CULTURED STONE®
A BORAL® Brand

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**.

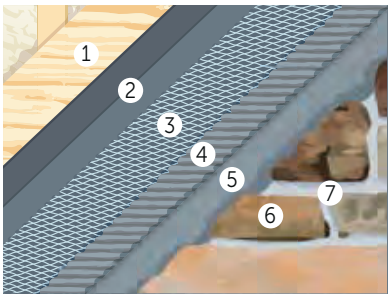
Building code requirements vary from area to area. Check with local authorities for building code requirements in your area. Carefully read all Installation Instructions before proceeding with your Cultured Stone products application. Observe safety precautions. Cultured Stone products are covered by 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

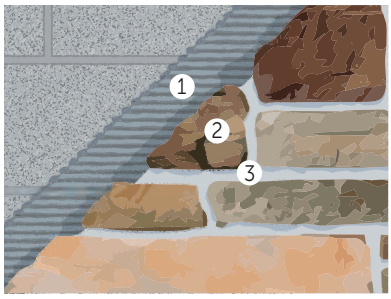
Typical back-up systems include:

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.

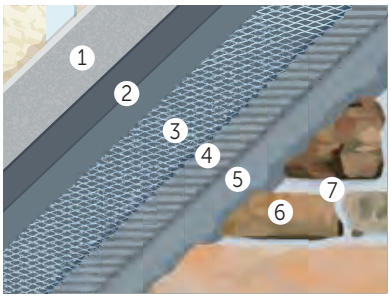
UNIT MASONRY/CONCRETE



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

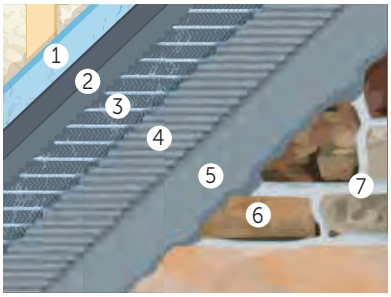
Note: Painted, sealed, dirty & smooth surfaces/ walls will require additional preparation to address these conditions.

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.

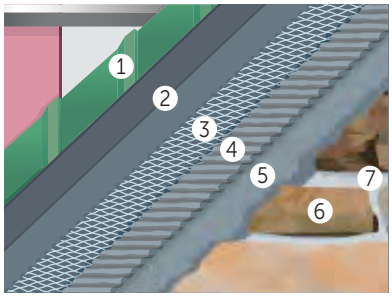
RIGID FOAM INSULATION



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.

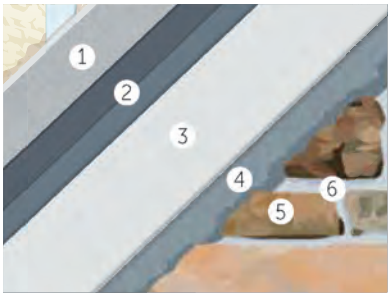
See the special **Technical Evaluation Report** regarding installation over continuous insulation for more information.

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		✓	✓	✓	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	✓	OPTIONAL		
CONTINUOUS INSULATION			✓*	✓	✓	N/A	See TER for lath fastener selection available for framed or masonry applications.
STUCCO		✓**	✓	✓	✓		Engineer review recommended for existing stucco.

Note: Optional surface preparation utilizing a rainscreen may be added. See **General Information** (page 8) for more information.

* 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.

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

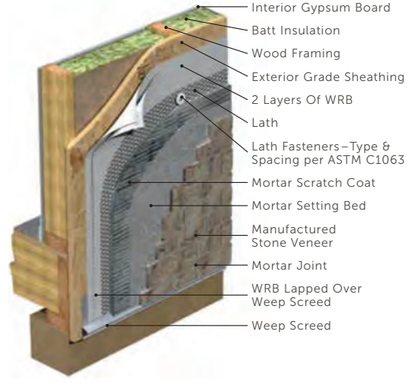
1. To maintain the weather-resistance of the exterior wall on which stone products are installed, corrosion-resistant flashing/weep screed and a means of drainage shall be installed at all penetrations and terminations of the stone cladding. Flashing type and locations shall be in accordance with the 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

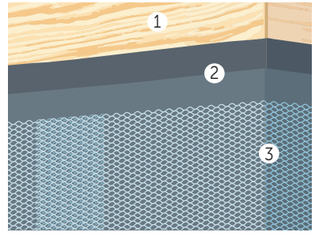
Maintain a 4" clearance between Cultured Stone and grade or 2" clearance above a paved surface. Most building codes require the use of a weep screed in framed applications. In framed applications, this distance is measured from the "beak" of the weep screed. When a weep screed is not required—application over masonry as an example—a 2" 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.

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

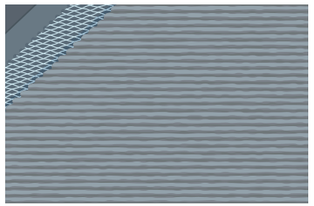
LATH INSTALLATION

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

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, ⅜" 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

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, of 1¼" length or suitable to obtain ⅜" 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 (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 ¾ of 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 ½" joint, the exceptions being dry-stack **Ledgestone**, **European Castle Stone**, **Pro-Fit® Ledgestone** and **Pro-Fit® Alpine Ledgestone**.

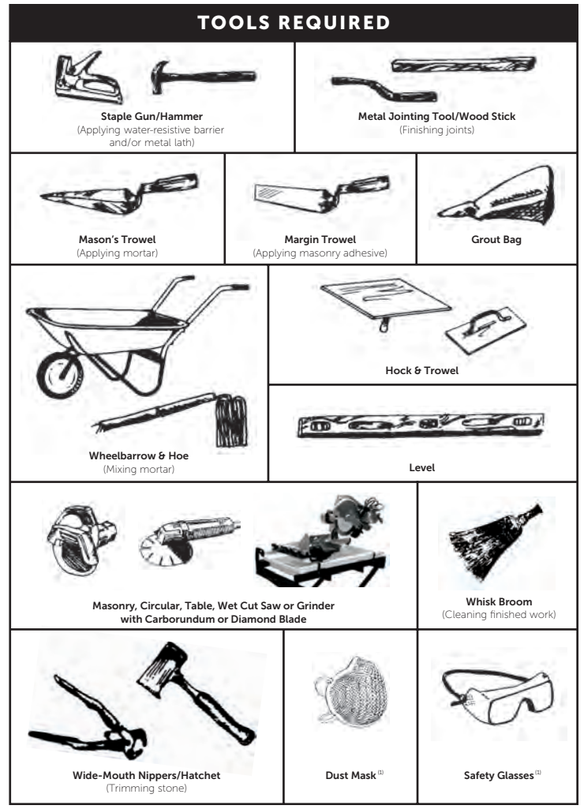
TOOLS REQUIRED

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

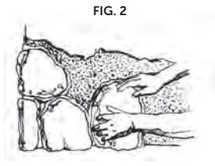
If your application requires corner pieces, apply these first. Notice that the corner pieces have a long and a short leg. Alternate these in opposite directions (Fig. 1).

FIG. 1

INSTALL FLAT PIECES

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

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 ½" 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 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.

Method B

The mortar setting bed shall be installed by trowel application ½" to ¾" 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.

FIG. 3

TRIM WITH WIDEMOUTH NIPPERS

FIG. 4

TRIM WITH A HATCHET

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

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.

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 of 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 ½" 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 sones, 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 ¾" deep in 3" wide strips 1" apart on prepared surface (Fig. 7).

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. 7
PLACE MORTAR FOR HEARTHSTONE INSTALLATION

FIG. 8
PLACE HEARTHSTONE

Note: Cultured Stone manufactured stone veneer and hearth products are made from non-combustible materials. Mortar joints must not exceed ½" 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 1½" 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.

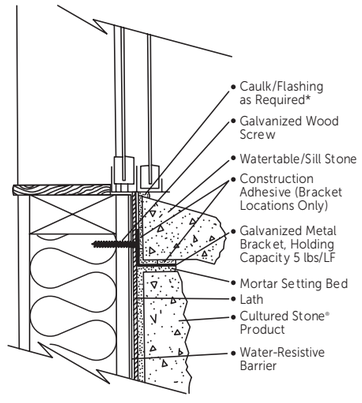
SEALING FIREPLACES/HEARTHS

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.

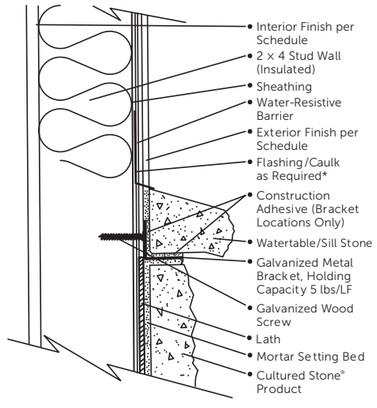
WATERTABLE/SILL INSTALLATIONS

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

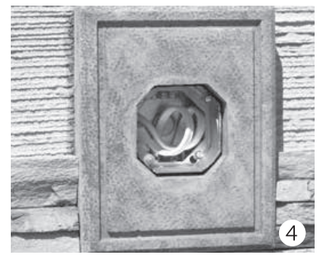


ELECTRICAL BOX STONE INSTALLATION INSTRUCTIONS

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 ⅜" 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. Application of a uniform and true scratch coat will also accommodate variations in the substrate surface. It is recommended that ⅜" 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. 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

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

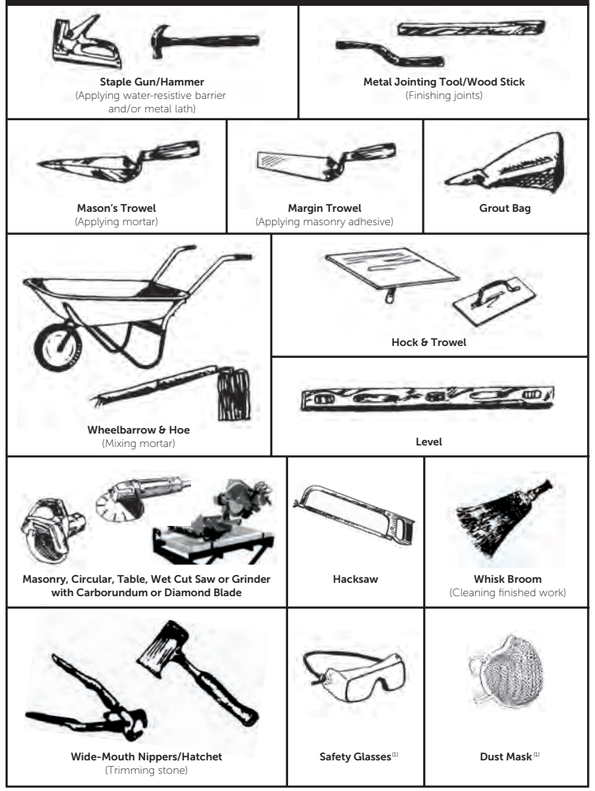
Choose the tools required for your installation—see page 2 for table with illustrations and appropriate use.

- 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



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

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, ⅜" 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
- Liquid WRB/Air Barrier–Current Evaluation Report by an ANSI accredited evaluation service showing compliance to code requirements for WRB

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, of 1¼" length or suitable to obtain ⅜" 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

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		✓	✓	✓	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	✓	OPTIONAL		
CONTINUOUS INSULATION			✓*	✓	✓	N/A	See TER for lath fastener selection available for framed or masonry applications.
STUCCO		✓**	✓	✓	✓		Engineer review recommended for existing stucco.

Note: Optional surface preparation utilizing a rainscreen may be added. See **General Information** (page 8) for more information.

* 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.

SURFACE PREPARATION FOR MORTAR INSTALLATIONS (CONTINUED)

FIG. 1

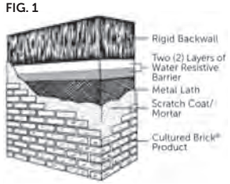


FIG. 2

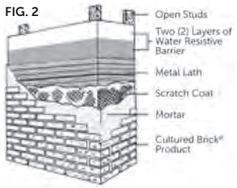


FIG. 3

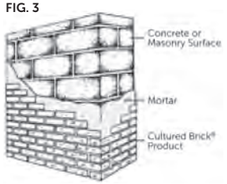
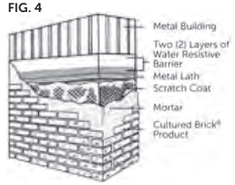


FIG. 4

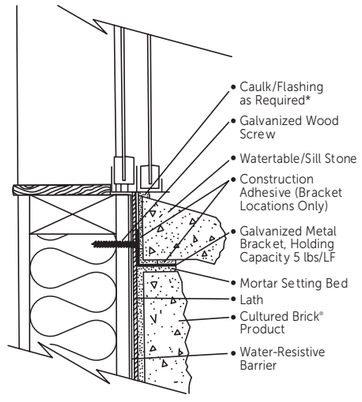


INSTALLING CULTURED BRICK

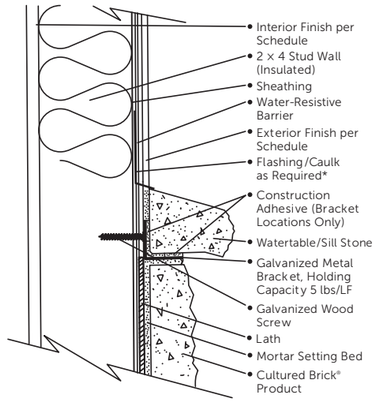
WATERTABLE/SILL INSTALLATIONS

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

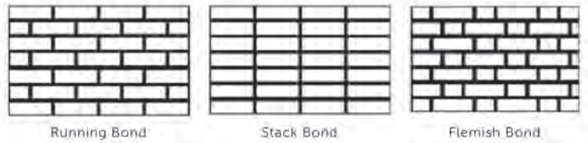


CLEARANCE

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" × 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

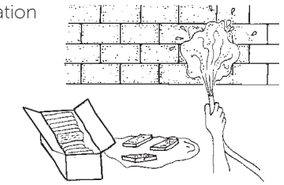
Choose the type of wall pattern desired. Allowing for a mortar joint of approximately ½," calculate and mark off the number of courses required. Adjust joint size to minimize horizontal cutting. Run level guide lines to ensure proper placement of bricks.



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

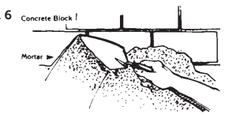
STARTING POINT

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).

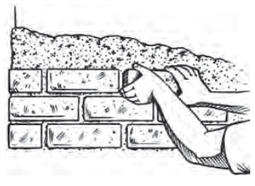
FIG. 8

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.

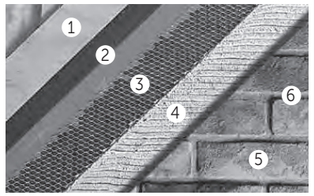


KEEP YOUR MORTAR JOINTS CONSISTENT

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

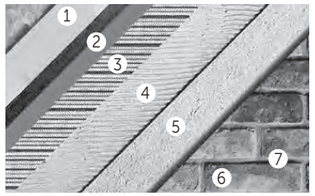
TYPICAL INSTALLATIONS

WOOD FRAME



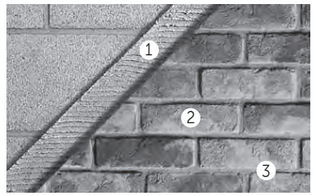
In sequence: (1) sheathing, (2) two layers of water resistive barrier (WRB), (3) galvanized metal lath, (4) mortar, (5) Cultured Brick thin veneer, (6) mortar joint.

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.

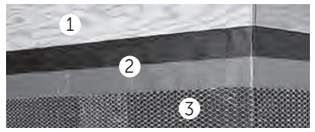
MASONRY OR CONCRETE



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

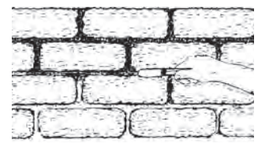
Grouting Joints

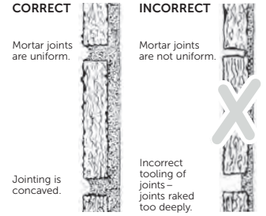
Use a grout bag to fill in joints. Care must be taken to avoid smearing mortar on brick. Accidental smears or mortar droppings should be removed only after mortar has become crumbly. Use a whisk broom or dry bristle brush. Never use a wet brush or wire brush.

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.

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 of ¾" (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 ½" 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