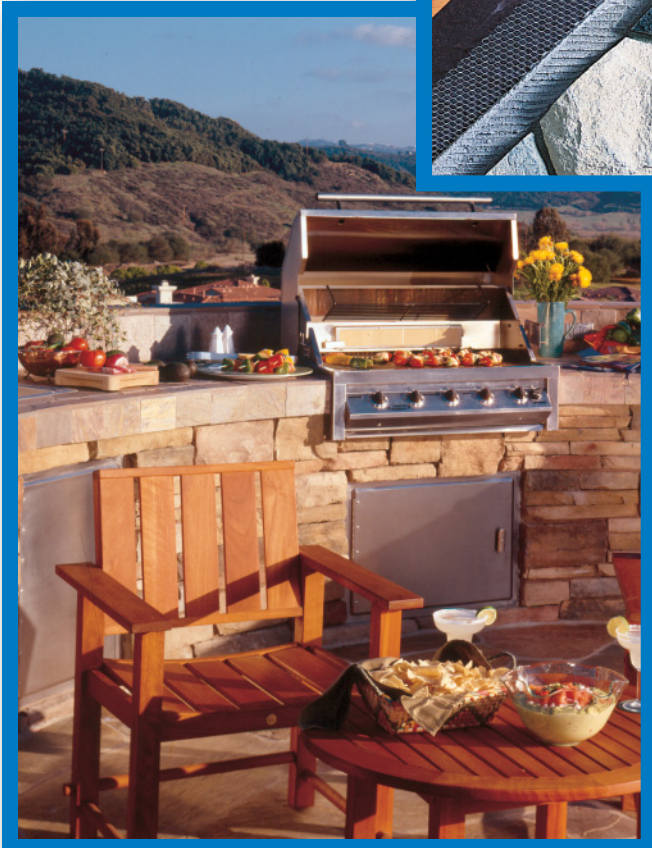


CULTURED STONE®

Manufacturer's Installation Instructions



Manufacturer's Installation Instructions

Cultured Brick® Products Installation Instructions are available separately from your Dealer.

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 warranty on page 8.

Estimating 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 square footage of flat stone needed. Subtract square footage for window and door 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 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.

Tools Required

(Choose the tools required for your installation - see page 7 for illustrations and appropriate use.)

Hammer or Staple Gun • Wheelbarrow & Hoe • Hock & Trowel • Mason's Trowel • Margin Trowel • Masonry, Circular, Table Saw or Grinder with Carborundum or Diamond Blade • Wide Mouth Nippers or Hatchet • Safety Glasses/Dust Mask • Level • Metal Jointing Tool or Wood Stick • Grout Bag • Whisk Broom

Sundry Material Requirements

A. MORTAR COMPONENTS

1. Premixed: Type N premixed mortar, or mortar mixed as per Table #2 on page 3.
2. Mortar color: iron oxide color (if desired).

B. WEATHER-RESISTANT BARRIER

Depending on local building code requirements, barrier shall be equal to U.B.C. Standard No. 14-1 for Kraft waterproof building paper or asphalt saturated rag felt or ASTM D 226, Type 1, No. 15 felt. **Note: Weather-resistant barrier must be used on all exterior and interior mortar applications except for those over masonry, concrete or stucco.**

C. METAL LATH

1. Minimum 2.5 lb. expanded metal lath (diamond mesh) galvanized. Black metal lath (rust inhibitive) may be used on interior applications.
2. or 18 gauge galvanized woven wire mesh.
3. For metal buildings & open stud construction - minimum 3.4 lb. 3/8" rib expanded galvanized metal lath.
4. or other code accepted mesh or lath.

D. FASTENERS

1. Galvanized nails, staples, concrete nails.
2. United States Gypsum Company's 1-1/4" type S-12 Pancake Head Super Tite screws. (Used for installation to metal surfaces.)

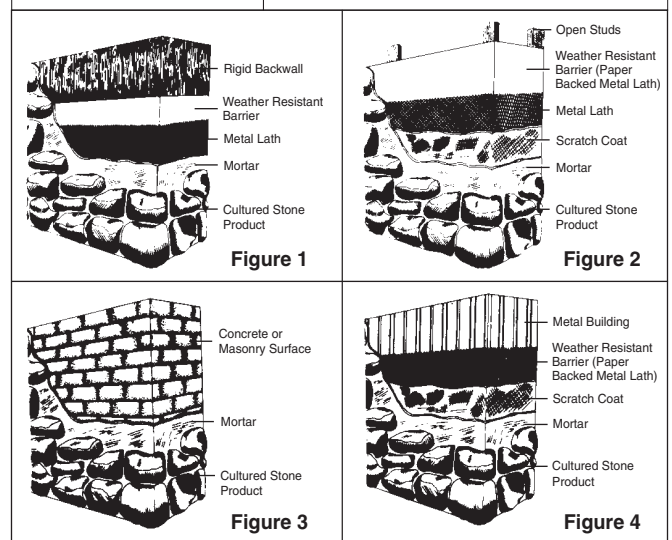
E. MASONRY SEALER

1. Silane based breather type sealer (if required).

Surface Preparation for Mortar Installations

Using the chart below, determine the correct surface preparation for your installation.

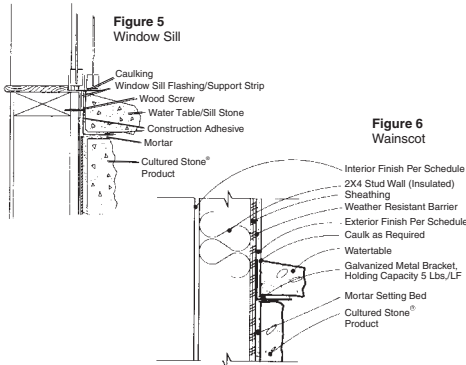
TABLE 1	
WALL SURFACE	INTERIOR & EXTERIOR PREPARATION REQUIRED
Rigid Backwall Wallboard Plywood Paneling Wall Sheathing Concrete Board Polystyrene Insulation Board installed over a rigid backwall	Cover sheathing with a breather type weather resistant barrier, lap joints 4" shingle fashion. Then, in accordance with local building code, lap and install lath or mesh using galvanized nails or staples 6" on center vertically, penetrating studs a minimum of 1". Continuously wrap weather-resistant barrier and metal lath a minimum of 16" around all outside and inside corners. (Fig. 1).
Clean & Untreated Concrete Masonry Stucco	No preparation needed. Examine newly poured concrete closely to ensure that its finished surface contains no release agents (form oil). If it does contain form oil, etch surface with muriatic acid, rinse thoroughly and/or score with a wire brush (Fig.3).
Dirty, Painted or Sealed Concrete, Masonry or Stucco	Sandblast or waterblast to original surface (remove sandblasting dust by washing) or securely attach lath.
Metal Buildings	Lap and install paperbacked 3/8" rib expanded metal lath to metal cladding supports of 20 ga. to 12 ga. using United States Gypsum Company's 1-1/4" type S-12 Pancake Head Super Tite screws. Screws must penetrate 3/8" beyond the inside face of metal surface. Screws are to be installed on centers equal to 1 screw/sq. ft. and shall not exceed 6" on center in one direction. Apply 1/2" to 3/4" scratch coat and allow to dry 48 hours (Fig.4).
Open Studs Polystyrene Insulation Board Installed Over Open Studs	Lap and install paperbacked metal lath to studs using nails which penetrate a minimum of 1" at 4" on center. Apply 1/2" to 3/4" scratch coat and allow to dry 48 hours (Fig. 2).



Watertable/Sill Installations

Watertable/Sills provide a transition piece between a stone wainscot and other exterior finishes and for water runoff. They can also be used as a window sill.

Install using galvanized metal support brackets or support strip fastened with galvanized nails or screws penetrating studs 1" at a minimum of 16" O.C. Caulk and flash top of Watertable/Sill as required.



Installing Stone At Ground Level

Keep the finished edge of the Cultured Stone® product a minimum of 4" above grade. Use a 2" X 4" leveling strip (straight-edge) (Figure 7).

This will:

- Provide a means of drainage
- Avoid possible staining of the stone by soils containing alkali or other minerals
- Achieve the look of natural stone that has been installed on a footing or foundation

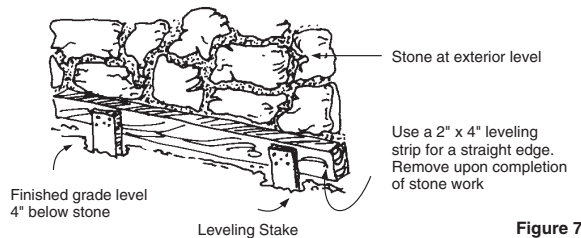


Figure 7

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.

Mortar

NOTE: 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.

Applications should be protected from temperatures below freezing as mortar will not set up properly under such conditions. Do not use antifreeze compounds to lower the freezing point of mortar.

A. MIXING MORTAR/GROUT

Using Premixed Type N mortar or components from Table 2, mix to a firm, moist consistency. Mortar that is too dry and crumbly will not provide proper bond. Mortar that is too wet will be weak and messy.

TABLE 2 - Proportions for Mortar				
Mortar Type	Parts By Volume			
	Portland Cement or Blended Cement	Masonry Cement Type N	Hydrated Lime or Lime Putty	Aggregate
N	1	--	1	4-1/2 to 6
	--	1	--	2-1/4 to 3

B. MORTAR COLOR

Tinting mortar complements the color of the stone being installed. Example: use tan mortar with earthtone 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.

C. APPLYING MORTAR TO PREPARED SURFACE AREA

Using a plasterer's or mason's trowel (Figures 8 and 9), apply mortar 1/2" to 3/4" 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 stone is applied.



Figure 8 Applying mortar using a plasterer's trowel

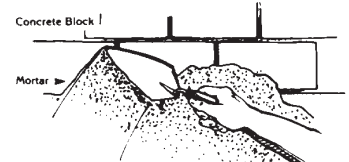


Figure 9 Applying mortar using a mason's trowel

Applying Cultured Stone® Products

See page 5 for additional instructions concerning Pro-Fit LedgeStone®, Carolina LedgeStone & European Castle Stone.

A. 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.

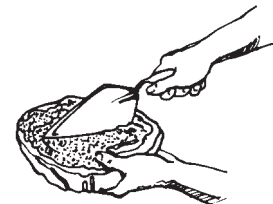
B. JOINT WIDTH

In order to obtain the most natural look, joints should be as narrow as possible, average should not exceed 1/2" in width. An attractive look can also be achieved by fitting stones tightly together if desired.

C. SETTING THE STONES

Press each stone into the mortar setting bed firmly enough to squeeze some mortar out around the stone's edges. Apply pressure to the stone to ensure a good bond. Ensure complete coverage between the mortar bed and back surface of the stone. Mortar may also be applied to the entire back of the stone (Figure 10).

Figure 10 Mortar applied to the entire back of the stone



Care must be taken to avoid smearing mortar on surface of stone. Accidental smears should be removed using a whisk broom only after mortar has become crumbly.

D. 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 (Figure 11).



Figure 11
Applying corners -
alternating long and
short legs in the
opposite directions

E. INSTALL FLAT PIECES

After the corner pieces are in place, flat pieces are applied working toward the wall center (Figure 12).

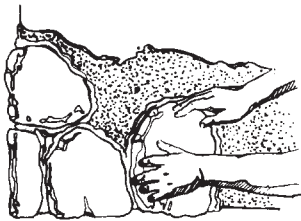


Figure 12
Applying flat pieces

F. KEEP YOUR MORTAR JOINTS CONSISTENT

Place the individual stones close together creating uniform joints between them. Cut and trim as required to achieve consistent width in the mortar joints. Then trim and fit small pieces into any remaining voids (Figure 13).

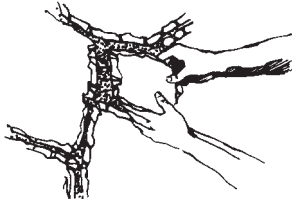


Figure 13
Position large pieces
first, then trim and fit
in smaller pieces

G. CUTTING AND TRIMMING

Stones can be cut and shaped for fit. Use wide mouth nippers or a hatchet (Figures 14 and 15). (Refer to page 2 - Tools Required). 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. **Always use safety glasses when cutting and trimming.**



Figure 14
Trimming with wide
mouth nippers



Figure 15
Trimming with
a hatchet

NOTES:

LEVEL AND PLUMB JOINT LINES

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

RIVER ROCK & STREAM STONE

When applying River Rock or Stream Stone, plan the placement of stones to minimize trimming and cutting to maintain the natural looking rounded shapes.

LEDGESTONE TYPES

When applying Ledgestone types keep joints as small as possible to maintain a natural look and install from the bottom up. Strike joints deeply being careful not to expose the back edge of stones.

See page 5 for additional instructions regarding Pro-Fit Ledgestone®, Carolina Ledgestone, and European Castle Stone.

Grouting and Finishing Joints

A. GROUTING JOINTS

If additional mortar is required, use a grout bag to fill in joints (Figure 16). Care must be taken to avoid smearing mortar on surface of stone. Accidental smears 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.

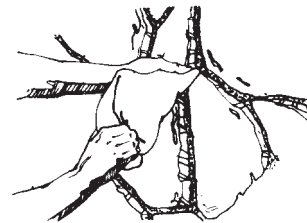


Figure 16
Grouting joints

B. 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 (Figure 17).

Careful attention to proper and even jointing will result in a professional looking finish.

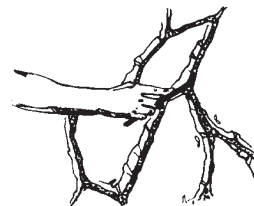


Figure 17
Finishing the job

C. CLEANING FINISHED JOB

At the end of the work day, or when 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 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 base products.**

Additional Instructions For Pro-Fit LedgeStone®, Carolina LedgeStone, and European Castle Stone

FIT THE JOINTS TIGHTLY

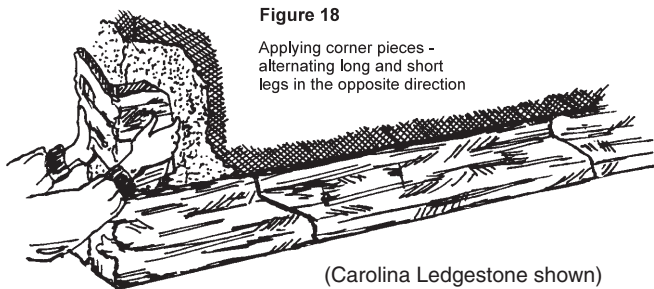
Install all these products with tight-fitted (mortarless) joints. Generally components should be placed butting each other and aligned for level and plumb. When installing with mortar, the backs of all these components must be wet. They should be noticeably damp, but free from surface water. Mortar must be tinted to match the color of the stone you are installing to help conceal the joint lines.

A. STARTING POINT

Products are applied starting from the bottom (first course) and working up. Start each course with the appropriate LedgeStone component or European Castle Stone. Continue horizontally and complete each course before starting the next. If required, cut the appropriate size component to fit at the end or top of the finish area (Figure 20). Frequently check the installation for level and alignment.

B. INSTALL CORNER PIECES FIRST

If your application requires corner pieces, start by installing a corner piece first followed by the adjoining flat pieces. Notice that the corner pieces have a long and short leg. Alternate these in opposite directions (Figure 18).

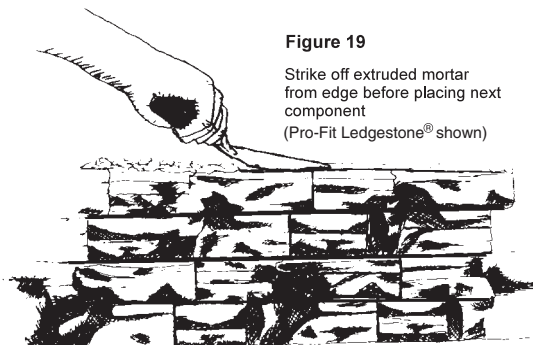


C. SETTING THE STONES

Press each stone into the mortar setting bed firmly enough to squeeze some mortar out around the mortar groove at the back edge of component. Apply pressure to the component to ensure a good bond. Check for level and plumb. Mortar may also be applied to the entire back of the stone.

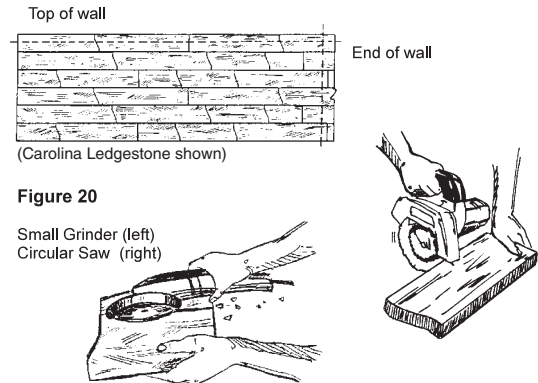
D. INSTALL FLAT PIECES

After the first corner piece is in place, the adjoining flat pieces of each course or pattern are applied. Using a trowel, strike off the excess mortar around the edges of the component prior to placing the next component. This will allow the next adjacent component to fit tightly (see Figure 19). **Choose the correct length component to ensure that vertical joints do not line up.**



G. CUTTING AND TRIMMING

Vertical or horizontal cuts can be made using a table saw, circular saw or small grinder equipped with a dry cutting diamond or carborundum blade (See Figure 20).



Cutting should be done outside as some dust will occur. **SAFETY GLASSES AND A DUST MASK SHOULD ALWAYS BE WORN WHEN CUTTING ANY CULTURED STONE® PRODUCTS.** Stones can also be cut and shaped using wide-mouth nippers or a hatchet.

ADDITIONAL INFORMATION ON CUTTING AND FITTING

Finished Edges - Place finished edges at exposed areas.

Cut Edges - Place cut edges within courses.

FINISHING JOINTS

The design simplicity of Pro-Fit LedgeStone®, Carolina LedgeStone, and European Castle Stone allows for easy installation of components and provides a finished mortar-less joint between the stones. This reduces the time required for cutting, grouting and jointing.

SURFACE CLEANING

Care must be taken to avoid smearing mortar on the surface of components. Accidental smears should be removed with a whisk broom or dry bristle brush only after mortar has become crumbly. **Do not use a wet brush or a wire brush.** Careful attention to proper jointing will result in a professional looking finish. **Do not use acid or acid base products.**

Installing Hearthstones

Hearthstones are not recommended or warranted for exterior use or as a surface area subject to foot traffic. Terra Craft® Pavers are available from your dealer for patios, walkways, and driveways.

A. PLACE MORTAR

Place mortar 3/4" deep in 3-inch wide strips 1 inch apart on prepared surface (Figure 21).



Figure 21
Placing Mortar for
Hearthstone Installation

B. INSTALL HEARTHSTONES

Place the first Hearthstone on to the mortar bed and level (Figure 22). 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 and Finishing Joints". Ensure Hearthstones are set in a complete bed of mortar.

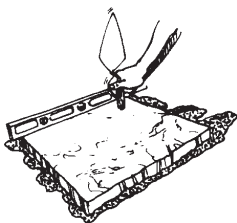


Figure 22
Placing Hearthstone

C. CUTTING AND TRIMMING HEARTHSTONES

Hearthstones can be cut as required using a circular saw fitted with a carborundum or diamond blade or using a mason's brick or tile saw. Place finished edges at exposed areas.

NOTES: HEARTHSTONE INSTALLATION

U.L. LISTED

Cultured Stone® and hearth products are made from noncombustible materials (U.L. Listing #209T). They are listed by Underwriters Laboratories, Inc. for use as floor protectors and wall shields with stoves and on fireplace hearths. If complying to U.L. Listing, mortar joints must not exceed 1/2" in width and the mortar must be even with the top of the hearth surface.

RAISED HEARTH

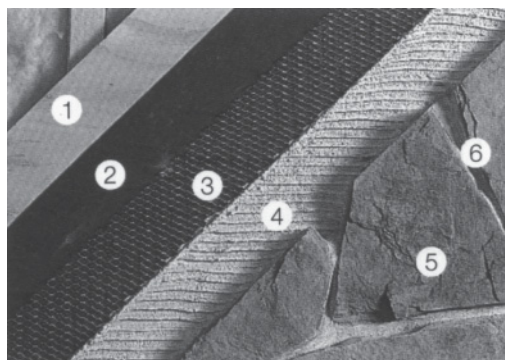
Do not cantilever or extend Hearthstones more than 1-1/2" beyond direct support. When grouting the extended portion of a cantilevered Hearthstone, bring the grout to the front edge. Push a long galvanized nail horizontally into the grout to add support, then cover the nail with mortar.

SEALING FIREPLACES/HEARTHES

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.

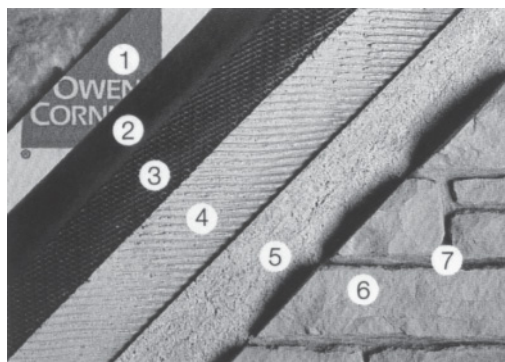
Typical Installations:

WOOD FRAME:



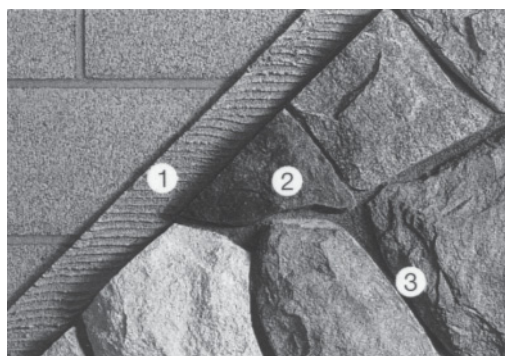
In sequence: (1) sheathing, (2) weather-resistant barrier, (3) galvanized metal lath, (4) mortar, (5) Cultured Stone, (6) mortar joint.

RIGID FOAM INSULATION:



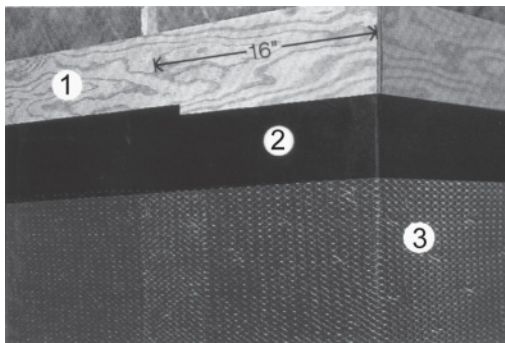
In sequence: (1) rigid foam insulation, (2) weather-resistant barrier, (3) metal lath, (4) scratch coat, (5) mortar setting bed, (6) Cultured Stone, (7) mortar joint.

MASONRY OR CONCRETE:



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

CORNER PREPARATION:



Weather-resistant barrier and galvanized metal lath must continuously lap a minimum of 16" beyond outside and inside corners. Lap materials 4" on horizontal and vertical joints. (1) wall substrate, (2) weather-resistant barrier, (3) metal lath.

General Information

CLEANING

Dirt etc. may be removed by using a strong 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. For help with serious cleaning problems, contact your local dealer. **Do not attempt to clean using acid or acid containing products. Do not clean with high pressure power washer.**

SALT AND DE-ICING CHEMICALS

Because all concrete and masonry is 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® 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® installation. Some scuff marks can be removed by cleaning as described above.



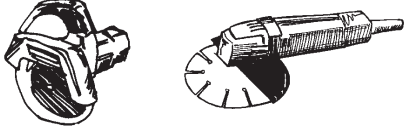




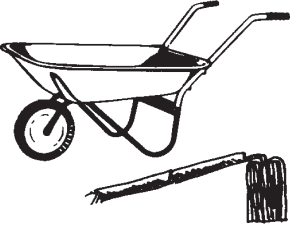
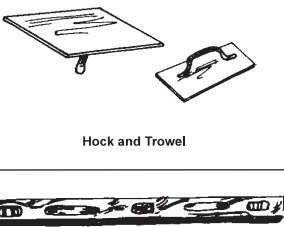

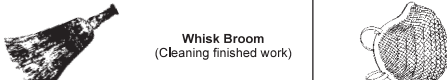
EFFLORESCENCE

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 that has penetrated 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. For unusually difficult cleaning problems contact your local Cultured Stone® dealer.

SWIMMING POOLS

Cultured Stone® products should not be used below water level as in swimming pool liners. Chlorine and other chemicals may discolor the Cultured Stone® products and other masonry materials.

TOOLS REQUIRED

 <p>Hammer/Staple Gun (Applying weather resistant barrier and/or metal lath)</p>	 <p>Metal Jointing Tool/Wood Stick (Finishing joints)</p>	 <p>Masonry, Circular, Table Saw or Grinder with Carborundum or Diamond Blade</p>	
 <p>Mason's Trowel (Applying mortar)</p>	 <p>Margin Trowel (Applying masonry adhesive)</p>	 <p>Safety Glasses (Use when cutting stones)</p>	 <p>Wide mouth Nippers/Hatchet (Trimming stone)</p>
 <p>Wheel Barrow and Hoe (Mixing mortar)</p>	 <p>Hock and Trowel</p> <p>Level</p>	 <p>Grout Bag</p>	 <p>Whisk Broom (Cleaning finished work)</p> <p>Dust Mask</p>

Incorporate Good Building Practices

BUILDING CODE REQUIREMENTS

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® application.

EXTERIOR APPLICATIONS

Make sure that the application of Cultured Stone® products and the structure they are being applied to incorporate good building practices.

Rigid, 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 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 surface damage. The application of Cultured Stone® products under these conditions is not recommended.

CAPPING OFF THE EXPOSED TOP OF EXTERIOR WALLS

To achieve a finished architectural look on horizontal or sloping top areas of exterior walls, piers, retaining walls, or other surfaces, the use of 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" to 2" beyond the finished stone surface. **Cultured Stone® corner pieces or flat pieces must not be used to cap walls.**

RETAINING WALLS

All retaining walls must be water-proofed at the fill side. Wall construction should incorporate proper use of granular back fill 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.

Code Acceptances, Reports And Listings

Tested or listed by Underwriters Laboratories, Inc., City of Los Angeles RR23744, HUD Materials Release No. 691c, Texas Dept. of Insurance Product Evaluation EC-21, ICBO Report ER-5749, National Evaluation Service NER-358 (showing acceptability to 2000 International Building Code, 2000 International Residential Code, BOCA National Building Code/1999, 1999 Standard Building Code and 1997 Uniform Building Code) and Ontario BMEC Authorization #01-04-256.

Trademarks and Patents

"Cultured Stone®," "Cultured Stone Veneer®," "Cultured Brick®," "Pro-Fit®," "Pro-Fit LedgeStone®," "Cobblefield®," "Desert Blend®," "Glacier®," "California Drift®," "C.S.V.®," "StoneCAD®," and Design Solutions™ are registered trademarks of Cultured Stone - A Division of Owens Corning.

Cultured Stone® 50-Year Limited Warranty

Cultured Stone® products are covered for a period of 50 years from the date of purchase when used on a structure which conforms to local building codes and when installed in accordance with the manufacturer's instructions. Cultured Stone - A Division of Owens Corning will repair or provide, free-of-charge, new materials to replace any determined to be defective. This warranty is limited to the original purchaser and may not be transferred to any subsequent owner.

This warranty does not cover damage resulting from:

- Settlement of the building or other wall movement.
- Contact with chemicals or paint.
- Discoloration due to airborne contaminants.
- Staining or oxidation.

This warranty covers only manufacturing defects in Cultured Stone® manufactured stone products. Cultured Stone - A Division of Owens Corning is not responsible for labor costs incurred in removal and replacement of defective products. Hearthstones are not warranted for use on the ground or as a surface area subject to foot traffic.

AUTHORIZED DEALER:

CULTURED STONE®

One Owens Corning Parkway, Toledo, OH 43659

Tel: 800-255-1727 Fax: 707-255-5572



E-Mail: cltrdstn@owenscorning.com
Or for additional information, visit our
website at <http://www.culturedstone.com>