CULTURED STONE®

A **BORAL**® Brand

TECHNICAL SUBMITTAL PACKET 2020

CULTURED STONE®

SUBMITTAL PACKET

WELCOME

COMPANY NAME: _____

CONTACT NAME: _____

PROJECT TITLE: _____

STREET ADDRESS: _____

CITY, STATE, ZIP: _____

We would like to congratulate you on your upcoming project which incorporates adhered concrete masonry veneer products. Enclosed in this packet are the required Cultured Stone submittal forms and technical documents. We have also enclosed additional support materials and installation details commonly requested by architects and contractors.

Visit culturedstone.com/resources to view all digital materials available for download.

- SUBMITTAL FORM
- TECHNICAL DATA SHEET
- 50-YEAR WARRANTY
- CERTIFICATE OF QUALITY
- STONE INSTALLATION
- BRICK INSTALLATION
- 3-PART SPEC
- ICC-ES EVALUATION REPORT
- SAFETY DATA SHEET

As part of our commitment to service, we would like to recommend that you take advantage of our consulting services.

We have trained Technical Field Service representatives that will walk through your project with you prior to installation. This can help prevent improper installations and in some cases identify where additional stone or accessories may be needed.

Thank you again for choosing Cultured Stone. Should you have any questions, please do not hesitate in contacting us. We are grateful for the opportunity to be a part of your project needs.

Sincereley,

Sales Representative
Cultured Stone

CULTURED STONE®

SUBMITTAL PACKET

SUBMITTAL FORM

Cultured Stone Representative:

PROJECT DETAILS	CULTURED STONE
PROJECT NAME:	PROFILE: COLOR:
PROJECT ADDRESS:	APPROX SQ FOOTAGE:
CITY, STATE, ZIP:	MANUFACTURING LOCATION:

Please fill in all known information:

OWNER	ARCHITECT	BUILDER	MASON
COMPANY NAME:	COMPANY NAME:	COMPANY NAME:	COMPANY NAME:
CITY, STATE:	CITY, STATE:	CITY, STATE:	CITY, STATE:
CONTACT NAME:	CONTACT NAME:	CONTACT NAME:	CONTACT NAME:
CONTACT PHONE:	CONTACT PHONE:	CONTACT PHONE:	CONTACT PHONE:

PROJECT NOTES:

Pre-Installation Project Team Meeting Scheduled? Y ☐ N ☐ Date Scheduled:

Your signature below acknowledges receipt of Cultured Stone's "Submittal Packet" and the above information is accurate to the best of your knowledge.

Received By: Date:

Company: Phone:

Cultured Stone Representative: Date:

Fax completed form to 555-555-5555, **attn: Technical Department**

TECHNICAL DATA

The **Cultured Stone**® collection of manufactured stone veneers is engineered to meet or exceed specifications for all major code approvals. Manufacturers who offer "just like" or a so-called "equivalent" to Cultured Stone manufactured stone veneer products should be asked to document claims of test results and research reports.

Complete copies of these Cultured Stone manufactured stone veneer building code evaluation reports, research reports, approvals and listings are available upon request:

- ICC-ES ESR-1364
- Tested and listed by Underwriters Laboratories, Inc.
- Texas Department of Insurance–Product Evaluation Report, EC-21
- Florida Product Approval FL15047
- HUD Materials Release No. 1316
- BMEC Authorization

Note: Local building codes may vary; always check with your local building code authority prior to installation.

Results of tests conducted by an independent testing agency confirm that the Cultured Stone collection of manufactured stone veneers conforms to or exceeds the following test requirements as specified in ICC Evaluation Service Acceptance Criteria 51 for Precast Stone Veneer:

MATERIALS

CEMENT	ASTM C 150 or ACI 318 Section 3.2.1
SAND	ASTM C 144 or C 33
AGGREGATE	ASTM C 33 or C 330 (except gradation), C 331

TESTING

SHEAR BOND TEST (ADHESION)	Tested in accordance with ASTM C 482	> 50 psi
WATER ABSORPTION	Tested in accordance with UBC 15-5	9%–22% depending on texture
FREEZE/THAW CHARACTERISTICS	Testing procedures follow those outlined in ASTM C 67	< 3% mass loss
COMPRESSIVE STRENGTH	Tested in accordance with ASTM C 39	> 1800 psi @ 28 days
UNIT WEIGHT	Density is determined in accordance with ASTM C 567	< 15 lbs. per square foot
TENSILE STRENGTH	Tested in accordance with ASTM C 190	Reported
FLEXURAL STRENGTH	Tested in accordance with ASTM C 348	Reported
THERMAL PROPERTIES	Tested in accordance with ASTM C 177-71	R-value is .620 based on a 1.75" thick sample. Average thickness may vary on different Cultured Stone veneer products, and the R-value will vary accordingly.
NONCOMBUSTIBLE	Tested and listed by Underwriters Laboratories, Inc.	Cultured Stone brand products showed zero flame spread and zero smoke development.

50-YEAR TRANSFERABLE LIMITED WARRANTY

LIMITATIONS ON THE TRANSFERABILITY OF THIS WARRANTY ARE SET FORTH HEREIN

INTRODUCTION

Thank you for your recent purchase of **Cultured Stone**® by **Boral**® manufactured stone veneer products ("Product(s)"). This express limited warranty ("Warranty") only covers Cultured Stone manufactured stone veneer products manufactured by Boral Stone Products LLC ("Boral").

WHO IS COVERED & FOR HOW LONG

Subject to the following terms, Boral warrants its Products for fifty (50) years to the original purchaser (the "Purchaser") (based upon the date of retail purchase, date of substantial completion of the installation if professionally installed, or date of settlement of the purchase of a newly constructed building, whichever is applicable). This Warranty is personal to you; however, the Warranty may be transferred to any subsequent purchaser(s) of your home or building during the first fifteen (15) years after the original purchase date (as described above), but the warranty period as to such subsequent owners is limited to fifteen (15) years from the original purchase date (as described above).

WHAT BORAL WARRANTS

Boral, subject to the conditions and limitations listed herein, warrants its Products to be manufactured in compliance with the International Code Council Acceptance Criteria 51 ("ICC AC 51) for Precast Stone Veneer; however, Products that are accessories and Products that are not wall veneer shall not meet the weight, density and dimension parameters of ICC AC 51.

WHAT IS NOT COVERED

We do not cover damage to the Product due to any cause not expressly covered herein. This Warranty does not cover any problems with non-defective material caused by conditions or handling beyond our control.

Some examples of conditions not covered by this Warranty include:

1. Improper application, use of accessories which do not properly receive and/or secure our Products, or installation not in strict adherence to the applicable installation instructions or installation not in accordance with local building code requirements.
2. Damage resulting from accident, misuse, neglect, casualty, fire, vandalism, plant growth, impact of foreign objects, salt or de-icing chemicals, excessive exposure to water due to things such as standing water, water backups, improper flashing, leaks, seepage or irrigation systems, failure of or damage to the wall substrate on which the Product was applied caused by movement, distortion, cracking, or settling of such wall or the foundation of the building, surface discoloration due to airborne stains, pollutants, algae, fungi, lichens or cyanobacteria, exposure to harmful chemicals, external heat sources (including, but not limited to, a barbecue grill, fire, or reflection from windows and doors), acts of God, or other such occurrences beyond the control of Boral;
3. Product or material that has been painted, varnished, sealed with non-breathable sealer, or similarly coated over the manufacturer's original finish; and
4. The use of sandblasting, power washing, silicone treatments, or any other form of chemical wash.

Products shall not be in breach of this Warranty if they contain or exhibit (i) minor chipping, as defined under ASTM C1364, Section 8.2; or (ii) minor cracks, as defined under ASTM C 90-05, Section 7.2.1, incidental to the usual methods or materials of manufacture or minor chipping resulting from customary methods of handling in shipment and delivery which do not a¸ect the proper placement of the unit or significantly impair the strength or permanence of the construction.

Products are not warranted against discoloration caused by air pollution, exposure to harmful chemicals, or "normal weathering" resulting from exposure to the elements. "Normal weathering" is defined as the damaging e¸ects of sunlight and extremes of weather and atmosphere that may cause any colored surface to oxidize, fade, or become soiled or stained over time.

Boral strives to accurately reproduce the colors of its masonry stone veneer Products in its marketing literature and sample boards. The Product colors that you see are as accurate as technology allows. Boral makes no warranty with respect to any real or perceived color di¸erences between those depicted in its marketing literature and sample boards and those of the actual Products that will be installed on or within the home or building. Boral recommends that you look at actual Product samples before making a color selection for your home or building.

WHAT IS YOUR REMEDY

If the Products are not in conformance with our Warranty, Boral will, in its sole discretion, either (i) repair or replace the nonconforming Products at no charge to you, or (ii) refund the price paid for the Products. Labor costs for removal or installation are not covered. Any Products repaired or replaced hereunder will continue to be covered under the terms of this Warranty for the remainder of the original warranty period.

SUBMITTING A WARRANTY CLAIM

To obtain performance under this Warranty, the Purchaser(s) shall notify Boral of the claim promptly following its discovery, and shall submit with such notification proof of date of purchase and/or installation, and proof of property ownership, in order to provide Boral an opportunity to investigate the claim and examine the material claimed to be defective. All notifications shall be provided to Boral at **Boral Stone Products Warranty Department, 2256 Centennial Road, Toledo, Ohio 43617** or call **1-800-255-1727**. Shortly after we receive your communication, we will contact you regarding your claim. To fully evaluate your claim, we may ask you to provide pictures of your Products or samples for us to test. If you have any questions, do not hesitate to write us at the address above or call **1-800-255-1727**.

REPLACEMENT & PRODUCT VARIATIONS

As a result of our ongoing e¸orts to improve and enhance our product line, we reserve the right to discontinue or modify our Products, including their colors, without notice to the Purchaser(s) and shall not be liable to the Purchaser(s) as a result of such discontinuance or modification. We are not liable to you if you make a warranty claim in the future and any replacement Products you receive vary in color or finish because of normal weathering or changes in our product line. You should understand that if we replace any Products under this Warranty, we reserve the right to provide you with substitute Products that are comparable only in quality and price to your original Products.

LIMITATIONS

EXCEPT AS SET FORTH ABOVE, BORAL MAKES NO EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ANY PRODUCT SOLD. ORAL STATEMENTS CONCERNING THE PRODUCT˝S˙ CCOVERED BY THIS WARRANTY, OR STATEMENTS CONTAINED IN BORAL'S GENERAL ADVERTISING, PAMPHLETS OR OTHER PRINTED MATERIALS DO NOT CONSTITUTE WARRANTIES, AND PURCHASER ACKNOWLEDGES THAT IT HAS NO RIGHT TO RELY UPON SAME. BORAL, WHETHER AS A MANUFACTURER OR CARRIER, SHALL NOT BE LIABLE FOR ANY COMMERCIAL LOSSES, SPECIAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR EXEMPLARY DAMAGES, OR FOR ANY LOSS, DAMAGE OR EXPENSE ARISING UNDER OR IN CONNECTION WITH ANY SALE OF PRODUCT. BORAL'S LIABILITY FOR DAMAGES OF ANY KIND SHALL IN NO EVENT EXCEED THE ORIGINAL PURCHASE PRICE OF THE PARTICULAR ORDER, LOT OR SHIPMENT ˝OR THE ORIGINAL PURCHASE PRICE OF THAT PORTION THEREOF WHICH IS NOT REPAIRED OR REPLACED˙ WITH RESPECT TO WHICH A CLAIM IS ASSERTED. IN PARTICULAR, BORAL SHALL NOT BE LIABLE FOR LOSS OF SALES, REVENUES OR PROFITS OR CLAIMS OF ANY THIRD PARTIES.

LEGAL RIGHTS

Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. Some states do not allow the exclusion or limitation on incidental or consequential damages, so the above limitation or exclusion may not apply to you. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state. If the laws of a particular state require terms other than or in addition to those contained in this Warranty, this Warranty shall be deemed modified so as to comply with the appropriate laws of such state, but only to the extent necessary to prevent the invalidity of this Warranty or any provision of this Warranty or to prevent the imposition of any fines, penalties or any liability.

CULTURED STONE®

CULTURED STONE®

Certificate of Quality

DATE:

ATTN:

PROJECT TITLE:

PROJECT CITY+STATE:

PRODUCT/STONE COLOR+PROFILE (1):

PRODUCT/STONE COLOR+PROFILE (2):

ARCHITECT:

GENERAL CONTRACTOR:

MASONRY CONTRACTOR:

This document certifies that the product manufactured by Cultured Stone, for the project listed above, meets the Acceptance Criteria AC-51 for Precast Stone Veneer established by ICC Evaluation Service and as specified in the Evaluation Report No. ESR-1364.

Sincerely,

Rick Garagliano

Rick Garagliano
Director of Quality, Cultured Stone

MANUFACTURER'S

STONE INSTALLATION INSTRUCTIONS

METHODS TO COMPLY WITH ASTM C1780

Cultured Stone® and **Cultured Brick**® Installation Instructions are available separately from your dealer and can also be found at **www.culturedstone.com**.

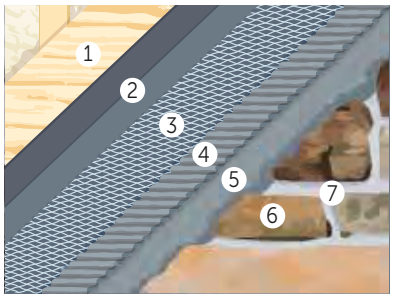
Building code requirements vary from area to area. Check with local authorities for building code requirements in your area. Carefully read all Installation Instructions before proceeding with your Cultured Stone products application. Observe safety precautions. Cultured Stone products are covered by a 50-Year Limited Warranty when installed in accordance with the manufacturer's Installation Instructions. See the complete warranty on our website at **www.culturedstone.com**.

STEP ONE:

DETERMINE BACK-UP WALL & SURFACE PREPARATION REQUIREMENTS

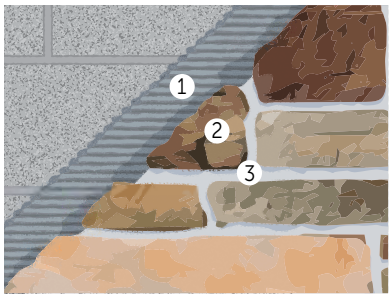
Typical back-up systems include:

WOOD FRAME



In sequence: (1) sheathing, (2) two layers of water resistive barrier (WRB), (3) galvanized metal lath, (4) scratch coat, (5) mortar setting bed, (6) Cultured Stone manufactured stone veneer, (7) mortar joint.

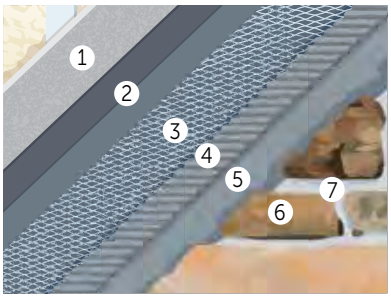
UNIT MASONRY/CONCRETE



In sequence: (1) mortar applied directly to untreated, unpainted masonry, concrete or stucco, (2) Cultured Stone manufactured stone veneer, (3) mortar joint.

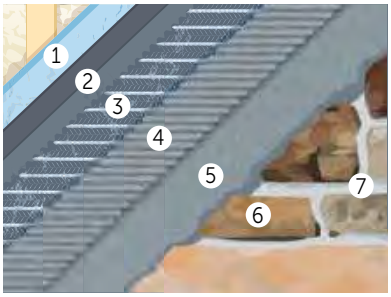
Note: Painted, sealed, dirty & smooth surfaces/ walls will require additional preparation to address these conditions.

METAL FRAME



In sequence: (1) sheathing, (2) two layers of water resistive barrier (WRB), (3) galvanized metal lath, (4) scratch coat, (5) mortar setting bed (6) Cultured Stone manufactured stone veneer, (7) mortar joint.

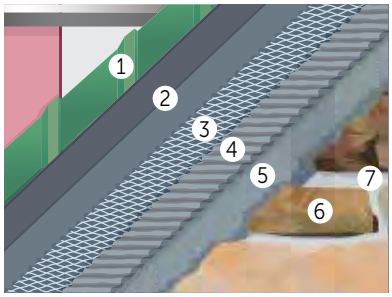
RIGID FOAM INSULATION



In sequence: (1) rigid foam insulation, (2) two layers of water resistive barrier (WRB), (3) galvanized metal lath (Ribbed Lath shown), (4) scratch coat, (5) mortar setting bed, (6) Cultured Stone manufactured stone veneer, (7) mortar joint.

See the special **Technical Evaluation Report** regarding installation over continuous insulation for more information.

METAL BUILDINGS



In sequence: (1) sheathing, (2) two layers of water resistive barrier (WRB), (3) galvanized metal lath, (4) scratch coat, (5) mortar setting bed, (6) Cultured Stone manufactured stone veneer, (7) mortar joint.

CEMENT BOARD

In sequence: (1) sheathing, (2) two layers of water resistive barrier (WRB), (3) cement board, (4) mortar setting bed, (5) Cultured Stone manufactured stone veneer, (6) mortar joint.

SURFACE PREPARATION TABLE 1

WALL SYSTEM/BACK UP		PREPARATION REQUIREMENTS					
		CLEANING	2 LAYERS WRB	LATH	SCRATCH COAT	ROUGHEN/ TEXTURE	NOTES
WOOD FRAME 16"oc	**SHEATHING**		✓	✓	✓	N/A	
	PLYWOOD		✓	✓	✓	N/A	
	OSB		✓	✓	✓	N/A	
	CEMENT BOARD		✓	OPTIONAL	OPTIONAL	N/A	Requires modified mortar to bond units. Proprietary coatings between bonding mortar & cement board may compromise warranty.
	WALLBOARD		✓	✓	✓	N/A	
	½" FOAM BOARD		✓*	✓	✓	N/A	
METAL FRAME 16"oc	**SHEATHING**		✓	✓	✓	N/A	
	EXTERIOR GYPSUM		✓	✓	✓	N/A	
	OSB		✓	✓	✓	N/A	
	PLYWOOD		✓	✓	✓	N/A	
	½" FOAM BOARD		✓*	✓	✓	N/A	
UNIT MASONRY (BRICK OR BLOCK)		✓**	OPTIONAL	OPTIONAL	OPTIONAL	SITE EVALUATION	Engineer review recommended for existing unit masonry.
POURED CONCRETE OR "TILT UP" CONSTRUCTION		✓**	OPTIONAL	OPTIONAL	OPTIONAL	✓	See ASTM C1780 for roughness evaluation.
OPEN STUD CONSTRUCTION			✓	✓	✓	N/A	48 hour scratch coat cure. Use paper backed 3.4 lb rib lath.
METAL BUILDING			✓	✓	✓	N/A	48 hour scratch coat cure. Use paper backed 3.4 lb rib lath.
SPECIAL CONDITIONS							
INTERIOR INSTALLATION			1 LAYER	✓	✓		
CONTINUOUS INSULATION			✓*	✓	✓	N/A	See TER for lath fastener selection available for framed or masonry applications.
STUCCO		✓**	✓	✓	✓		Engineer review recommended for existing stucco.

Notes: Designer must consider and detail movement joints. Do not bridge movement joints with stone units. Optional surface preparation utilizing a rainscreen may be added. See **General Information** (page 8) for more information. Designer must consider a detail movement joint. Do not bridge movement joints with stone units

* Some foam products may qualify as WRB. See foam manufacturer instructions.

** Cleaning can be as simple as rinsing dust off the surface with clear water or as involved as bead blasting. You are removing form release agents, dirt, paint, sealers or anything that may inhibit bond. This process may also be the method to roughen the surface to create bond ready texture. See **ASTM C1780** for more information.

*** See cement board section for option to eliminate scratch coat application

STEP TWO:

WALL SURFACE PREPARATION

EXTERIOR APPLICATIONS

Make sure that the application of Cultured Stone products and the structure they are being applied to incorporate good building practices. Corrosion-resistant flashing shall be installed at all wall penetrations. Flashing type and locations shall be in accordance with the requirements of the applicable building code. On exterior applications, the incorrect installation or absence of flashing, cant strips, gutters, kick out flashing and downspouts may result in diversion of water run-off onto finished surface areas. Masonry and other building products subjected to these conditions may develop staining and, when combined with severe freeze-thaw conditions, may eventually cause damage. The application of Cultured Stone products under these conditions is not recommended.

Flashing

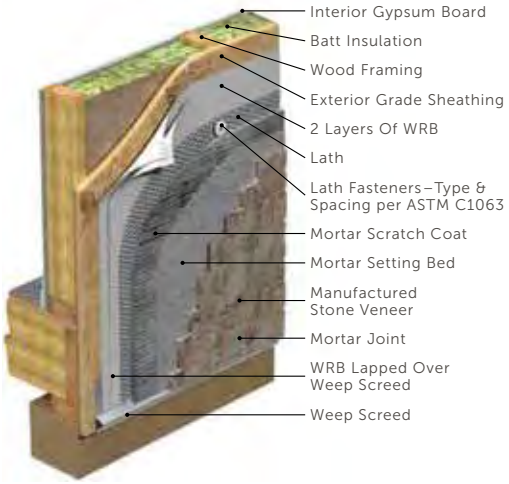
1. To maintain the weather-resistance of the exterior wall on which stone products are installed, corrosion-resistant flashing/weep screed and a means of drainage shall be installed at all penetrations and terminations of the stone cladding. Flashing type and locations shall be in accordance with the requirements of the applicable building code.
2. For additional recommendations regarding flashing, refer to the following trade associations, standards, organizations and resources:
   a. **National Concrete Masonry Association - Manufactured Stone Veneer (NCMA-MSV)** installation guide for adhered concrete masonry veneer, available at **www.ncma.org**
   b. Architect or engineer
   c. **ASTM E 2112**
   d. **Asphalt Roofing Manufacturers Association (ARMA)**
   e. **Brick Institute of America (BIA)**
   f. **The American Plywood Association (APA)**
   g. Local building department
   h. Consult window manufacturer warranty as a perimeter soft joint/gap may be required

Clearance

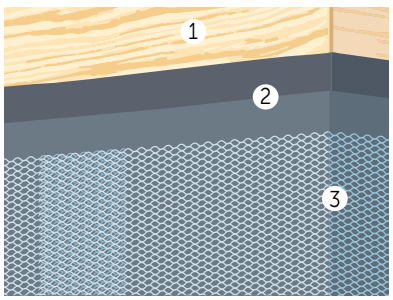
Maintain a 4" clearance between Cultured Stone and grade or 2" clearance above a paved surface. Most building codes require the use of a weep screed in framed applications. In framed applications, this distance is measured from the "beak" of the weep screed. When a weep screed is not required—application over masonry as an example—a 2" × 4" leveling/ledger board may be used as a temporary level straight edge to start your installation. See the **NCMA Installation Guide** for conditions that allow a reduction in clearance requirements.

WATER RESISTIVE BARRIER (WRB) INSTALLATION

Where a WRB is required, it should be installed as two separate layers, in shingle fashion. Fasteners, fastening schedule, vertical and horizontal lap requirements should follow the manufacturer's installation instructions. The WRB layers must be continuous through inside and outside corners, typically extending 16" to the next framing member. See **Material Selection** (page 4) for specific WRB material requirements. Example for building paper: 2" horizontal lap, 6" vertical lap.



CORNER CONSTRUCTION



Water resistive barrier & lath must continuously wrap a minimum of 16" at outside and inside corners and fasten at a framing member. In sequence: (1) wall substrate, (2) two layers of water resistive barrier, (3) metal lath

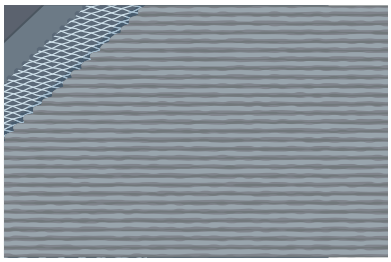
LATH INSTALLATION

Where lath is required, it shall be installed in accordance with ASTM C1063. Typically this will require corrosion resistant fasteners every 6" on center vertically, and 16" on center horizontally, fastened to framing. If an alternative lath is used, install it in accordance with the manufacturer's installation instructions and evaluation report. See the following **Material Selection** section for more specific lath requirements.

Note: Fasteners installed between framing should be limited as they may extend into the wall's insulation cavity.

SCRATCH COAT

Using a trowel or spray application, install mortar scratch coat of minimum thickness of ½" up to ¾". Use sufficient material and pressure to fully engage and encapsulate the lath. No lath material should be visible after scratch coat installation.



Note: Proper encapsulation and scratch coat thickness are key aspects to lath corrosion resistance and physical performance characteristics.

STEP THREE:

MATERIAL SELECTION

WATER RESISTIVE BARRIER (WRB)

Select a material meeting one or more of the following standards:

- ASTM D226 Type 1 No.15 Asphalt Felt, intended for wall application
- ASTM E2556/E2556M
- ICC ES AC-38. Current Evaluation Report, by an ANSI accredited evaluation service, showing compliance to ICC ES Acceptance Criteria #38
- ILiquid WRB/Air Barrier–Current Evaluation Report by an ANSI accredited evaluation service showing compliance to code requirements for WRB

LATH

Select a material meeting one or more of the following standards:

- ASTM C847, minimum 2.5 lb/yard expanded metal lath
- ASTM C847, minimum 3.4 lb/yard, 3/8" rib, expanded metal lath
- ASTM C1032, minimum 18 gauge, woven wire mesh
- ASTM C933, welded wire lath
- Non-metallic lath, with a current evaluation report, confirming compliance to ICC-ES AC 275 by an ANSI accredited evaluation service, confirming alternative to one of the above lath products
- Liquid WRB/Air Barrier–Current Evaluation Report by an ANSI accredited evaluation service showing compliance to code requirements for WRB
- Alternate lath products showing compliance with ICC-ES AC 275, or equivalent. Drain-N-Dry™ Lath is a best in class ventilated rainscreen and superior integral Alkali Resistant glass lath combined meeting AC 275. For more information visit www.DrainNDryLath.com

All lath products must be self-furred, or use furring fasteners, to provide ¼" clearance between lath and substrate, for the purposes of mortar embedded encapsulating lath.

LATH FASTENERS

Select fasteners that meet the requirements of the following standard:

- ASTM C1063
  1. Galvanized nails, staples, concrete nails. Penetration depth into wood framing is ¾" minimum.
  2. Corrosion-resistant, self-drilling, self-tapping pancake-head screw with 7/16" head, ϕ 1¼" length or suitable to obtain 3/8" penetration beyond inside surface of metal. (Used for installing to metal surfaces such as metal studs or metal building siding.)

Applications over continuous insulation, refer to **Technical Evaluation Reports 1312-02** or **1302-01** available at **www.culturedstone.com**.

MORTAR

Select a material meeting one or more of the following standards:

- ASTM C270 Type N or Type S
- ASTM C1714 Type N or Type S
- ANSI 118.4 and 115.15

MORTAR (CONTINUED)

Mortar Admixtures: Comply with ASTM C1384

Bonding Agents: Comply with ASTM C1059 or C932

Coloring Pigment: Comply with ASTM C979

All mortar, additives, bonding agents and pigments must be stored, mixed and used in strict accordance with the manufacturer's instructions and appropriate standards referenced above.

Notes: Refer to **NCMA Installation Guide** (**www.ncma.org**) for additional guidance with mortar selection by application. Under mixing, over mixing, tempering and open times of mortar can impact bond. Follow mortar manufacturer's instructions.

STEP FOUR:
ESTIMATING THE STONE REQUIRED

Determine the amount of Cultured Stone products needed by measuring the area to be covered. Measure the length times the height to arrive at the gross square footage of flat stone needed. Subtract square footage for window, door and other openings. Measure the linear feet of outside corners to determine the amount of corner pieces needed. One linear foot of corner pieces covers approximately 3/4 ф a square foot of flat area. Subtract the flat area covered by the linear feet of corner pieces from the square footage of flat stone required. You may wish to obtain some extra stone to allow for cutting and trimming, or tighter joints. In addition, be sure to verify whether the texture chosen is sold based on coverage with a ½" mortar joint or tight-fitted. Most texture coverages are listed for a 1⁄2" joint, the exceptions being dry-stack **Ledgestone**, **European Castle Stone**, **Pro-Fit® Ledgestone, Pro-Fit® Alpine Ledgestone, Pro-Fit® Terrain™ Ledgestone, Pro-Fit® Modera™ Ledgestone, Hewn Stone™,** and **Cast-Fit®.**

TOOLS REQUIRED

Choose the tools required for your installation:

- Safety Glasses and other personal protective equipment
- Staple Gun or Hammer
- Wheelbarrow & Hoe
- Hock & Trowel
- Mason's Trowel
- Margin Trowel
- Masonry, Circular, Table, Wet Saw or Grinder with Carborundum or Diamond Blade Wide-Mouth Nippers or Hatchet
- Dust Mask(1)
- Level
- Metal Jointing Tool or Wood Stick
- Grout Bag
- Whisk Broom

Note: Cutting dust mitigation steps include but are not limited to: wet saw, dust vac system and respirator systems. OSHA may be required due to specific site conditions.

(1) **Caution:** Product contains Crystalline Silica. Dust from cutting or sawing may create possible cancer hazard. Dust may cause irritation of the nose, throat and respiratory tract. Avoid prolonged or repeated inhalation of dust. A properly fitted, particulate-filtering disposable NIOSH approved N-95 series face piece respirator ("dust mask") should be used when mechanically altering this product (e.g., sawing, cutting, drilling or similar dust generating processes). Wear a long-sleeved shirt, long pants, gloves and safety glasses with side shields when handling and installing material. Wash hands and face with soap and warm water immediately after handling.

STEP FIVE:

APPLICATION OF CULTURED STONE UNITS

PREPARE YOUR WORK AREA

Spread Cultured Stone wall veneer out at the job site so you have a good variety of sizes, shapes and colors to choose from. Plan for some variety and contrast in the overall design. Use small stones next to large ones, heavy-textured pieces next to smooth, thick stones next to thinner ones. Mixing Cultured Stone wall veneer from different boxes during application will allow you to achieve a desirable balance of stones on your finished project.

LEVEL & PLUMB JOINT LINES

When applying **Cobblefield**® manufactured stone veneer, **European Castle Stone**, **Limestone**, **Rockface**, **Coral** or **Ledgestone**, endeavor to maintain level and plumb joint lines. Also, long rectangular pieces will look most natural if applied horizontally.

INSTALL CORNER PIECES FIRST

If your application requires corner pieces, apply these first. Notice that the corner pieces have a long and a short leg. Alternate these in opposite directions (Fig. 1).

FIG. 1

FIG. 2

INSTALL FLAT PIECES

After the corner pieces are in place, flat pieces are applied working toward the wall center (Fig. 2).

STARTING POINT

Apply mortar and stone working from the bottom up, or most stones can also be applied from the top down. Working from the top down may help avoid splashing previously applied stone with dripping mortar. Ledgestone types should be installed from the bottom up.

JOINT WIDTH

In order to obtain the most natural look, joints should be as narrow as possible. The average should not exceed 1⁄2" in width. An attractive look can also be achieved by fitting stones tightly together if desired. If using tight fit/dry-stack method, figure in additional stone material. It is important to make sure scratch coat/backing has been covered completely by the setting bed of mortar. This will conceal the scratch coat/backing and prevent pockets from forming behind stones that could trap water.

SETTING UNITS

Units shall be installed using Method A or Method B or a combination of both to achieve setting bed with complete coverage of the back of the unit and full contact between the mortar setting bed, unit and prepared backing surface.

Method A

Back butter the unit, using sufficient mortar and pressure to fill texture and voids in the back of unit. While 1⁄2" to 3⁄4" setting bed mortar is wet, press and work the unit onto the prepared backing with enough pressure to force mortar to squeeze out around the entire perimeter of the unit.

Method B

The mortar setting bed shall be installed by trowel application 1⁄2" to 3⁄4" thick directly to the prepared surface. Plus back butter the unit using sufficient mortar and pressure to fill texture on and voids in the back of the unit. While the setting bed on the prepared backing surface is plastic, press and work the unit into the setting bed with enough pressure to force mortar to squeeze out around the entire perimeter of the unit. Limit mortar setting bed open time and work only an area that can be covered before the mortar skins over. Time and area will depend on mortar and weather conditions.

Note: Method B is recommended for tight fit applications to ensure full setting bed of mortar. In tight fit applications, before placing next unit, compact or remove the squeezed out mortar to allow adjoining unit to butt tightly. There shall be mortar between the units but the joint will be less than 3/8

CUTTING & TRIMMING

Stones can be cut and shaped for fit. Use wide-mouth nippers or a hatchet (Fig. 3 & 4). (Refer to page 5, **Tools Required** section.) Some broken stones may be found in the box. These also may be used in filling gaps between large stones. For best finished appearance, coat cut or broken edges with mortar. If possible, position cut edges up when they are above eye level, down when below eye level. Placing a cut edge next to a thick/larger stone will also help conceal the cut.

Safety glasses and a dust mask[1] should always be worn when cutting any Cultured Stone product.

FIG. 3
TRIM WITH WIDEMOUTH NIPPERS

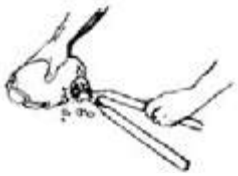


FIG. 4
TRIM WITH A HATCHET

MORTAR & WEATHER CONDITIONS

If stone is being applied in hot or dry weather, the back of each piece should be moistened with a fine spray of water or a wet brush to adequately prevent excessive absorption of moisture from the mortar. If being installed over concrete, masonry or scratch coat substrate, the substrate surface area should also be dampened before applying mortar. Surfaces should appear damp but free of surface water. Applications should be protected from temperatures below 40°F as mortar will not cure properly under such conditions. See **ASTM C1780** for **Hot & Cold Weather Requirements**.

If using a modified mortar, follow mortar manufacturer's recommendations regarding wetting of stone and scratch coat.

ADDITIONAL INSTRUCTIONS FOR PRO-FIT® LEDGESTONE, PRO-FIT® ALPINE LEDGESTONE & EUROPEAN CASTLE STONE

Fit the Joints Tightly

Install all these products with tight-fitted joints. Generally, components should be placed butting each other and aligned for level and plumb. When installing, the backs of all these components must be wet.* They should be noticeably damp, but free from surface water. Mortar may be tinted to match the color of the stone you are installing to help conceal the joint lines. If while setting a stone, a previously installed stone is disturbed, that stone must be removed, cleaned and re-installed.

* If using a modified mortar, follow mortar manufacturer's recommendations regarding wetting of stone and scratch coat. Consider using Method B for mortar setting bed application of tight fitted installations

Starting Point

Products are applied starting from the bottom and working up. Start each **ProFit Ledgestone** course level and continue horizontally completing each course before starting the next. **European Castle Stone** is done in a similar sequence to achieve a random ashlar pattern. If required, cut the appropriate size component to fit at the end or top of the finish area. Frequently check the installation for level and alignment.

STEP SIX:
GROUTING & FINISHING JOINTS

GROUTING JOINTS

When additional mortar is required, use a grout bag to fill in joints completely. Care must be taken to avoid smearing mortar on surface of stone. Accidental smears or mortar droppings should be removed only after mortar has become crumbly using a whisk broom or dry bristle brush. Never use a wet brush or wire brush.

FINISHING JOINTS

When the mortar joints have become firm or "thumb-print" dry (setting time will vary depending on wall surface and climatic conditions), they should be pointed up with a wood stick or metal jointing tool. Rake out excess mortar, compact and seal edges around stones (Fig. 6). Careful attention to proper and even jointing will result in a professional looking finish.

FIG. 5
GROUT JOINTS

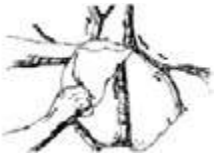


FIG. 6
FINISHING THE JOB

CLEANING FINISHED JOB

When the mortar is sufficiently set up, the finished job should be broomed or brushed to remove loose mortar and to clean the face of the stone. A wet brush or sponge should never be used to treat the mortar joints as this will cause staining that will be difficult, or impossible, to remove. Do not use acid or acid-based products.

MORTAR COLOR

Tinting mortar complements the color of the stone being installed. Example: Use tan mortar with earth-tone stones. This will greatly enhance the appearance of the finished installation. Regular mortars can be tinted to complement your Cultured Stone product using iron oxide pigments available from your dealer.

GENERAL INFORMATION

CLEANING

Dirt, etc., may be removed by using a solution of granulated soap or detergent and water with a bristle brush. Do not use a wire brush as it will cause damage to the surface. Rinse immediately with fresh water. Do not attempt to clean using acid or acid-containing products, power-washing, sandblasting or wire-brush cleaning.

ENHANCED BOND

Refer to **NCMA Installation Guide** for application specific mortar recommendations. Pre-blended modified mortars, bonding agents and enhancers may provide greater bond strength. Enhanced bond strength capability may be desired for tight fit applications, tilt up construction or where code jurisdictions require higher bond strength. These products must be compatible with manufactured stone and used in strict accordance with manufacturer's instructions. These products may also have specific requirements regarding hot or cold weather, exposure to rain/water while curing or water used to dampen the stone units prior to installation.

SALT & DE-ICING CHEMICALS

Because concrete and masonry are vulnerable to damage by salt, Cultured Stone products are not warranted against damage incurred from salt or other chemicals used to remove snow or ice. Do not use de-icing chemicals on areas immediately adjacent to a Cultured Stone manufactured stone veneer application.

SCUFFING

Scuffing occurs on all natural stone. Occasionally some scuffing will occur on the surface of Cultured Stone products. This can enhance the natural appearance of your Cultured Stone manufactured stone veneer installation. Some scuff marks can be removed by cleaning as described above.

EFFLORESCENCE

Efflorescence is a water-soluble salt that is deposited on the surface of stucco, concrete, brick and other masonry products by the evaporation of water from the wall. On rare occasions efflorescence will occur on Cultured Stone products. To remove efflorescence, allow the stone to dry thoroughly, then scrub vigorously with a stiff bristle brush and clean water. Rinse thoroughly—do not use a wire brush. For more difficult efflorescence problems, scrub thoroughly with a solution of 1 part white household vinegar to 5 parts water. Rinse thoroughly.

WATER REPELLENT TREATMENTS/SEALERS

Sealers are not necessary on Cultured Stone products. However, some customers use sealers to help prevent staining in applications prone to smoke, soot, dirt or water splashing. If you choose to use a sealer, make sure it is a Silane, Siloxane or Silane-Siloxane blend breathable sealer. Take note that sealers may darken the color of the stone. A sealer may also slow the natural movement of moisture out of the stone and increase the possibility of efflorescence and/or spalling. For information regarding actual performance or application of sealers, contact the manufacturer of the sealer directly. Craftshield™ is a protective treatment that preserves the intended artistry and beauty of the installation while safeguarding the surface from the elements.

RAINSCREEN STATEMENT

Some building codes require a rainscreen behind cladding materials, including manufactured stone veneer. If you are installing manufactured stone/brick veneer in one of these jurisdictions, or are concerned about extreme weather conditions, it is recommended that you choose a rainscreen system that can achieve the following:

- The system should create a space with a minimum depth of 3/16" (5 mm) & max depth ¢ ¾" (19 mm).
- The materials should be corrosion and rot resistant.

RAINSCREEN STATEMENT (CONTINUED)

- Unless otherwise designed to manage moisture vapor with ventilation, the rainscreen system should be vapor open.
- If rainscreen space is created with a material other than solid strapping/ furring attached directly to framing, the following must be considered. Lath fasteners must be capable of supporting the weight of the finished wall cladding system considering the unsupported/cantilevered portion of fastener that is equal to the thickness of the rainscreen materials.

Boral Drain-N-Dry Lath® is a great option when this additional protection is desired. For more information please visit **www.DrainNDryLath.com**.

OVERHEAD APPLICATION

Overhead, horizontal or sloped applications are not included in our building code evaluation reports or acceptances. These applications often require special approval/inspections by local building code inspectors. Contact your architect or engineer for assistance designing these installations.

INSTALLATION OVER THICK FOAM

Installation over foam board thicker than 1/2" may require special fasteners. Consult your architect or engineer for assistance designing a thick foam installation. Please see special technical evaluation reports for installation over continuous insulation for more information available at: **http://www.boralamerica.com/stone/Resources/technical-information/installationguides**.

USE OF CULTURED STONE BELOW WATER LEVELS

Cultured Stone veneer is a lightweight concrete material and will not deteriorate from exposure to fresh liquid water. The use of Cultured Stone veneer below water level, in which the water is chlorinated, treated with chemicals or dirty, will likely cause discoloration as it would on any concrete, natural stone or other material. Pool chemicals which contain acid, such as muriatic acid, may cause damage to Cultured Stone products, which would not be covered by the 50-Year Limited Warranty. Cultured Stone veneer and many other materials are subject to potential damage from adverse freeze thaw conditions. For that reason, water should be drained below susceptible materials prior to freezing temperatures. Pressure and abrasion from constant fast flowing water may cause some surface deterioration as it would on other concrete materials. The surfaces of concrete and many other materials may be affected by exposure to extensive saltwater conditions. Cultured Stone veneer should not be considered a waterproof material.

CAPPING OFF THE EXPOSED TOP OF EXTERIOR WALLS, CLADDING TERMINATION OR TRANSITIONS

To achieve a finished architectural look on horizontal or sloping top areas of exterior walls, piers, retaining walls or other surfaces, Cultured Stone capstones or a poured-in-place concrete cap must be used to provide adequate run-off protection to the wall areas. Caps should extend approximately 1"–2" beyond the finished stone surface. Sill stones, flashings or band boards provide overhang at cladding terminations or transitions.

Note: Cultured Stone corner pieces, flat pieces, or hearthstones should not be used to cap walls.

RETAINING WALLS

All retaining walls must be waterproofed at the fill side. Wall construction should incorporate proper use of granular backfill and provisions for good drainage. A continuous longitudinal drain along the back of the wall set in drain rock is recommended.

CHIMNEY CAP

All chimney chases must be capped with a one-piece cap that extends 1"–2" beyond the finished stone surface to prevent water from entering the wall system. Chimney or chase construction should incorporate proper flashing.

INSTALLING FINISHING TOUCHES

HEARTHSTONE INSTALLATION INSTRUCTIONS

Note: Hearthstones are not recommended or warranted for exterior use or as a surface area subject to foot traffic. Consult **Surface Preparation Table 1** (page 2) for requirements prior to installing hearthstones.

Place Mortar

Place mortar 3/4" deep in 3" wide strips 1" apart on prepared surface (Fig. 7).

FIG. 7

PLACE MORTAR FOR HEARTHSTONE INSTALLATION

Install Hearthstones

Place the first hearthstone onto the mortar bed and level (Fig. 8). Place adjacent hearthstones, aligning and leveling with the first piece. If joints need additional mortar, fill joints using a grout bag. Tool and finish joints following previous instructions under **Grouting & Finishing Joints** (page 7). Ensure hearthstones are set in a complete bed of mortar.

FIG. 8

PLACE HEARTHSTONE

Note: Cultured Stone manufactured stone veneer and hearth products are made from non-combustible materials. Mortar joints must not exceed 1/2" in width and the mortar must be even with the top of the hearth surface.

RAISED HEARTH

Do not cantilever or extend Hearthstones more than 1 1/2" beyond direct support. When grouting the extended portion of a cantilevered hearthstone, bring the grout to the front edge. Push a long galvanized nail horizontally into the grout to add support, then cover the nail with mortar.

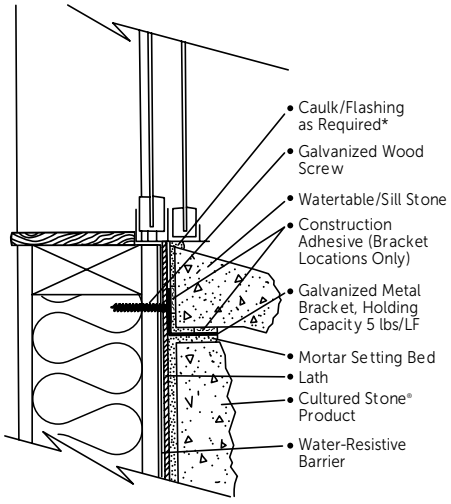
SEALING FIREPLACES/HEARTHS

If desired, sealing the Cultured Stone facing or hearth of a fireplace installation will assist in the removal of smoke and soot stains should they occur. See **Water Repellent Treatments/Sealers** in **General Information** (page 8) for more information.

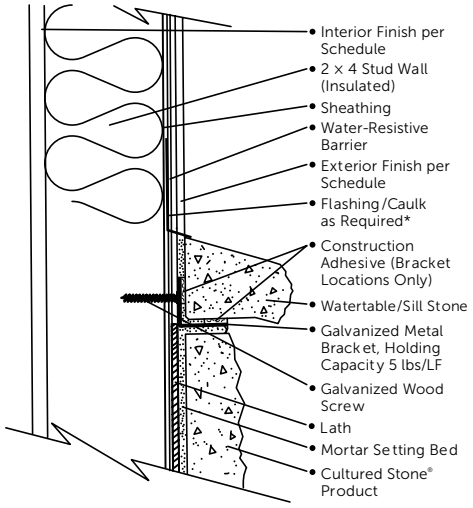
WATERTABLE/SILL INSTALLATIONS

Watertables/sills provide a transition piece between a stone wainscot and other exterior finishes and for water runoff. They can also be used as a windowsill. Install using galvanized metal support brackets (**Simpson Strong Tie A-21** or other galvanized right angle bracket with holding capacity minimum 5 lbs/LF) fastened with galvanized nails or screws penetrating studs 1" at a minimum of 16" on center. Two brackets per sill is preferred if blocking is present. Use construction adhesive to bond stone at bracket locations. Caulk and flash as required at watertable/sill locations using an approved corrosion-resistive flashing that extends to the surface of exterior wall finish and is installed to prevent water from re-entering the exterior wall envelope.

Windowsill Cross Section



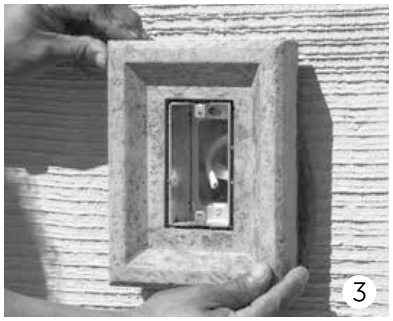
Wainscot Cross Section



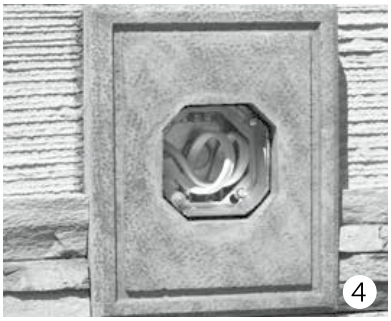
ELECTRICAL BOX STONE INSTALLATION INSTRUCTIONS

Attach UL-listed extension box to pre-wired and mounted electrical box.

Apply mortar to back of Electrical Box Stone or prepared substrate.



Center Electrical Box Stone over the extension box. Level and plumb. Use removable shims if required.



Complete placement of Cultured Stone veneer or other exterior material around Electrical Box Stone.

- Electrical Box Stones must be installed in accordance with Cultured Stone® Installation Instructions.
- Extension box, light fixture or receptacle plate must be attached in accordance with manufacturer's instructions and local building codes.

TUSCAN LINTEL INSTALLATION INSTRUCTIONS

Method One

On installations where the top of the opening provides no support for the bottom edge of the **Tuscan Lintel**: install metal support brackets as per Cultured Stone Installation Instructions for watertables/sills. Then install lintel stones in a full setting bed of mortar in accordance with Cultured Stone Installation Instructions.

Method Two

On installations where the bottom edge of the Tuscan Lintel will be supported by a window or door frame molding or profile: install lintel stones in a full setting bed of mortar in accordance with Cultured Stone Installation Instructions. Make sure you do not cause deflection to window with weight of lintel. If there is any question, use ***Method One.***

ADDITIONAL INSTRUCTIONS FOR INSTALLING CAST-FIT®

The Cast-Fit product has been designed for the best appearance and performance when installed with a 3⁄8" mortar joint. Starting with a level line for your first course, maintain level and plumb courses as you proceed up the wall. Starting with thicker stones to set face plane, use mortar setting bed thickness to even the face plane of thinner stones and accommodate variations in substrate surface. Note regarding the requirement to use Modified mortar due to the size of the pieces. Application of a uniform and true scratch coat will also accommodate variations in the substrate surface. It is recommended that 3⁄8" dowel pins or shims be used to maintain a uniform head and bed joint space during installation. The mortar joint should be tooled to a concave shape just below the surface of the stone. To obtain the coverage stated on packaging and literature, this mortar joint spacing must be maintained. ***If you choose to install Cast-Fit in a tight-fit or mortar-less joint application, you must achieve complete mortar setting bed coverage and full perimeter squeeze out. To achieve this with stones of this size, it may be necessary to use a mortar application method in which the mortar is toweled onto the scratch coat and back buttered on the stone. Per NCMA recommendations large format stones should be installed with a modified mortar meeting ANSI 118.4 or ANSI 118.15. For full Cast-Fit installation instructions, please visit www.culturedstone.com.***

CULTURED STONE 50-YEAR LIMITED WARRANTY

For complete details of the **Cultured Stone 50-Year Limited Warranty** please visit our website at **www.culturedstone.com**.

CODE COMPLIANCE EVALUATION & LISTINGS

ICC-ES ESR-1364. Tested or listed by Underwriters Laboratories, Inc., HUD Materials Release No.1316, Texas Dept. of Insurance Product Evaluation EC-21

Florida Product Approval: FL-15047

ICC-Evaluation Service ES ESR-1364

Underwriters Laboratories

Home Innovation NGBS GREEN CERTIFIED™

UL Environment™ ENVIRONMENTAL CLAIMS VALIDATED

✓ Recycled Content

Minimum of 58 percent recycled content on all Cultured Stone® veneer products.

CULTURED STONE®

A BORAL® Brand

MANUFACTURER'S

BRICK INSTALLATION INSTRUCTIONS

Cultured Stone® and **Cultured Brick**® Installation Instructions are available separately from your dealer and can also be found at **www.culturedstone.com**.

Building code requirements vary from area to area. Check with local authorities for building code requirements in your area. Carefully read all Installation Instructions before proceeding with your Cultured Brick products application. Observe safety precautions. Cultured Brick products are covered by a 50-Year Limited Warranty when installed in accordance with the manufacturer's Installation Instructions. See complete warranty on our website at **www.culturedstone.com**.

ESTIMATING THE BRICK REQUIRED

Determine the amount of Cultured Brick products needed by measuring the area to be covered. Measure the length times the height to arrive at the gross square footage of flat area needed. Subtract square footage for window, door and other openings. Measure the linear feet of outside corners to determine the amount of corner pieces needed. One linear foot of corner pieces covers approximately 0.80 square feet of flat area. Subtract the flat area covered by the linear feet of corner pieces from the square footage of flat area required. You may wish to obtain some extra brick to allow for cutting and trimming.

FORMULAS

Wall Area = Length × Height

Window Area = Window Width × Window Height = Window Area

Wall Area Covered by Corners = Lineal Feet of Corners Required × 0.80

Square Ft. Flats Required = Wall Area – Window Area – Wall Area Covered by Corners

TOOLS REQUIRED

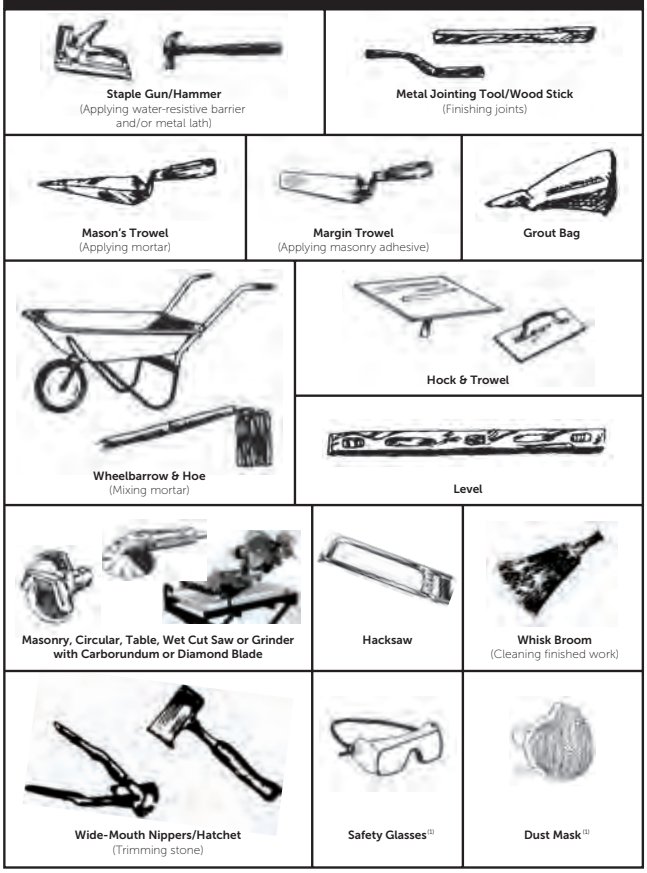
Choose the tools required for your installation—see page 2 for table with illustrations and appropriate use.

- Safety Glasses & other personal protective equipment
- Staple Gun or Hammer
- Hock & Trowel
- Margin Trowel
- Wide-Mouth Nippers or Hatchet
- Metal Jointing Tool or Wood Stick
- Whisk Broom
- Masonry, Circular, Table, Wet Saw or Grinder with Carborundum or Diamond Blade
- Wheelbarrow & Hoe
- Mason's Trowel
- Level
- Dust Mask(1)
- Grout Bag
- Hacksaw

Note: Cutting dust mitigation steps include but are not limited to: wet saw, dust vac system and respirator systems. OSHA may be required due to specific site conditions.

(1) **Caution:** Product contains Crystalline Silica. Dust from cutting or sawing may create possible cancer hazard. Dust may cause irritation of the nose, throat and respiratory tract. Avoid prolonged or repeated inhalation of dust. A properly fitted, particulate-filtering disposable NIOSH approved N-95 series face piece respirator ("dust mask") should be used when mechanically altering this product (e.g., sawing, cutting, drilling or similar dust generating processes). Wear a long-sleeved shirt, long pants, gloves and safety glasses with side shields when handling and installing material. Wash hands and face with soap and warm water immediately after handling.

TOOLS REQUIRED



Staple Gun/Hammer (Applying water-resistive barrier and/or metal lath)

Metal Jointing Tool/Wood Stick (Finishing joints)

Mason's Trowel (Applying mortar)

Margin Trowel (Applying masonry adhesive)

Grout Bag

Wheelbarrow & Hoe (Mixing mortar)

Hock & Trowel

Level

Masonry, Circular, Table, Wet Cut Saw or Grinder with Carborundum or Diamond Blade

Hacksaw

Whisk Broom (Cleaning finished work)

Wide-Mouth Nippers/Hatchet (Trimming stone)

Safety Glasses[1]

Dust Mask[1]

MATERIAL SELECTION

WATER RESISTIVE BARRIER (WRB)

Select a material meeting one or more of the following standards:

- ASTM D226 Type 1 No.15 Asphalt Felt, intended for wall application
- ASTM E2556/E2556M
- ICC ES AC-38. Current Evaluation Report, by an ANSI accredited evaluation service, showing compliance to ICC ES Acceptance Criteria #38
- Liquid WRB/Air Barrier–Current Evaluation Report by an ANSI accredited evaluation service showing compliance to code requirements for WRB

LATH

Select a material meeting one or more of the following standards:

- ASTM C847, minimum 2.5 lb/yard expanded metal lath
- ASTM C847, minimum 3.4 lb/yard, 3⁄8" rib, expanded metal lath
- ASTM C1032, minimum 18 gauge, woven wire mesh
- ASTM C933, welded wire lath
- Non-metallic lath, with a current evaluation report, confirming compliance to ICC-ES AC 275 confirming alternative to one of the above lath products
- Alternate lath products showing compliance with ICC-ES AC 275, or equivalent. Drain-N-Dry™ Lath is a best in class ventilated rainscreen and superior integral Alkali Resistant glass lath combined meeting AC 275. For more information visit www.DrainNDryLath.com

All lath products must be self-furred, or use furring fasteners, to provide ¼" clearance between lath and substrate, for the purposes of mortar embedded encapsulating lath.

LATH FASTENERS

Select fasteners that meet the requirements of the following standard:

- ASTM C1063
  1. Galvanized nails, staples, concrete nails. Penetration depth into wood framing is ¾" minimum.
  2. Corrosion-resistant, self-drilling, self-tapping pancake-head screw with 7⁄16" head, ϕ 1¼" length or suitable to obtain 3⁄8" penetration beyond inside surface of metal. (Used for installing to metal surfaces such as metal studs or metal building siding.)

Applications over continuous insulation, refer to **Technical Evaluation Reports 1312-02** or **1302-01** available at **www.culturedstone.com**.

MORTAR

Select a material meeting one or more of the following standards:

- ASTM C270 Type N or Type S
- ASTM C1714 Type N or Type S
- Mortar Admixtures: Comply with ASTM C1384
- Coloring Pigment: Comply with ASTM C979
- Bonding Agents: Comply with ASTM C1059 or C932
- ANSI A118.4 and A118.15

All mortar, additives, bonding agents and pigments must be stored, mixed and used in strict accordance with the manufacturer's instructions and appropriate standards referenced above.

Notes: Refer to **NCMA Installation Guide** (**www.ncma.org**) for additional guidance with mortar selection by application. Under mixing, over mixing, tempering and open times of mortar can impact bond. Follow mortar manufacturer's instructions.

SURFACE PREPARATION FOR MORTAR INSTALLATIONS

Using **Table 1**, determine the correct surface preparation for your installation.

SURFACE PREPARATION TABLE 1

WALL SYSTEM/BACK UP		PREPARATION REQUIREMENTS					
		CLEANING	2 LAYERS WRB	LATH	SCRATCH COAT	ROUGHEN/ TEXTURE	NOTES
WOOD FRAME 16"oc	**SHEATHING**		✓	✓	✓	N/A	
	PLYWOOD		✓	✓	✓	N/A	
	OSB		✓	✓	✓	N/A	
	CEMENT BOARD		✓	OPTIONAL	OPTIONAL	N/A	Requires modified mortar to bond units. Proprietary coatings between bonding mortar & cement board may compromise warranty.
	WALLBOARD		✓	✓	✓	N/A	
	½" FOAM BOARD		✓*	✓	✓	N/A	
METAL FRAME 16"oc	**SHEATHING**		✓	✓	✓	N/A	
	EXTERIOR GYPSUM		✓	✓	✓	N/A	
	OSB		✓	✓	✓	N/A	
	PLYWOOD		✓	✓	✓	N/A	
	½" FOAM BOARD		✓*	✓	✓	N/A	
UNIT MASONRY (BRICK OR BLOCK)		✓**	OPTIONAL	OPTIONAL	OPTIONAL	SITE EVALUATION	Engineer review recommended for existing unit masonry.
POURED CONCRETE OR "TILT UP" CONSTRUCTION		✓**	OPTIONAL	OPTIONAL	OPTIONAL	✓	See ASTM C1780 for roughness evaluation.
OPEN STUD CONSTRUCTION			✓	✓	✓	N/A	48 hour scratch coat cure. Use paper backed 3.4 lb rib lath.
METAL BUILDING			✓	✓	✓	N/A	48 hour scratch coat cure. Use paper backed 3.4 lb rib lath.
SPECIAL CONDITIONS							
INTERIOR INSTALLATION			1 LAYER	✓	✓		
CONTINUOUS INSULATION			✓*	✓	✓	N/A	See TER for lath fastener selection available for framed or masonry applications.
STUCCO		✓**	✓	✓	✓		Engineer review recommended for existing stucco.

Notes: Optional surface preparation utilizing a rainscreen may be added. See **General Information** (page 8) for more information. Designer must consider a detail movement joint. Do not bridge movement joints with stone units.

* Some foam products may qualify as WRB. See foam manufacturer instructions.

** Cleaning can be as simple as rinsing dust off the surface with clear water or as involved as bead blasting. You are removing form release agents, dirt, paint, sealers or anything that may inhibit bond. This process may also be the method to roughen the surface to create bond ready texture. See **ASTM C1780** for more information.

*** See cement board section for option to eliminate scratch coat application.

SURFACE PREPARATION FOR MORTAR INSTALLATIONS (CONTINUED)

FIG. 1

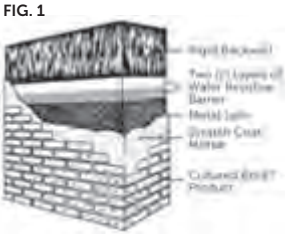


FIG. 2

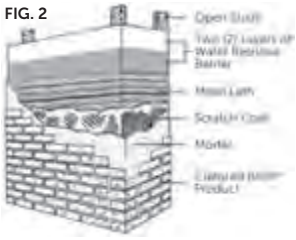


FIG. 3

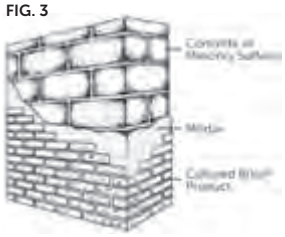
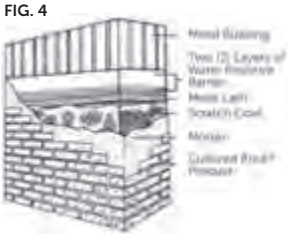


FIG. 4

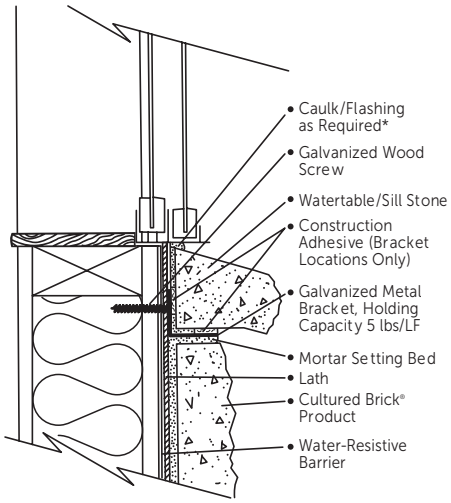


INSTALLING CULTURED BRICK

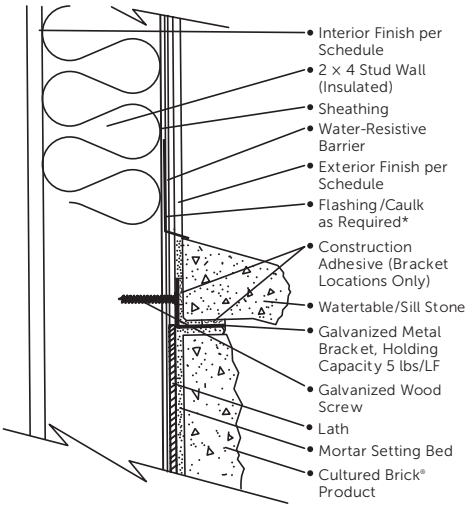
WATERTABLE/SILL INSTALLATIONS

Watertables/sills provide a transition piece between a stone wainscot and other exterior finishes and for water runoff. They can also be used as a windowsill. Install using galvanized metal support brackets (**Simpson Strong Tie A-21** or other galvanized right angle bracket with holding capacity minimum 5 lbs/LF) fastened with galvanized nails or screws penetrating studs 1" at a minimum of 16" on center. Two brackets per sill is preferred if blocking is present. Use construction adhesive to bond stone at bracket locations. Caulk and flash as required at watertable/sill locations using an approved corrosion-resistive flashing that extends to the surface of exterior wall finish and is installed to prevent water from re-entering the exterior wall envelope.

Windowsill Cross Section



Wainscot Cross Section

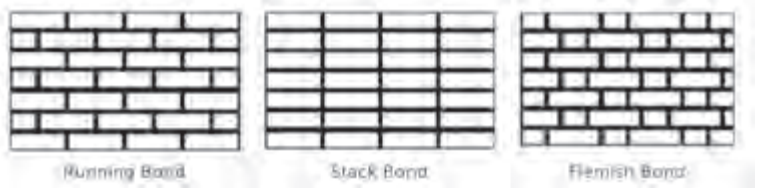


CLEARANCE

Maintain a 4" clearance between Cultured Brick and grade or 2" clearance above a paved surface. Most building codes require the use of a weep screed in framed applications. In framed applications, this distance is measured from the "beak" of the weep screed. When a weep screed is not required—application over masonry as an example—a 2" x 4" leveling/ledger board may be used as a temporary level straight edge to start your installation. See the NCMA Installation Guide for conditions that allow a reduction in clearance requirements.

LAYOUT BRICK PATTERN

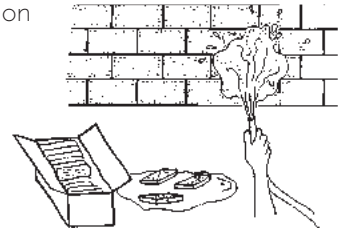
Choose the type of wall pattern desired. Allowing for a mortar joint of approximately ½," calculate and mark off the number of courses required. Adjust joint size to minimize horizontal cutting. Run level guide lines to ensure proper placement of bricks.



Mix brick from several boxes at a time to achieve a pleasing blend of color and texture.

WETTING EXTERIOR WALLS

Dampen concrete, masonry or stucco wall surfaces with water prior to the application of the brick.



WETTING THE BRICK

The back of the brick should be completely damp, but free from surface water at the time of application. If using a modified mortar, follow manufacturer's recommendations regarding wetting of brick and scratch coat.

MORTAR & WEATHER CONDITIONS

If brick is being applied in hot or dry weather, the back of each piece should be moistened with a fine spray of water or a wet brush to adequately prevent excessive absorption of moisture from the mortar. If being installed over concrete, masonry or scratch coat substrate, the substrate surface area should also be dampened before applying mortar. Surfaces should appear damp but free of surface water. Applications should be protected from temperatures below 40°F as mortar will not cure properly under such conditions. See **ASTM C1780** for **Hot & Cold Weather Requirements**.

APPLYING CULTURED BRICK UNITS

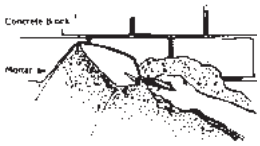
STARTING POINT

Apply mortar and brick working from the bottom up, or from the top down. Working from the top down may help avoid splashing previously applied brick with dripping mortar.

APPLYING MORTAR TO PREPARED SURFACE AREA

FIG. 5

FIG. 6



Using a plasterer's or mason's trowel (Fig. 5 & 6), apply mortar ½" to ¾" thick to prepared surface area. Do not spread more than a workable area (5 to 10 sq. ft.) so that mortar will not "set up" before brick is applied.

SETTING UNITS

FIG. 7

Units should be installed with complete coverage of the back of the unit and full contact between the mortar setting bed, unit and prepared backing surface.

Back butter the unit, using sufficient mortar and pressure to fill texture and voids in the back of unit (Fig. 7). While ½" to ¾" setting bed mortar is wet, press and work the unit onto the prepared backing with enough pressure to force mortar to squeeze out around the entire perimeter of the unit.

Note: In tight fit applications, before placing next unit, compact or remove the squeezed out mortar to allow adjoining unit to butt tightly. There shall be mortar between the units but the joint will be less than 3/8

INSTALL CORNER PIECES FIRST

If your application requires corner pieces, apply these first. Notice that the corner pieces have a long and a short leg. Alternate these in opposite directions (Fig. 8).

FIG. 8

INSIDE CORNERS

When using a running bond, set full bricks to half bricks at inside corners, alternating lengths in each course.

INSTALL FLAT BRICK

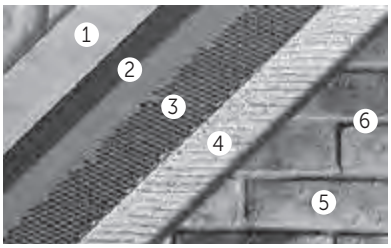
Start at the end of the wall to complete one horizontal course of brick. Work across the surface area one course at a time. Keep courses level and plumb by using a carpenter's level to check each course as it is laid.

KEEP YOUR MORTAR JOINTS CONSISTENT

Place the individual bricks close together, creating ½" uniform joints between them. Cut trim as required to achieve consistent width in the mortar joints.

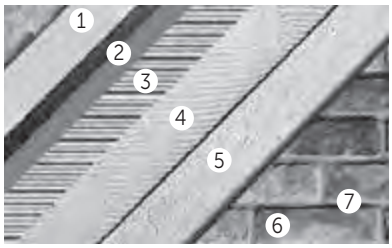
TYPICAL INSTALLATIONS

WOOD FRAME



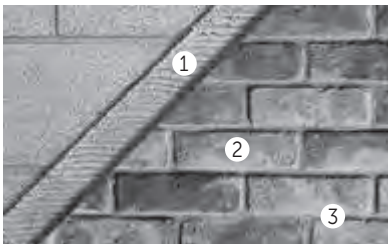
In sequence: (1) sheathing, (2) two layers of water resistive barrier (WRB), (3) galvanized metal lath, (4) mortar, (5) Cultured Brick thin veneer, (6) mortar joint.

RIGID FOAM INSULATION



In sequence: (1) rigid foam insulation, (2) two layers of water resistive barrier (WRB), (3) metal lath, (4) scratch coat, (5) mortar setting bed, (6) Cultured Brick thin veneer, (7) mortar joint.

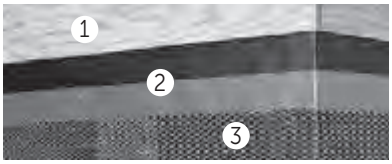
MASONRY OR CONCRETE



In sequence: (1) mortar applied directly to untreated, unpainted masonry, concrete or stucco, (2) Cultured Brick thin veneer, (3) mortar joint.

CORNER PREPARATION

Water resistive barrier and lath must continuously wrap a minimum of 16" at outside/inside corners and fasten at a framing member. Lap water resistive barrier a min. 4" at vertical and 2" at horizontal lap joints. Lap lath a minimum of 1" at vertical and horizontal seams. In sequence: (1) wall substrate, (2) two layers of water resistive barrier, (3) metal lath.



WORKING WITH MASONRY ADHESIVE (INTERIOR ONLY)

On some interior projects, the use of masonry adhesive offers a fast and easy alternative to mortar.

Note: Do not wet brick when installing with adhesive. Do not install water resistive barrier. Recommended adhesives include: **Loctite® PowerGrab, Liquid Nails® Marble & Granite**.

Loctite® is a registered trademark of Henkel Loctite Corporation. Liquid Nails® is a registered trademark of Glidden Company.

FIG. 9

APPLY ADHESIVE TO THE BACK OF EACH BRICK

USE A GROUT BAG TO FILL ANY UNMORTARED SPACES BETWEEN BRICKS

INTERIOR SURFACE PREPARATION REQUIRED WHEN USING MASONRY ADHESIVE	
RECOMMENDED SURFACES	Masonry adhesive may be applied over most clean and structurally sound interior surfaces such as plywood, concrete block and concrete.
PREPARATION	Loose surface materials should be removed. Sanding may be required on very smooth surfaces to achieve a good bonding surface.
ALTERNATIVES	As an alternative, plywood sheathing fastened to the wall studs over existing or removed surface materials will provide an inexpensive and effective application substrate.
NON-RECOMMENDED SURFACES	Masonry adhesive is NOT RECOMMENDED for application over smooth textured tile, metal, wallpaper, drywall, some types of paint or surfaces that are continually damp.

SETTING BRICK WITH MASONRY ADHESIVE

Place adhesive as per adhesive manufacturer's instructions on the back of each brick in ¼" bead, perpendicular to grooves on brick (Fig. 9). Press and wiggle bricks into place on wall surface until they bottom out. Set bricks level and plumb, completing one row at a time. Apply grout between bricks using a mortar bag.

CUTTING & TRIMMING

Make half bricks by scoring the back side with a hacksaw and snapping the brick in half. Vertical or horizontal cuts can be made using a table saw, circular saw or small grinder equipped with diamond or carborundum blade.

Safety glasses and a dust mask[1] should always be worn when cutting any Cultured Brick products.

GROUTING & FINISHING JOINTS

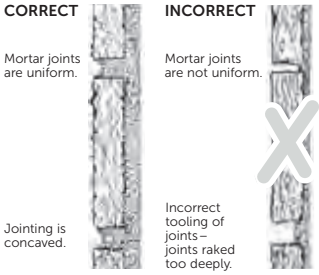
Grouting Joints

Use a grout bag to fill in joints. Care must be taken to avoid smearing mortar on brick. Accidental smears or mortar droppings should be removed only after mortar has become crumbly. Use a whisk broom or dry bristle brush. Never use a wet brush or wire brush.

Finishing Joints

When the mortar joints have become firm ("thumb print" dry), they should be pointed up with a metal jointing tool. Rake out excess mortar, compact and seal edges around bricks. (Setting time will vary depending on wall surface and climatic conditions.)

FINISH MORTAR JOINTS WITH A JOINTING TOOL.



GENERAL INFORMATION

CLEANING

Dirt, etc., may be removed by using a solution of granulated soap or detergent and water with a bristle brush. Do not use a wire brush as it will cause damage to the surface. Rinse immediately with fresh water. Do not attempt to clean using acid or acid-containing products, power-washing, sandblasting or wire-brush cleaning.

ENHANCED BOND

Refer to **NCMA Installation Guide** for application specific mortar recommendations. Pre-blended modified mortars, bonding agents and enhancers may provide greater bond strength. Enhanced bond strength capability may be desired for tight fit applications, tilt up construction or where code jurisdictions require higher bond strength. These products must be compatible with manufactured stone and used in strict accordance with manufacturer's instructions. These products may also have specific requirements regarding hot or cold weather, exposure to rain/water while curing or water used to dampen the stone units prior to installation.

SALT & DE-ICING CHEMICALS

Because concrete and masonry are vulnerable to damage by salt, Cultured Brick products are not warranted against damage incurred from salt or other chemicals used to remove snow or ice. Do not use de-icing chemicals on areas immediately adjacent to a Cultured Brick manufactured brick veneer application.

SCUFFING

Scuffing occurs on all natural veneer. Occasionally some scuffing will occur on the surface of Cultured Brick products. This can enhance the natural appearance of your Cultured Brick installation. Some scuff marks can be removed by cleaning as described above.

EFFLORESCENCE

Efflorescence is a water-soluble salt that is deposited on the surface of stucco, concrete, brick and other masonry products by the evaporation of water from the wall. On rare occasions efflorescence will occur on Cultured Brick products. To remove efflorescence, allow the stone to dry thoroughly, then scrub vigorously with a stiff bristle brush and clean water. Rinse thoroughly—do not use a wire brush. For more difficult efflorescence problems, scrub thoroughly with a solution of 1 part white household vinegar to 5 parts water. Rinse thoroughly.

WATER REPELLENT TREATMENTS/SEALERS

Sealers are not necessary on Cultured Brick products. However, some customers use sealers to help prevent staining in applications prone to smoke, soot, dirt or water splashing. If you choose to use a sealer, make sure it is a Silane, Siloxane or Silane-Siloxane blend breathable sealer. Take note that sealers may darken the color of the stone. A sealer may also slow the natural movement of moisture out of the stone and increase the possibility of efflorescence and/or spalling. For information regarding actual performance or application of sealers, contact the manufacturer of the sealer directly. Craftshield™ is a protective treatment that preserves the intended artistry and beauty of the installation while safeguarding the surface from the elements.

RAINSCREEN STATEMENT

Some building codes require a rainscreen behind cladding materials, including manufactured stone veneer. If you are installing manufactured stone/brick veneer in one of these jurisdictions, or are concerned about extreme weather conditions, it is recommended that you choose a rainscreen system that can achieve the following:

- The system should create a space with a minimum depth of 3/16" (5 mm) & max depth ϕ¾" (19 mm).
- The materials should be corrosion and rot resistant.
- Unless otherwise designed to manage moisture vapor with ventilation, the rainscreen system should be vapor open.

RAINSCREEN STATEMENT (CONTINUED)

- If rainscreen space is created with a material other than solid strapping/ furring attached directly to framing, the following must be considered. Lath fasteners must be capable of supporting the weight of the finished wall cladding system considering the unsupported/cantilevered portion of fastener that is equal to the thickness of the rainscreen materials.

Boral Drain-N-Dry Lath® is a great option when this additional protection is desired. For more information please visit **http://boralamerica.com/cultured-stone/boral-drain-n-dry**.

OVERHEAD APPLICATION

Overhead, horizontal or sloped applications are not included in our building code evaluation reports or acceptances. These applications often require special approval/inspections by local building code inspectors. Contact your architect or engineer for assistance designing these installations.

INSTALLATION OVER THICK FOAM

Installation over foam board thicker than 1⁄2" may require special fasteners. Consult your architect or engineer for assistance designing a thick foam installation. Please see special technical evaluation reports for installation over continuous insulation for more information available at: **http://www.boralamerica.com/stone/Resources/technical-information/installationguides**.

USE OF CULTURED BRICK BELOW WATER LEVELS

Cultured Brick is a lightweight concrete material and will not deteriorate from exposure to fresh liquid water. The use of Cultured Brick below water level, in which the water is chlorinated, treated with chemicals or dirty, will likely cause discoloration as it would on any concrete, natural stone or other material. Pool chemicals which contain acid, such as muriatic acid, may cause damage to Cultured Brick, which would not be covered by the 50-Year Limited Warranty. Cultured Brick and many other materials are subject to potential damage from adverse freeze thaw conditions. For that reason, water should be drained below susceptible materials prior to freezing temperatures. Pressure and abrasion from constant fast flowing water may cause some surface deterioration as it would on other concrete materials. The surfaces of concrete and many other materials may be affected by exposure to extensive saltwater conditions. Cultured Brick should not be considered a waterproof material.

CAPPING OFF EXPOSED TOP OF EXTERIOR WALLS, CLADDING TERMINATION OR TRANSITIONS

To achieve a finished architectural look on horizontal or sloping top areas of exterior walls, piers, retaining walls or other surfaces, Cultured Stone capstones or a poured-in-place concrete cap must be used to provide adequate run-off protection to the wall areas. Caps should extend approximately 1"–2" beyond the finished stone surface. Sill stones, flashings or band boards provide overhang at cladding terminations or transitions. **Note:** Cultured Stone corner pieces, flat pieces, or hearthstones should not be used to cap walls.

RETAINING WALLS

All retaining walls must be waterproofed at the fill side. Wall construction should incorporate proper use of granular backfill and provisions for good drainage. A continuous longitudinal drain along the back of the wall set in drain rock is recommended.

CHIMNEY CAP

All chimney chases must be capped with a one-piece cap that extends 1"–2" beyond the finished stone surface to prevent water from entering the wall system. Chimney or chase construction should incorporate proper flashing.

50-YEAR LIMITED WARRANTY

For complete details of the **Cultured Brick 50-Year Limited Warranty** please visit **www.culturedstone.com**.

ACCEPTANCE REPORTS & LISTINGS

Tested or listed by Underwriters Laboratories, Inc., HUD Materials Release No. MR 1316, Texas Dept. of Insurance Product Evaluation EC-21.

CULTURED STONE®

A **BORAL**® Brand

SECTION 04 73 00
MANUFACTURED STONE VENEER

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Cultured Stone Veneer.

B. Architectural Trim Stone.

1.2 RELATED SECTIONS

A. Section 04 20 00 - Unit Masonry.

B. Section 06 10 00 - Rough Carpentry.

C. Section 05 40 00 - Cold-Formed Metal Framing.

D. Section 07 27 00 - Air Barriers.

E. Section 07 28 00 - Underlayments.*

F. Section 07 62 00 - Sheet Metal Flashing & Trim.

G. Section 07 90 00 - Joint Protection.

H. Section 09 24 13 - Adobe Finish.

I. Section 10 30 00 - Fireplaces and Stoves.

1.3 REFERENCES

A. ASTM C 39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.

B. ASTM C 67 - Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.

C. ASTM C 177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.

D. ASTM C 192 - Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory.

E. ASTM C 482 - Standard Test Method for Bond Strength of Ceramic Tile to Portland Cement.

F. ASTM C 1670 - Standard Specification for Adhered Manufactured Stone Masonry Veneer Units.

G. ASTM C 1780 - Standard Practice for Installation Methods for Adhered Manufactured Stone Masonry Veneer

H. UL 723 - Standard for Safety for Surface Burning Characteristics of Building Materials.

I. ICC ES AC 51 Acceptance Criteria for Manufactured Stone Veneer

J. Masonry Veneer Manufactures Association (MVMA): Installation Guide for Adhered Manufactured Stone Veneer

K. US Department of Housing and Urban Development (HUD): Material Release Numbers 910Fs

L. LEED: US Green Building Council's Leadership in Energy and Environmental Design Green Building Rating System.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

A. Building Code Compliance:
   1. International Code Council (ICC):
      a. ES Report: ICC ESR 1364
      b. UBC Standard No. 14-1, Kraft Waterproof Building Paper.
   2. Florida Product Approval Number FL15047
   3. Texas Department of Insurance: Product Evaluation–EC 21
   4. US Department of Housing & Urban Development (HUD): MR 1316.
   5. Tested by Underwriters Laboratories, Inc.

B. Average Recycled Content of 58 percent validated by 3rd party analysis.

C. Backup Wall System and installation method for manufactured stone veneer shall meet the requirements of ASTM C 1780–Standard Practice for Installation Methods for Adhered Manufactured Stone Masonry Veneer.

1.5 SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation standards and methods.

C. Shop Drawings: Submit drawings depicting proper installation and flashing techniques. Coordinate locations with those found on the Drawings.

D. LEED Submittals: Provide documentation of how the requirements of Credit will be met:
   1. LEED v 4, Product Data for Credit MR 4: For products having recycled content documentation; indicating percentages by weight of post-consumer and pre-consumer recycled content. Include statement indicating cost for each product having recycled content.
   2. LEED v 4, Product Data for Credit MR 4: For products having recycled content documentation; indicating percentages by weight of post-consumer and pre-consumer recycled content. Include statement indicating cost for each product having recycled content.
   3. LEED v 4, Product Data for Credit EQ 2: For products and materials to comply with low emittance standards, provide documentation substantiating that products comply with requisite low emittance standards.
   4. LEED v 4, Product Data for Credit for location and distance from Project of material manufacturer and point of extraction, harvest or recovery for main raw material.

E. Selection Samples: For each finish product specified, two complete sets of color sample representing manufacturer's full range of available colors and textures.

F. Verification Samples: For each finish product specified, two samples, minimum size 8 inches (203 mm) square, representing actual product, color, and texture.

G. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

H. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for cleaning and repair of components.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer who is a current member of Masonry Veneer Manufactures Association (MVMA) with a minimum of 5 years documented experience manufacturing and marketing all Manufactured Stone products of the type specified in this section.

B. Installer Qualifications: Company with documented experience in installation of manufactured masonry of the type specified including at least five projects within a 400 mile (650km) radius of the Project.

C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.

1. Finish panel of size and location designated by Architect.
2. Minimum size 3 foot by 3 foot and showing transition to adjacent materials anticipated.
3. Do not proceed with remaining work until workmanship, color, texture and pattern are approved by Architect.
4. Refinish mock-up area as required to produce acceptable work.

D. Pre-Installation Conference:

1. Contractor shall arrange a meeting not less than thirty days prior to starting stone veneer work.
2. Attendance: Contractor, Architect/Owner Representative, veneer stone installer and manufacturer's representative.

1.7 DELIVERY, STORAGE & HANDLING

A. Store and handle products in conformance with the manufacturer's requirements and recommendations.

B. Store products off the ground on pallets in manufacturer's unopened packaging until ready for installation.

C. Protect materials from precipitation and freezing temperatures. Product with visible frozen moisture should not be installed.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

B. Cold weather installations: Maintain materials and ambient temperature at minimum 40 degrees F (4 degrees C) prior to, during, and 48 hours after installation.

C. Hot weather installations: Mist water on the scratch coated surface and the backs of the masonry veneer for installations that exceed 90 degrees (32 degrees C).

1.9 WARRANTY

A. Provide manufacturers 50-year limited warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: **Cultured Stone**® by **Boral,**® which is located at: 200 Mansell Court E. Suite 305; Roswell, GA 30076; Toll Free Tel: 800-255-1727; Email to request info: **boralstoneanswers@boral.com**; Web: **www.culturedstone.com**

B. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 MANUFACTURED STONE VENEER–GENERAL

A. Manufactured Stone Veneer Performance Requirements: Conforming to ASTM C 1670 and as follows:

1. Compressive Strength: Not less than 1800 psi (12.4 MPa) average for 5 specimens and not less than 2100 psi (14.4 MPa) for individual specimen when tested in accordance with ASTM C 39 & ASTM C 192.
2. Bond Between Manufactured Masonry Unit, Mortar and Backing: Not less than 50 psi (345 kPa) when tested in accordance with ASTM C 482 using Type S mortar.
3. Thermal Resistance: R-value of not less than 0.355 per inch (25.4 mm) of thickness when tested in accordance with ASTM C 177.
4. Freeze/Thaw: No disintegration and less than 3 percent weight loss when tested in accordance with ASTM C 67.
5. Water Absorption: Tested in accordance with UBC 15-5 9-22% depending on density value.
6. Unit Weight: Not more than 15 psf (73 kg/m2) saturated.
7. Surface Burning Characteristics: Not more than the following when tested in accordance with UL 723:
   a. Flamespread: 25.
   b. Smoke Development: 450.
8. UV Stable - Mineral oxide pigments.

B. Certifications:

1. ICC ES AC 51 Acceptance Criteria for Manufactured Stone Veneer
2. ICC Evaluation Service - Evaluation Report ESR 1364 & ASTM C 1670.
3. HUD Material Release Number 1316c
4. UL Tested for Surface Burning Characteristics
5. Texas Department of Insurance Product Evaluation EC-21
6. Florida Product Approval Number FL15047

2.3 CULTURED STONE VENEER

A. Cultured Stone Ancient Villa Ledgestone:
Includes matching corner pieces.

1. Height: Variable from 2 inches to 12 inches (50 mm to 304 mm).
2. Lengths: Variable from 5 inches to 16 inches (127 mm to 406 mm).
3. Color: Chianti.
4. Color: Palisades.
5. Color: Sevilla.
6. Color: Siena.
7. Color: Solstice.
8. Color: Umber Creek.
9. Walls: Provide with Single Color and Texture throughout.
10. Walls: Provide with Blended Color/Texture:
    a. Percent:_____,
       Color:_____.
    b. Percent:_____,
       Color:_____.

B. Cultured Stone Cast-Fit:
Includes matching corner pieces.

1. Dimensions: 8 inches by 16 inches or 12 inches by 24 inches (200 mm by 400 mm or 305 mm by 610 mm).
2. Color: French Gray.
3. Color: Parchment.

C. Cultured Stone Cobblefield:
Includes matching corner pieces.

1. Heights: Variable from 2 inches to 8 inches (50 mm to 200 mm).
2. Lengths: Variable from 4 inches to 20 inches (100 mm to 500 mm).
3. Color: Chardonnay.
4. Color: Desert Blend.
5. Color: Echo Ridge.
6. Color: Gray.
7. Color: San Francisco.
8. Color: Texas Cream.
9. Walls: Provide with Single Color and Texture throughout.
10. Walls: Provide with Blended Color / Texture:
    a. Percent:_____,
       Color:_____.
    b. Percent:_____,
       Color:_____.

D. Cultured Stone Coral Stone:
Includes matching corner pieces.

1. Pattern: Random Ashlar or Repeating.
2. Stone sizes: Variable sizes in increments of 4 inches from 4 inches by 4 inches to 12 inches by 16 inches (100 mm from 100 mm by 100 mm to 204 mm to 304 mm).
3. Corner sizes: 4 inch, 8 inch and 12 inch heights with 4 inch and 8 inch lengths.
4. Average thickness: 1 1/8 inches and sized for a 1/2 inches (12.5 mm) mortar joint.
5. Color: Fossil Reef.
6. Walls: Provide with Single Color and Texture throughout.
7. Walls: Provide with Blended Color/Texture:
    a. Percent:_____,
       Color:_____.
    b. Percent:_____,
       Color:_____.

E. Cultured Stone Country Ledgestone:
Includes matching corner pieces.

1. Heights: Variable from 11/2 inches to 6 1/2 inches (38 mm to 162 mm).
2. Lengths: Variable from 4 3/4 inches to 22 inches (120 mm to 560 mm).
3. Color: Ashfall.
4. Color: Aspen.
5. Color: Black Rundle.
6. Color: Bucks County.
7. Color: Caramel.
8. Color: Chardonnay.
9. Color: Echo Ridge.
10. Color: Eucalyptus.
11. Color: Grand Mesa.
12. Color: Hudson Bay.
13. Color: Mojave.
14. Color: Red Rock.
15. Color: Sevilla.
16. Color: Skyline.
17. Color: Umber Creek.
18. Color: White Oak.
19. Color: Wolf Creek.
20. Walls: Provide with Single Color and Texture throughout.
21. Walls: Provide with Blended Color/Texture:
    a. Percent:_____,
       Color:_____.
    b. Percent:_____,
       Color:_____.

F. Cultured Brick Veneer Handmade Brick: Includes matching corner pieces.
   1. Height: Variable from 2 3/4 inches (70 mm)
   2. Lengths: Variable from 8 3/16 inches (208 mm)
   3. Color: Moroccan Sand.
   4. Color: Rustic Manor.
   5. Walls: Provide with Single Color and Texture throughout.
   6. Walls: Provide with Blended Color/Texture:
      a. Percent:_____,
         Color:_____.
      b. Percent:_____,
         Color:_____.

G. Cultured Brick Veneer Used Brick: Includes matching corner pieces.
   1. Height: Variable from 2 1/2 inches (63 mm).
   2. Lengths: Variable from 8 inches (200 mm).
   3. Color: Antique Red.
   4. Color: High Desert.
   5. Walls: Provide with Single Color and Texture throughout.
   6. Walls: Provide with Blended Color/Texture:
      a. Percent:_____,
         Color:_____.
      b. Percent:_____,
         Color:_____.

H. Cultured Stone Del Mare Ledgestone: Includes matching corner pieces.
   1. Height: Variable from 1 inch to 9 1/4 inches (25 mm to 235 mm).
   2. Lengths: Variable from 4 1/2 inches to 16 inches (114 mm to 406 mm).
   3. Color: Black Isle.
   4. Color: Burnt Ochre.
   5. Color: Palermo.
   6. Walls: Provide with Single Color and Texture throughout.
   7. Walls: Provide with Blended Color/Texture:
      a. Percent:_____,
         Color:_____.
      b. Percent:_____,
         Color:_____.

I. Cultured Stone Dressed Fieldstone: Includes matching corner pieces.
   1. Sizes: Variable from 2 1/2 inches to 22 inches (63 mm to 560 mm).
   2. Color: Aspen.
   3. Color: Bucks County.
   4. Color: Chardonnay.
   5. Color: Echo Ridge.
   6. Color: Sevilla.
   7. Color: Wolf Creek.
   8. Walls: Provide with Single Color and Texture throughout.
   9. Walls: Provide with Blended Color/Texture:
      a. Percent:_____,
         Color:_____.
      b. Percent:_____,
         Color:_____.

J. Cultured Stone Drystack Ledgestone: Includes matching corner pieces.
   1. Heights: Variable from 1 inch to 4 inches (25 mm to 100 mm).
   2. Lengths: Variable from 4 inches to 16 inches (100 mm to 400 mm).
   3. Color: Chardonnay.
   4. Color: Suede.
   5. Walls: Provide with Single Color and Texture throughout.
   6. Walls: Provide with Blended Color/Texture:
      a. Percent:_____,
         Color:_____.
      b. Percent:_____,
         Color:_____.

K. Cultured Stone European Castle Stone: Includes matching corner pieces.
   1. Heights: Variable from 2 inches to 12 inches (50 mm to 300 mm).
   2. Lengths: Variable from 2 inches to 16 inches (50 mm to 400 mm).
   3. Color: Bucks County.
   4. Color: Chardonnay.
   5. Walls: Provide with Single Color and Texture throughout.
   6. Walls: Provide with Blended Color/Texture:
      a. Percent:_____,
         Color:_____.
      b. Percent:_____,
         Color:_____.

L. Cultured Stone Hewn Stone:
Includes matching corner pieces.
1. Size: Provide sizes required to match customized pattern selected by the Architect from the following.
   a. 3 inch by 8 inch
   b. 3 inch by 14 inch
   c. 5 inch by 14 inch
   d. 5 inch by 22 inch
   e. 8 inch by 22 inch
2. Corner sizes: 3 inch and 7 inch heights with 3 inch and 8 inch lengths.
3. Average thickness: 1 1/2 inches (38 mm).
4. Color: Foundation
5. Color: Span
6. Color: Talus
7. Walls: Provide with Single Color and Texture throughout.
8. Walls: Provide with Blended Color/Texture:
   a. Percent:_____,
      Color:_____.
   b. Percent:_____,
      Color:_____.

M. Cultured Stone Limestone:
Includes matching corner pieces.
1. Heights: Variable from 1 1/4 inches to 6 inches (30 mm to 150 mm).
2. Lengths: Variable from 4 inches to 16 3/4 inches (100 mm to 420 mm).
3. Color: Bucks County.
4. Color: Chardonnay.
5. Color: Golden Buckeye,
6. Color: Suede.
7. Walls: Provide with Single Color and Texture throughout.
8. Walls: Provide with Blended Color/Texture:
   a. Percent:_____,
      Color:_____.
   b. Percent:_____,
      Color:_____.

N. Cultured Stone Old Country Fieldstone:
Includes matching corner pieces.
1. Heights: Variable from 1 1/2 inches to 10 inches (38 mm to 250 mm).
2. Lengths: Variable from 4 inches to 16 inches (100 mm to 400 mm).
3. Color: Chardonnay.
4. Color: Coastal Fog.
5. Color: Echo Ridge.
6. Color: Summit Peak.
7. Color: Tudor.
8. Walls: Provide with Single Color and Texture throughout.
9. Walls: Provide with Blended Color/Texture:
   a. Percent:_____,
      Color:_____.
   b. Percent:_____,
      Color:_____.

O. Cultured Stone Pro-Fit Ledgestone:
Includes matching corner pieces.
1. Heights: 4 inches (102 mm)
2. Lengths: Variable from 8 inches to 20 inches (200 mm to 500 mm).
3. Color: Autumn.
4. Color: Gray.
5. Color: Mojave.
6. Color: Platinum.
7. Color: Shale.
8. Color: Southwest.
9. Walls: Provide with Single Color and Texture throughout.
10. Walls: Provide with Blended Color/Texture:
    a. Percent:_____,
       Color:_____.
    b. Percent:_____,
       Color:_____.

P. Cultured Stone Pro-Fit Alpine Ledgestone:
Includes matching corner pieces.
1. Height: 4 inches (102 mm).
2. Lengths: Variable from 8 inches to 20 inches (200 mm to 500 mm).
3. Color: Black Mountain.
4. Color: Black Rundle.
5. Color: Chardonnay.
6. Color: Dark Ridge.
7. Color: Echo Ridge.
8. Color: Pheasant.
9. Color: Summit Peak.
10. Color: Umber Creek.
11. Color: Winterhaven.
12. Walls: Provide with Single Color and Texture throughout.
13. Walls: Provide with Blended Color/Texture:
    a. Percent:_____,
       Color:_____.
    b. Percent:_____,
       Color:_____.

Q. Cultured Stone Pro-Fit Modera Ledgestone: Includes matching corner pieces.
   1. Heights: 4 inches (101.6 mm)
   2. Lengths: Variable from 8 inches to 20 inches (203 mm to 500 mm).
   3. Corner Returns: 4 inches, or 8 inches, or 12 inches
   4. Thickness: Variable from 1/2 inch to 1 3/4 inches
   5. Color: Carbon
   6. Color: Intaglio
   7. Color: Vellum
   8. Walls: Provide with Single Color and Texture throughout.
   9. Walls: Provide with Blended Color/Texture:
      a. Percent:_____,
         Color:_____.
      b. Percent:_____,
         Color:_____.

R. Cultured Stone River Rock: Includes matching corner pieces.
   1. Sizes: Variable from 2 inches to 14 inches (50 mm to 350 mm).
   2. Color: Earth Blend.
   3. Color: Lake Tahoe.
   4. Color: Lakeshore.
   5. Color: Whitewater.
   6. Walls: Provide with Single Color and Texture throughout.
   7. Walls: Provide with Blended Color/Texture:
      a. Percent:_____,
         Color:_____.
      b. Percent:_____,
         Color:_____.

S. Cultured Stone Rockface: Includes matching corner pieces.
   1. Heights: Variable from 2 inches to 8 inches (50 mm to 200 mm).
   2. Lengths: Variable from 4 inches to 20 inches (100 mm to 500 mm).
   3. Color: Bucks County.

T. Cultured Stone Southern Ledgestone: Includes matching corner pieces.
   1. Heights: Variable from 1/2 inch to 6 inches (13 mm to 150 mm).
   2. Lengths: Variable from 4 inches to 20 inches (100 mm to 500 mm).
   3. Color: Aspen.
   4. Color: Bucks County.
   5. Color: Chardonnay.
   6. Color: Echo Ridge.
   7. Color: Fog.
   8. Color: Gray.
   9. Color: Hudson Bay.
   10. Color: Rustic.
   11. Color: Wolf Creek.
   12. Walls: Provide with Single Color and Texture throughout.
   13. Walls: Provide with Blended Color/Texture:
      a. Percent:_____,
         Color:_____.
      b. Percent:_____,
         Color:_____.

U. Cultured Stone Stream Stone: Includes matching corner pieces.
   1. Sizes: Variable from 2 inches to 12 inches (50 mm to 300 mm).
   2. Skimmer Stones: Smaller fill stones, average 2 1/2 inches (63 mm) tall by 3 1/2 inches to 8 inches (89 mm to 200 mm).
   3. Color: Spring
   4. Color: Summer.
   5. Walls: Provide with Single Color and Texture throughout.
   6. Walls: Provide with Blended Color/Texture:
      a. Percent:_____,
         Color:_____.
      b. Percent:_____,
         Color:_____.

2.4 ARCHITECTURAL TRIM STONES

A. Pier Capstones:
   1. Surface Texture: Flagstone.
   2. Nominal Size: 24 inches by 24 inches (610 mm by 610 mm).
   3. Nominal Size: 32 inches by 32 inches (813 mm by 813 mm).
   4. Color: Champagne.
   5. Color: Gray.
   6. Color: Mocha.
   7. Color: Taupe.

B. Flat Wall Capstones:
   1. Nominal Size: 10 inches by 20 inches (254 mm by 508 mm).
   2. Nominal Size: 12 inches by 20 inches (305 mm by 508 mm).
   3. Color: Champagne.
   4. Color: Gray.
   5. Color: Mocha.
   6. Color: Taupe.

C. Capstones/Peaked Flagstone Texture:
   1. Nominal Size: 12 inches by 20 inches (305 mm by 508)
   2. Nominal Size: 16 inches by 20 inches (404 mm by 508)
   3. Color: Champagne.
   4. Color: Gray.
   5. Color: Mocha.
   6. Color: Taupe.

D. Hearthstones:
   1. Nominal Size: 19 inches by 20 inches (483 mm by 508 mm).
   2. Color: Blond.
   3. Color: Chardonnay.
   4. Color: Cream.
   5. Color: Marsh.
   6. Color: Gray.
   7. Color: Nightfall.

E. Trimstones:
   1. Nominal Size: 6 inches by 8 inches by 1 7/8 inches (152 mm by 203 mm by 48 mm).
   2. Color: Champagne.
   3. Color: Gray.
   4. Color: Mocha.
   5. Color: Taupe.

F. Keystones:
   1. Nominal Size: 8 1/2 inches by 10 inches by 1 7/8 inches (216 mm by 254 mm by 48 mm).
   2. Color: Champagne.
   3. Color: Gray.
   4. Color: Mocha.
   5. Color: Taupe.

G. Tuscan Lintels:
   1. Nominal Size: 22 inches by 6 inches by 2 5/8 inches (559 mm by 152 mm by 67 mm).
   2. Color: Champagne.
   3. Color: Gray.
   4. Color: Mocha.
   5. Color: Taupe.

H. Watertable/Sill Rock Face Texture:
   1. Nominal Size: 2 inches front, 2 1/2 inches back, by 3 inches by 18 inches (51 mm front, 64 mm back by 76 mm by 455 mm).
   2. Color: Champagne.
   3. Color: Gray.
   4. Color: Mocha.
   5. Color: Nightfall.
   6. Color: Taupe.
   7. Provide sloped top surface & drip edge.

I. Watertable/Sill Cast-Fit Texture:
   1. Nominal Size: 2 1/2 inches by 20 inches (63 mm by 500 mm).
   2. Color: French Gray
   3. Color: Parchment

J. Watertable/Sill Cast-Fit Texture:
   1. Nominal Size: 2 1/2 inches by 20 inches (63 mm by 500 mm).
   2. Color: French Gray.
   3. Color: Parchment.

K. Light Fixture Stones:

1. Nominal Size: 8 inches by 10 inches by 1 7/8 inches (203 mm by 254 mm by 47 mm).
2. Nominal Size: 9 1/2 inches by 15 inches by 1 7/8 inches (242 mm by 381 mm by 47 mm).
3. Nominal Size: As shown on Contract Drawings.
4. Color: Gray.
5. Color: Mocha.
6. Color: Taupe.
7. Provide 4 inch by 1 1/2 inch (102 mm by 38 mm) UL approved metal octagon extension box.

L. Receptacle Stones:

1. Single Receptacle Nominal Size: 6 inches by 8 inches by 1 7/8 inches (152 mm by 203 mm by 48mm)
2. Color: Gray.
3. Color: Mocha.
4. Color: Taupe.
5. Electrical Box: 4 inch by 1 1/2 inch (102 mm by 38 mm) UL approved metal octagon extension box supplied by others.

M. Special Shapes:

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared in conformance with ASTM C 1780 for the backup wall system indicated on the Drawings.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install manufactured stone masonry veneer in accordance with MVMA Installation Guide for Adhered Manufactured Stone Veneer, ASTM C 1780 and applicable Codes.

C. Install/Apply Related Materials in accordance with type of substrate and manufactured stone veneer manufacture's installation instructions.

D. General:

1. Walls: Provide with Single Color and Texture throughout.
2. Walls: Provide with Blended Color / Texture specified.
3. Special Shapes: Color to match stones specified.
    a. Provide Stones manufactured specifically for installation at corners where located on the Drawings.
    b. Install Quoins on corners as indicated on the Drawings.
4. Mortar Joints
    a. Style:
        1) Tight Fit joints.
        2) Standard 1/2 inch tooled
        3) Wide joint
        4) Wide Overgrout
    b. Strike all grout joints flush.
    c. Tool all grout joints.
    d. Overgrout all grout joints.
5. Stone Direction:
    a. Random placement
    b. Horizontal placement
    c. Vertical placement
6. Windows, Doors & Wall Openings:
    a. Butt field stones to wall opening.
    b. Install specified trim stones where located on the Contract Drawings.
7. Sills: Install Sills where located on the Drawings.
8. Caps: Install Capstones where located on the Drawings.

E. Seal all joints at wall openings and penetrations with a sealant approved for use with masonry products.

F. Flashing: Coordinate with Flashings specified in Section 07 62 00 - Sheet Metal Flashing and Trim.

G. Rainscreen: Coordinate with Rainscreens specified in Section 07 27 00 - Air Barriers.

3.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Services: Provide periodic site visits as requested by Architect. Report any discrepancies to the Contractor with copies to the Architect within 24 hours of each visit.

3.5 CLEANING

A. Clean manufactured masonry in accordance with manufacturer's installation instructions

3.6 PROTECTION

A. Protect finished work from rain and work on either side of the wall during and for 48 hours following installation.

B. Protect installed products until completion of project.

C. Clean prior to project closeout.

D. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

ICC-ES Evaluation Report

ESR-1364

Reissued October 2019

This report is subject to renewal October 2020.

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DIVISION: 04 00 00—MASONRY
Section: 04 71 00—Manufactured Brick Masonry
Section: 04 73 00—Manufactured Stone Masonry

REPORT HOLDER:

BORAL STONE PRODUCTS, LLC

EVALUATION SUBJECT:

CULTURED STONE®, CULTURED BRICK® AND PROSTONE®

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2015 *International Building Code®* (IBC)
- 2015 *International Residential Code®* (IRC)
- Other Codes (see Section 8.0)

Properties evaluated:

- Interior finish and trim classification
- Thermal resistance
- Veneer strength and durability

1.2 Evaluation to the following green code(s) and/or standards:

- 2016 California Green Building Standards Code (CALGreen), Title 24, Part 11
- 2015, 2012 and 2008 ICC 700 *National Green Building Standard™* (ICC 700-2015, ICC 700-2012 and ICC 700-2008)

Attributes verified:

See Section 3.0

2.0 USES

Cultured Stone®, Cultured Brick® and ProStone® are used as adhered, non-load-bearing exterior veneer or as an interior finish and trim on wood or light gage steel stud framing, concrete or masonry walls.

3.0 DESCRIPTION

Cultured Stone®, Cultured Brick® and ProStone® are precast concrete products made to resemble natural stone or brick. The stone veneer is made from cement, aggregate, water, admixtures and mineral oxide colors. The average saturated veneer weight does not exceed 15 pounds per square foot (73.2 kg/m^2). See Table 1 for recognized styles.

The stone veneer has a Class A (Class I) finish rating in accordance with IBC Section 803.1.1, and complies with the flame-spread and smoke-development requirements of IRC Section R302.9. Additionally, the stone veneer has an *R*-value of 0.355 when tested at a thickness of 1.0 inch (25.4 mm) in accordance with ASTM C177.

The attributes of the stone veneer have been verified as conforming to the requirements of (i) 2016 CALGreen Section A4.405.1.3 for prefinished building materials and Section A5.406.1.2 for reduced maintenance; (ii) ICC 700-2015 and ICC 700-2012 Section 602.1.6 for termite-resistant materials and Sections 601.7, 11.601.7, and 12.1(A).601.7 for site-applied finishing materials; and (iii) ICC 700-2008 Section 602.8 for termite-resistant materials and Section 601.7 for site-applied finishing materials. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

4.0 INSTALLATION

4.1 General:

Installation of the stone veneer 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 stone veneer is installed over a lath and mortar scratch coat, or applied directly to concrete or masonry, as described in Sections 4.2 and 4.3 of this report, respectively.

4.2 Installation over a Lath and Mortar Scratch Coat Over Framed Walls:

The scratch coat must be installed over a water-resistive barrier complying with IBC Section 1405.10.1.1 or IRC Section R703.12.3, as applicable. Also, flashing must be installed as required by IBC Section 1405.10.1.2 or IRC Sections R703.4 and R703.12.2, as applicable, including a foundation weep screed installed at the bottom of the stone veneer. The foundation weep screed must comply with, and be installed in accordance with, the requirements for flashing at foundation shown in IBC Section 1405.10.1.2.1 or IRC Section R703.12.2, as applicable. The veneer must be installed with the clearances required by IBC Section 1405.10.1.3 or IRC Section R703.12.1, as applicable.

Lathing must comply with IBC Section 2510 (referenced from IBC Section 1405.10.1.4.1) or IRC Section R703.7.1 (referenced from IRC Section R703.12). The scratch

coat must be applied in accordance with IBC Section 1405.10.1.4.2, and the veneer units must be adhered to the scratch coat in accordance with IBC Section 1405.10.1.4.3. The mortar used to adhere the veneer units to the scratch coat must comply with IBC Section 2103.2.4.

4.3 Installation over Concrete and Masonry:

Installation over concrete and masonry must comply with IBC Section 1405.10.1.5. When adhering the veneer units directly to the concrete or masonry, the supporting surfaces must be prepared in accordance with IBC Section 2510.7, and the veneer units must be adhered to the supporting surface as described in Section 4.2. When adhering the veneer units to a lath and mortar scratch coat, the lathing and scratch coat preparation must comply with Section 4.2.

5.0 CONDITIONS OF USE

The Cultured Stone®, Cultured Brick® and ProStone® veneers described in this report comply with, or are suitable alternatives 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, the most severe requirements govern.

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

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

5.4 In jurisdictions adopting the IRC, where the seismic provisions of Section R301.2.2 apply, the average weight of the wall supporting the precast stone veneer, including 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.

5.5 Cultured Stone®, Cultured Brick® and ProStone® are manufactured under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with the ICC-ES Acceptance Criteria for Precast Stone Veneer (AC51), dated January 2016.

6.2 Reports of testing in accordance with ASTM C177.

6.3 Reports of testing in accordance with ASTM E84.

7.0 IDENTIFICATION

7.1 The Cultured Stone® described in this report is identified by the initials "C.S.V." cast into the side of each piece of stone.

The packaging of the Cultured Stone®, Cultured Brick® and ProStone® products includes a stamp bearing the manufacturer's name, the product name, the manufacturing plant location, the product code and the evaluation report number (ESR-1364).

7.2 The report holder's contact information is the following:

BORAL STONE PRODUCTS, LLC
200 MANSELL COURT EAST, SUITE 3
ROSWELL, GEORGIA 30076
(770) 645-4500
www.culturedstone.com

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:

- 2012, 2009 and 2006 *International Building Code*® (IBC)
- 2012, 2009 and 2006 *International Residential Code*® (IRC)

The Cultured Stone®, Cultured Brick® and ProStone® 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 the first paragraph of Section 3.0 and the following: The precast veneer has a Class A finish rating in accordance with 2012 and 2009 IBC Section 8.3.1.1 (2006 IBC Section 803.1) and complies with the flame-spread and smoke-development requirements of 2012 and 2009 IRC Section R302.9 (2006 IRC Section R315). The stone veneer has an *R*-value of 0.355 when tested in accordance with ASTM C177 at an average thickness of 1.0 inches (25.4 mm).

8.4 Installation:

Cultured Stone®, Cultured Brick® and ProStone® must be installed in accordance with the 2015 IBC and IRC, as described in Section 4.0.

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 STYLES

PRODUCT NAME	PATTERNS
Cultured Stone®	Ancient Villa Ledgestone, Cast-Fit 12x24, Cast-Fit 8 x16, Cobblefield, Coral Stone, Country Ledgestone, Del Mare Ledgestone, Dressed Fieldstone, Drystack Ledgestone, European Castle Stone, Hewn Stone 308, Hewn Stone 314, Hewn Stone 514, Hewn Stone 522, Hewn Stone 822, Limestone, Old Country Fieldstone, Pro-Fit Alpine Ledgestone, Pro-Fit Ledgestone, Pro-Fit Modera Ledgestone, Pro-Fit Terrain Ledgestone, River Rock, Rockface, Southern Ledgestone, Split Face, Stream Stone
Cultured Brick®	Handmade Brick, Used Brick
ProStone®	Aged Ledgestone, Carolina Collection Ledgestone, Easy Fit Savannah Ledgestone, Field Rubble, Fieldstone, Ledgestone, River Rock, Rough Ledge, Tuscan Cobble

ICC-ES Evaluation Report

ESR-1364 CBC and CRC Supplement

Reissued October 2019

This report is subject to renewal October 2020.

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DIVISION: 04 00 00—MASONRY
Section: 04 71 00—Manufactured Brick Masonry
Section: 04 73 00—Manufactured Stone Masonry

REPORT HOLDER:

BORAL STONE PRODUCTS, LLC

EVALUATION SUBJECT:

CULTURED STONE®, CULTURED BRICK® AND PROSTONE®

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the Cultured Stone®, Cultured Brick® and ProStone® products, recognized in ICC-ES master evaluation report ESR-1364, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2016 *California Building Code*® (CBC)
- 2016 *California Residential Code*® (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The Cultured Stone®, Cultured Brick® and ProStone® products described in Sections 2.0 through 7.0 of the master evaluation report ESR-1364, comply with CBC Sections 803.1.1, 1404.4, and 2101.2.1, provided the design and installation are in accordance with the 2015 *International Building Code*® (IBC) provisions noted in the master report and the additional requirements of CBC Sections 1405.1.1, 1405.3 and 1411, as applicable.

The products recognized in this supplement have not been evaluated under CBC Chapter 7A, for use in the exterior design and construction of new buildings located in any Fire Hazard Zone within a State Responsibility Area or any Wildland–Urban Interface Fire Area.

2.2 CRC:

The Cultured Stone®, Cultured Brick® and ProStone® products described in Sections 2.0 through 7.0 of the master evaluation report ESR-1364, comply with the flame spread and smoke developed requirements of CRC Section R302.9 and with CRC Section R703, provided the design and installation are in accordance with the 2015 *International Residential Code*® (IRC) provisions noted in the master report and the additional requirements of CRC Sections R301.1.3 and R702.7.

The products recognized in this supplement have not been evaluated under CRC Section R337.7, for use in the exterior design and construction of new buildings located in any Fire Hazard Zone within a State Responsibility Area or any Wildland–Urban Interface Fire Area.

The products recognized in this supplement have not been evaluated for compliance with the *International Wildland–Urban Interface Code*®.

This supplement expires concurrently with the evaluation report, reissued October 2019.

Adhered Manufactured Stone Masonry Veneer Units

Safety Data Sheet

Revision Date: 6/1/2015 **Date of Issue: 6/1/2015** **Supersedes Date: 12/08/2014** **Version 1.0**

SECTION 1: IDENTIFICATION

1.1 Product Identifier

Product Name: Adhered Manufactured Stone Masonry Veneer Units

1.2 Intended Use of the Product

Building Material (includes all types and colors)

1.3 Name, Address, and Telephone Number of the Responsible Party

Company

BORAL STONE PRODUCTS LLC
200 Mansell Court East, Suite 305
Roswell, GA 30076
United States
(770) 645-4500
www.boralna.com/stone

1.4 Emergency Telephone Number

(770) 645-4529

SECTION 2: HAZARD(S) IDENTIFICATION

2.1 Classification of the Substance or Mixture

This product is an article as defined in the OSHA Hazard Communication Standard [29 CFR 1910.1200(c)] and is exempt from regulatory requirements when handled as a manufactured item. This SDS contains additional health hazard information related to dust generation during construction.

Classification (GHS-US)

Eye Irritation 2B
Respiratory Irritation STOT Single Exposure 3
Respiratory Illness STOT Repeated Exposure 2
Carcinogen 1A

2.2 Label Elements

GHS-US Labeling Hazard Pictograms (GHS-US)

Signal Word (GHS-US):

- Warning

Hazard Statements (GHS-US):

- May cause eye irritation (H320)
- May cause respiratory irritation (H335)
- May cause cancer (H350)
- May cause damage to respiratory system through prolonged or repeated exposure (H372)

Precautionary Statements (GHS-US):

- Do not handle until all safety precautions have been read and understood (P202)
- Avoid breathing dust; in case of inadequate ventilation, wear respiratory protection (P264) (P284)
- Cut/grind/chip product in a well-ventilated area or use a wet saw (P271)
- Wear protective gloves, protective clothing, and eye protection (P280)
- IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing (P304) (P340)
- IF IN EYES: Rinse cautiously with water for at least 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing until pain or irritation subsides. (P305) (P351) (P338)
- If symptoms persist: Get medical advice/attention (P308) (P313)

2.3 Other Hazards

Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions.

2.4 Unknown Acute Toxicity (GHS-US)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Description of Product

Concrete matrix article.

3.2 Mixture

Substances and hazard classification based on dust composition.

Ingredient	Product Identifier (CAS No.)	% (w/w)	Classification (GHS-US)
Pumice	1332-09-8	40 – 70	• Respiratory Irritation, STOT 3, H335 • Eye Irritation 2B, H320
Expanded clay	68334-37-2	40 - 70	•
Portland cement (cured)	65997-15-1	14 -30	• Respiratory Irritation, STOT 3, H335 • Eye Irritation 2B, H320
Quartz	14808-60-7	10 - 25	• Carc. 1A, H350 • STOT Respiratory 2, H372
Slag (ferrous metal blast furnace)	65996-69-2	2 - 7	• Respiratory Irritation, STOT 3, H335 • Eye Irritation 2B, H320
Iron oxide	1309-37-1	1.5	• Not classified

Note: This product contains additional not classified substances at low concentrations that do not contribute to the hazards of this product.

SECTION 4: FIRST AID MEASURES

4.1 Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. Any person who is experiencing symptoms of injury or illness should be moved to a comfortable area with fresh air, and the label or SDS of this product reviewed.

Inhalation: If symptoms of dust exposure (respiratory irritation) occur, move the person to fresh air. Provide drinking water, if conscious, to flush mouth and irrigate upper respiratory tract. Seek medical attention for discomfort or if coughing or other symptoms do not subside.

Eye Contact: If injury is due to a projectile, seek immediate medical attention. If the person's symptom is eye irritation due to dust exposure, careful flushing with clean water should continue for at least 15 minutes. If contact lenses are present, they should be removed after flushing. Flushing should continue until irritation subsides. Medical attention should be obtained if irritation persists.

Skin: Injuries to skin due to abrasion, laceration, or crushing should be treated by flushing with clean water, followed by first aid (application of disinfectant and bandage). If the injury is more extensive or irritation and pain persists, medical attention should be sought.

4.2 Most Important Symptoms and Effects—Both Acute and Delayed

General: The most important symptoms and effects from exposure to this product's dust is respiratory irritation and respiratory system chronic illness if significant exposures occur repeatedly.

Inhalation: The immediate acute response to dust inhalation is respiratory system irritation. Upon repeated high levels of dust exposure, crystalline silica content of the dust may cause delayed or chronic respiratory illnesses, including silicosis and cancer.

Eye Contact: Exposures of the eyes to particles and dust may result in irritation, pain, redness, and blurred vision, which is usually temporary.

Skin Contact: Other than abrasion and irritation, skin contact does not cause delayed or chronic symptoms.

4.3 Indication of Immediate Medical Attention and Special Treatment

Any time symptoms of eye irritation or respiratory irritation persist, medical attention should be obtained.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire. Finished product is not combustible.

5.2 Special Hazards Arising from the Substance or Mixture

Fire Hazard: Not combustible.

Explosion Hazard: Product is not explosive.

Reactivity: Hazardous reactions are not expected to occur under normal conditions.

5.3 Advice for Firefighters

Not applicable.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment, and Emergency Procedures

General Measures: Do not breathe dust. Do not get in eyes, on skin, or on clothing.

6.1.1. For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protective equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Personnel

Protective Equipment: Equip clean-up crew with proper protection.

Emergency Procedures: Ventilate area if dust is generated.

6.2 Environmental Precautions

Reuse product as appropriate to avoid disposal.

6.3 Methods and Material for Containment and Clean-Up

Containment: Contain and collect as any solid. Avoid actions that cause dust to become airborne. Do not breathe dust, and do not allow large quantities of dust to contact skin.

6.4 Reference to Other Sections

See Section 8. Exposure Controls and Personal Protection. For further information, refer to Section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Additional Hazards when Processed: Cutting, crushing, or grinding crystalline silica-bearing materials will release respirable crystalline silica. Use all appropriate measures of dust control or suppression and Personal Protective Equipment (PPE) described in Section 8.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking, and again when leaving work.

7.2 Conditions for Safe Storage, Including any Incompatibilities

Not applicable.

7.3 Specific End-Use(s)

Not applicable.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure Limits

The following exposure limits are based on a time-weighted full-shift exposure, unless otherwise noted.

Ingredient	OSHA PEL[(1)]	ACGIH-TLV[(2)]	Other[(3)(4)]
Pumice	15 mg/m^3 (total dust); 5 mg/m^3 (respirable fraction)	10 mg/m^3 (total dust); 3 mg/m^3 (respirable fraction)	
Expanded clay	15 mg/m^3 (total dust); 5 mg/m^3 (respirable fraction)	10 mg/m^3 (total dust); 3 mg/m^3 (respirable fraction)	
Portland cement	15 mg/m^3 (total dust); 5 mg/m^3 (respirable fraction)	1 mg/m^3 (respirable fraction containing no asbestos and < 1% crystalline silica)	NIOSH REL – 10 mg/m^3 (total dust); 5 mg/m^3 (respirable fraction)
Quartz	30 mg/m^3 ÷ % SiO_2 +2 (total dust); 10 mg/m^3 ÷ % SiO_2 +2 (respirable fraction)	0.025 mg/m^3 (respirable fraction)	NIOSH REL – 0.05 mg/m^3 (respirable fraction)
Slag	Not established	Not established	
Iron oxide	Fume: 10 mg/m^3 (total dust); Particulate: 15 mg/m^3 (total dust); 5 mg/m^3 (respirable fraction)	5 mg/m^3 (respirable dust)	NIOSH REL – 5 mg/m^3 (total dust)

Notes:
(1) OSHA PEL (Permissible Exposure Level at 29 CFR 1910.1000)
(2) ACGIH-TLV (American Conference of Governmental Industrial Hygienists-Threshold Limit Values 2015)
(3) NIOSH REL (National Institute for Occupational Safety & Health Recommended Exposure Limit)
(4) Canadian Provincial and other nation control parameters are listed on the Supplement

8.2 Exposure Controls

Appropriate Engineering Controls: Power equipment should be equipped with wet dust suppression or dust collection devices if cutting/grinding/chipping product. Emergency eyewash equipment should be available in the immediate vicinity of any potential exposure. Use local exhaust or general dilution ventilation, or other suppression methods to maintain dust levels below exposure limits.

Personal Protective Equipment: Protective goggles or safety glasses, and gloves. Wear respiratory protection if dust is present when cutting/grinding/chipping product.



Hand Protection: Protective gloves as appropriate to prevent abrasion and hand injuries.
Eye and/or Face Protection: Approved safety glasses, goggles, and/or face-shield.
Skin and Body Protection: Appropriate work clothing and footwear should be worn.
Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Physical State: Solid.
Appearance: Solid. Stones come in a wide range of colors.
Odor: Essentially odorless.
Odor Threshold: Not available.
pH: Not available.
Evaporation Rate: Not available.
Melting Point: Not available.
Freezing Point: Not available.
Boiling Point: Not available.
Flashpoint: Not available.
Auto-Ignition Temperature: Not available.
Decomposition Temperature: Not available.
Flammability (solid, gas): Not available.
Lower Flammable Limit: Not available.
Upper Flammable Limit: Not available.
Vapor Pressure: Not available.
Relative Vapor Density at 20° C: Not available.
Relative Density: Not available.
Specific Gravity: 2.6
Solubility: Negligible in water.
Partition Coefficient—N-Octanol/Water: Not available.
Viscosity: Not available.
Explosion Data—Sensitivity to Mechanical Impact: Not expected to present an explosion hazard due to mechanical impact.
Explosion Data—Sensitivity to Static Discharge: Not expected to present an explosion hazard due to static discharge.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Hazardous reactions are not expected to occur under normal conditions.

10.2 Chemical Stability

Stable.

10.3 Possibility of Hazardous Reactions

Not applicable.

10.4 Conditions to Avoid

Not applicable.

10.5 Incompatible Materials

Not applicable.

10.6 Hazardous Decomposition Products

Not applicable.

SECTION 11: TOXCOLOGICAL INFORMATION

11.1 Likely Routes of Exposure

Skin Contact: Product is abrasive and may irritate unprotected skin.

Eye Contact: When product is shaped or cut, chips or dust may enter unprotected eyes and cause injury or irritation.

Inhalation: When product is shaped or cut, respirable dust may be generated that, when inhaled, can cause respiratory system irritation. Prolonged or repeated inhalation exposure may cause chronic illness.

Ingestion: Not expected to be an exposure route of concern.

11.2 Symptoms Related to Physical, Chemical, and Toxicological Characteristics

Immediate Effects: Irritation of skin, eyes, and respiratory tract due to abrasion or dust inhalation will produce immediate discomfort, and first aid provided.

Delayed and Chronic Effects: Inhalation of dust on a prolonged or repeated basis may result in chronic lung disease or silicosis, and may also result in lung cancer, in particular among tobacco smokers.

11.3 Numerical Measures of Toxicity

The acute and chronic effects of exposure to this product's dust have not been quantified.

11.4 Carcinogenicity

The ingredient quartz, also known as crystalline silica, has been determined to be carcinogenic by the International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP).

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

No additional information available.

12.2 Persistence and Degradability

Not available.

12.3 Bioaccumulative Potential

Not available.

12.4 Mobility in Soil

Not available.

12.5 Other Adverse Effects

Not available.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Waste Disposal Recommendations: Scrap material should be re-used or recycled. Waste is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) (40 CFR 261). Dispose of waste material in accordance with all local, regional, national, provincial, territorial, and international regulations.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Not regulated for transport

14.2 In Accordance with IMDG

Not regulated for transport

14.3 In Accordance with IATA

Not regulated for transport

14.4 In Accordance with TDG

Not regulated for transport

SECTION 15: REGULATORY INFORMATION

15.1 U.S. Federal Regulations

Stone

Exempt article [40 CFR 370.13(b)]

SARA Section 313 Emission Reporting

This product may contain constituents listed under SARA (Title III) Section 313, but not in amounts requiring supplier notification under 40 CFR Part 372, Subpart C.

TSCA Inventory

All constituents are included in the Toxic Substances Control Act Chemical Inventory [40 CFR 720].

15.2 U.S. State Regulations

State Right-to-Know Laws

This product, as an article, is exempt from hazardous substance inventory reporting under the Massachusetts, New Jersey, and Pennsylvania right-to-know laws.

California Proposition 65—Warning Required

WARNING: This product contains crystalline silica and other chemicals known to the State of California to cause cancer, birth defects, and other reproductive harm.

15.3 Canadian Regulations

DSL

All ingredients are listed or exempt from inclusion on the Canadian Domestic Substances List (DSL).

WHMIS

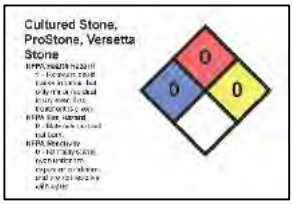
Class D, Division 2, Subdivision A – Material causing other toxic effects. Very Toxic—Chronic.

This product has been classified in accordance with the hazard criteria of the CPR, and the SDS contains all of the information required by the CPR.

15.4 Other: HMIS and NFPA

HMIS:

NFPA:



SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Party Responsible for Preparation of this Document

BORAL STONE PRODUCTS LLC
(707) 256-4249

Limitations

The information and recommendations set forth herein are based on data we have in our possession, and we have reason to believe is accurate. It is, however, the user's responsibility to determine the safety, toxicity, or suitability for his/her own use of the herein described product. Because the actions by others is beyond our control, Boral Stone Products LLC. makes no warranty expressed or implied regarding accuracy of the data or the results to be obtained from the use thereof.

NA GHS SDS