it holds up under exceptionally harsh conditions...like we have in Wisconsin.

Quality Control
But testing under ICC-ES standards goes well beyond AC51. Our Quality Control practices guide everything we do, ensuring that every aspect from our raw materials to our daily testing meets the highest specifications in the industry. See the ICC-ES third party report on Cast Natural Stone (ESR #3566).

STRENGTH AND DURABILITY OF THE INSTALLED STONE

AC-51 CRITERIA	GUIDELINES	WHY	MEET/EXCEED
Compression Strength	Tested on 28 Day Cured Samples. Samples must withstand 1,800 PSI without damage.	For decades of strength and durability, you want a stone that holds up.	✓
UBC Standard 15-5 Moisture Absorption	Based on the stones' density, it must absorb less than a specific amount of moisture. For example, for density <85 lbs/ft, absorption must be less than 22%	Predictable weight per foot, and lower absorption means less water permeability.	✓
Tensile Strength (ASTM C190)	Tested on 28 Day Cured Samples. Results must be reported, and all samples within specific range	Tensile strength must be sufficient to resist breaking and cracking as mortar beds cures and shrinks.	✓
Flexural Strength (ASTM C348)	Tested on 28 Day Cured Samples. Results must be reported, and all samples within specific range.	Walls can move, and you want a stone that can hold up without breaking.	✓
Freeze Thaw (ASTM C67)	Testing the stone requires that the stone be saturated, frozen, then thawed - for 50 cycles. Stone must not crack, break, or deteriorate.	We build all of our stone to withstand the harsh climates of the Northern US and Canada – it must hold up to decades of freezing and thawing conditions.	✓
PROCESSES AND MATERIALS			
Cement (ASTM C150) and other Raw Materials (ASTM C33 or C330)	Raw materials such as cement and aggregate must meet specific standards. We demand mill tests and certificates of analysis assuring each shipment meets specifications	We want predictable, consistent production with the strength and quality we demand	Mill Certificates required for all of our cement material. And aggregate shipments meet our specs, ensuring a predictable manufacturing result.
Quality Control Processes	Quality Control Manuals provide operational protocol for the entire manufacturing process - all designed to provide a consistent, high quality product.	Our Quality Control documents demand attention to every detail including rigorous daily tests throughout the plant.	✓

ICC EVALUATION SERVICE
Most Widely Accepted and Trusted

ICC-ES Evaluation Report

ESR-3566

Reissued October 2014

This report is subject to renewal October 2015.

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DIVISION: 04 00 00—MASONRY
Section: 04 73 00—Manufactured Stone Masonry

REPORT HOLDER:

NORSE BUILDING PRODUCTS, INC.
536 MAIN STREET, P.O. BOX 126
ALLENTON, WISCONSIN 53002
(262) 629-9330
www.castnaturalstone.com

EVALUATION SUBJECT:

CAST NATURAL STONE

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2012 *International Building Code®* (2012 IBC)
- 2012 *International Residential Code®* (2012 IRC)
- Other Codes (see Section 8.0)

Properties evaluated:

Veneer strength and durability

2.0 USES

Cast Natural Stone is used as an adhered, non-load-bearing exterior veneer on non-fire-resistance-rated wood-framed or light gage steel stud walls, and concrete or masonry walls.

3.0 DESCRIPTION

Cast Natural Stone is a precast concrete products made to resemble natural stone in color and in texture. The concrete is composed of cement, aggregate, water, admixtures and coloring. The veneer units are molded and cured at the plant. The average saturated weight of the installed veneer units does not exceed 15 pounds per square foot (73.2 kg/m^2). Recognized patterns of veneer are listed in Table 1.

4.0 INSTALLATION

4.1 General:

Installation of Cast Natural Stone must comply with this report, the manufacturer's published installation instructions, and the applicable code. The manufacturer's published installation instructions must be available at the jobsite at all times during installation. The veneer has been evaluated for application over backings of cement plaster.

4.2 Preparation of Backing:

Cement plaster backings may be applied over plywood, OSB or gypsum sheathing, supported by wood or steel studs; over open wood or steel studs; and over concrete or masonry walls, when installed as described in Sections 4.2.1 and 4.2.2.

4.2.1 Installation over Studs: For exterior installations, the cement plaster backing must be installed over a water-resistive barrier complying with IBC Sections 1404.2 and 2510.6 or IRC Sections R703.2 and R703.6.3, as applicable. Also, flashing must be installed as required by IBC Sections 1405.4 and 1405.10.1.2 or IRC Sections R703.8 and R703.12.2, as applicable, and weep screeds must be installed at the bottom of the stone veneer. The weep screeds must comply with, and be installed in accordance with, IBC Section 1405.10.1.2 or IRC Section R703.12.2, as applicable. In addition, the weep screeds must have holes with a minimum diameter of $^3/_{16}$ inch (4.8 mm) spaced at a maximum of 33 inches (838 mm) on center, as required by Section 6.1.6.2 of TMS 402/ACI 530/ASCE 5 , which is referenced in IBC Section 1405.10. The veneer must be installed with the clearances required by IBC Section 1405.10.1.3 or IRC Section R703.12.1, as applicable.

Studs must be spaced no more than 16 inches (406 mm) on center. Lath must be a 2.5 lb/yd^2 (1.4 kg/m^2) diamond mesh metal lath conforming to ASTM C847; a 3.4 lb/yd^2 (1.8 kg/m^2), $^3/_8$-inch thick ribbed lath conforming to ASTM C847; or a 1.4 lb/yd^2 (0.760 kg/m^2) galvanized woven wire mesh conforming to ASTM C1032. Lath may be self-furred or non-furred, provided furring or furring fasteners are used. When the cement plaster backing is installed over open studs, a paper back lath must be used. All lath must be installed over the water-resistive barriers by following lath manufacturer's installation guidelines and recommendations. Lath or mesh must be fastened to each of the wall studs as required by ASTM C1063 and IRC section R703.6.1. Fasteners must be spaced a maximum of 6 inches (153 mm) on center.

For attaching lath to wood studs, fasteners must be galvanized nails having a minimum shank diameter of 0.120-inch, a minimum head diameter of $^7/_{16}$-inch (11.1 mm) and sufficient length to penetrate the studs a minimum of $^3/_4$-inch (19.1 mm). Wood studs must have a minimum specific gravity of 0.42. For attaching lath to steel studs, fasteners must be a minimum of #8 corrosion resistant self-drilling, tapping screws complying with ASTM C954 and having sufficient length to protrude a minimum of $^3/_8$ inch (9.5 mm) through the stud. Steel studs must be a minimum of 33 mils thick.

A scratch coat of Type S mortar (cement plaster) complying with ASTM C926 must be applied over the lath to a thickness of $^1/_2$ inch to $^3/_4$ inch (12.7 to 19.1 mm). The scratch coat must be scored horizontally in accordance with the manufacturer's published installation instructions,

and must be allowed to cure in accordance with IBC Section 2512.6, prior to the application of the veneer units.

4.2.2 Installation over Concrete and Masonry: The veneer units may be applied over a concrete or masonry backing, provided lath and a cement plaster scratch coat are used. The lath must be corrosion-resistant metal lath complying with ASTM C847, or 1.4 lb/yd^2 (0.760 kg/m^2), corrosion-resistant, woven wire plaster base complying with ASTM C1032. The lath must be fastened to the wall in accordance with Section 7.10 of ASTM C1063, and IRC Section R703.6.1, as applicable. The fasteners must be spaced a maximum of 6 inches (152 mm) on center vertically and 16 inches (406 mm) on center horizontally. The gravity load (shear) capacity and negative wind load (pull-out) capacity of the proprietary fasteners must be justified to the satisfaction of the code official. The scratch coat must be applied as described in Section 4.2.1.

4.3 Application of Veneer Units:

Prior to the application of the veneer units, the scratch coat or other backing and the back of the veneer units must be moistened in accordance with the manufacturer's instructions. A minimum $^1/_2$-inch-thick (12.7 mm) setting bed of Type S mortar must be applied to the back of the veneer units, and the veneer units must be pressed firmly in place, squeezing the mortar out around all veneer unit edges. For grouted patterns, joints between veneer units must be grouted and tooled in accordance with the veneer manufacturer's published installation instructions.

5.0 CONDITIONS OF USE

The precast stone veneer described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Installation must comply with this report, the manufacturer's published installation instructions and the applicable code. In the event of a conflict between the manufacturer's published installation instructions and this report, this report governs.

5.2 The use of the precast stone veneer has been evaluated for installation on walls with cement plaster.

5.3 Expansion or control joints, used to limit the effect of differential movement of supports on the veneer system, are to be specified by the architect, designer or veneer manufacturer, in that order. Consideration must also be given to movement caused by temperature change, shrinkage, creep and deflection.

5.4 In jurisdictions adopting the IBC, the supporting wall must be designed to support the installed weight of the veneer system, including veneer, setting bed and cement plaster backing, as applicable. At wall openings, the supporting members must be designed to limit deflection to $^1/_{600}$ of the span of the supporting members.

5.5 In jurisdictions adopting the IRC, where the seismic provisions of IRC Section R301.2.2 apply, the average weight of the wall supporting the precast stone veneer, including the weight of the veneer system, must be determined. When this weight exceeds the applicable limits of IRC Section R301.2.2.2.1, an engineered design of the wall construction must be performed in accordance with IRC Section R301.1.3.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Precast Stone Veneer (AC51), dated February 2008 (editorially revised April 2012).

7.0 IDENTIFICATION

Boxes of precast stone veneer units are identified with the manufacturer's name (Norse Building Products), the product name (Cast Natural Stone); the pattern name, the manufacturing date, and the evaluation report number (ESR-3566).

8.0 OTHER CODES

8.1 Evaluation Scope:

In addition to the codes referenced in Section 1.0, the products described in this report were evaluated for compliance with the following codes:

- 2009 *International Building Code®* (2009 IBC)
- 2009 *International Residential Code®* (2009 IRC)

The Cast Natural Stone products described in this report comply with, or are suitable alternatives to what is specified in, the codes listed above, subject to the provisions of Sections 8.2 through 8.7.

8.2 Uses:

See Section 2.0.

8.3 Description:

See Section 3.0.

8.4 Installation:

8.4.1 General: See Section 4.1.

8.4.2 Preparation of Backing: See Section 4.2

8.4.2.1 Installation over Sheathing or Open Studs: Replace the 1st paragraph of Section 4.2.1 with the following: For exterior installations, the cement plaster backing must be installed over a water-resistive barrier complying with 2009 IBC Sections 1404.2 and 2510.6 or 2009 IRC Sections R703.2 and R703.6.3, as applicable. Also, flashing must be installed as required by 2009 IBC Section 1405.4 or 2009 IRC Section R703.8, as applicable, and weep screeds must be installed at the bottom of the stone veneer. The weep screeds must comply with, and be installed in accordance with, 2009 IBC Section 2512.1.2 or 2009 IRC Section R703.6.2.1, as applicable. In addition, the weep screeds must have holes with a minimum diameter of $^3/_{16}$ inch (4.8 mm) spaced at a maximum of 33 inches (838 mm) on center, as required by Section 6.1.5.2 of TMS 402/ACI 530/ASCE 5, which is referenced in 2009 IBC Section 1405.10.

For additional requirements, see the remainder of Section 4.2.1.

8.4.2.2 Concrete and Masonry Backing: See Section 4.2.2.

8.4.3 Application of Veneer Units: See Section 4.3.

8.5 Conditions of Use:

See Section 5.0.

8.6 Evidence Submitted:

See Section 6.0.

8.7 Identification:

See Section 7.0.

TABLE 1—RECOGNIZED PATTERNS

PRODUCT	PATTERNS
Cast Natural Stone	River Rock, Weatheredge, Ledgestone, Limestone, Fieldstone, Split Rock, Castle Rock

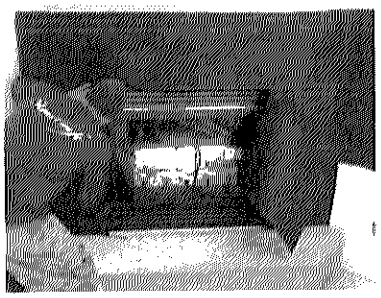
CAST NATURAL STONE

Cast Natural StoneVeneer Installation Guide

Step 1: Surface Preparation:

Wood or Metal Frame Construction

- Interior Applications -



Apply rigid backer board (1/2" plywood, drywall or cement board) to frame construction. Then apply weather resistant building paper or equivalent over rigid sheathing. Install from the bottom up ensuring upper layer laps lower at least four inches. Attach 2.5 lb. expanded, galvanized, metal lath to each stud 6" on center-vertically, penetrating the studs at least one inch. Be sure to attach the lath horizontally. The surface should feel rough as you rub your hand upward. Lap lath 4" at all seams and wrap all inside and outside corners 16", or attach to stud. Make sure vapor barrier is installed smooth. Lath needs to be tight; any bubbles should be nailed or stapled down to prevent "bounce". When corners are wrapped it is important to nail into the corner stud from both sides.

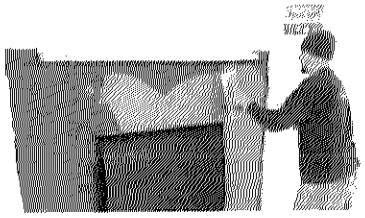
- Exterior Applications -

Exterior plywood is recommended as the rigid backer board. OSB is not recommended as the exterior sheathing. Apply building paper and lath as for the interior application. Check with local building officials on the type, weight and number of layers of weather barrier (building paper or equal) that is required in your area.

Concrete Block, Poured Concrete or Brick Stone

Stone Veneer can be installed directly to clean, unpainted or unsealed brick, concrete block or poured concrete surfaces (interior or exterior) without applying metal lath. On previously coated surfaces, sandblast or waterblast to thoroughly clean. Where thorough cleaning is not possible, install metal lath and apply a scratch coat application.

Step 2: Scratch Coat Application



All lathed surfaces should be covered with a 1/2" to 3/4" coat of mortar and allowed to set approximately 30 minutes prior to installing stones. Then brush with a soft bristled brush (to roughen up surface to ensure a stronger mechanical and chemical bond.) Mortar mix consists of one part type "N" cement and two parts mason sand. (Example: One pail cement to two pails sand.) Mix with enough water to achieve a workable consistency. The same mortar mixture is used for scratch coating, setting the stone and grouting the joints. Dry pre-mixed mortars, especially designed for masonry, may also be used. Ask your Menards representative for specific product recommendations and mixing instructions.

Step 3: Stone Layout and Arrangement

Before stone installation, lay out a quantity near the work area. Blend multiple boxes to ensure a proper mix of size, shape, texture and color of stones allowing you to arrange the stones in the most pleasing design. Then apply stones, mixing colors randomly.

Step 4: Application

"Butter" the stone by applying an even, 1/2 inch thick layer of mortar to the back of the stone. Be sure to cover the entire back of the stone with mortar. Press the stone firmly into place so that the mortar behind the stone squeezes out on all sides. Use a wiggle action while applying the stone to insure a good bond. When applying to clean, concrete and masonry surfaces, dampened the wall prior to installation. This will aid adhesion to the existing surface. Adhesion can also be improved by adding a liquid bonding agent to the mortar mix.

Tip: Install the corner stones first starting at the bottom and working up. Install the balance of the wall from the top down. This aids in keeping the stone face clean of mortar.

Remove mortar from stone face, as necessary, during installation. Allow mortar to become "crumbly", then remove with a trowel or brush. Do not allow mortar on stone surface to dry overnight.

When necessary, stones can be cut and shaped with a masonry hammer, masonry saw or nippers. Position cut edges away from view when possible. Trimmed edges are easily concealed at grouting.

For additional tips and installation videos go to **www.castnaturalstone.com**

CAST NATURAL STONE

Step 5: Grouting the Joints

After the stone has been applied to the surface, fill a grout bag with mortar and as in decorating a cake, fill the joints with mortar. Grout bags are available from your supplier. While grouting, be sure to cover any noticeable broken or cut edges with mortar.

Step 6: Striking the Joints

When the mortar joints become firm, use a wood or metal strike tool to push the mortar into any cavities or voids creating a seal around each stone. Any holes, gaps, or voids must be filled in with mortar to prevent water or pests from occupying the space. Use a tuck pointer or similar object to clean the edges of each stone to prevent cracking of the grout. Use pressure to force the mortar into the joints. This will thoroughly seal the joint edges. Be careful not to work the joints too soon. This will cause the mortar joints to smear.

Step 7: Brushing

Brush the mortar joints with a small whisk broom to smooth and clean away any loose mortar.

Do not wash off with clear water. This will result in a milky residue. Brush off any mortar spots from the face of the stone veneer. If desired, use a mild vinegar and water solution to remove any remaining mortar spots. Loose mortar and mortar spots should not be allowed to dry overnight.

Step 8: Completion

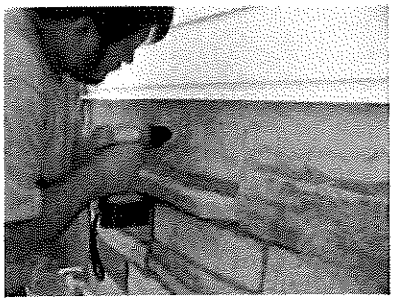
When desired, a high quality "breathable" masonry sealer can be applied on any stone veneer, especially on those exposed to severe freezing and thawing, excessive moisture, or conditions which could discolor or stain the veneer. This must be a breathable, masonry sealer. Any other type of sealer voids the warranty. Follow recommended application instructions for your selected sealer. Test several unused pieces before general application. Some sealers may alter the appearance of the masonry.

Step 9: Cleaning

During the stone application remove all mortar on the face of the stone by allowing the mortar to set-up until crumbly, then remove with a dry bristle brush. Do not allow mortar on stone surfaces to dry completely.

To remove dirt, smoke or other stains, use a mild solution of granular detergent and water. Scrub with a bristle brush and rinse with fresh water. Do not use wire brushes. Do not use acid, salt or other "de-icing" materials. They will cause damage to concrete and masonry materials. CAST NATURAL STONE is not warrantied against deterioration or discoloration caused by acid, salt or other chemical or cleaning agents.

Typical Sill & Lintel Installation



Determine Placement

Determine the height at which you would like the top of your sill or lintel. Subtract 2.5" to compensate for sill and lintel height. Snap or draw a plumb line at this height. This will give you a reference line to work from.

Fasten L Brackets

Fasten 2"x2" zinc coated angle "L" brackets so the top is flush and level with your reference line; apply 3 brackets for every sill/lintel piece to rest on. Apply 4 brackets for 48" lintel.

Mortar

Mortar the back of the sill/lintel and apply to surface allowing it to rest on the angle brackets

Caulk

Caulk the joint along the back of the sill/lintel and the building. Then cover it with flashing

Finish Stone Application

Continue installing the stone underneath the sill covering the legs of the "L" brackets. Grout and finish the joints.

For additional tips and installation videos go to **www.castnaturalstone.com**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