



# LONE STAR STONE



Installation Guide

# Variations of Stone Installation

There are two basic variations of the stone installation procedure which give two distinct finished appearances. These are known as the standard installation procedure or the Tight-fitted (commonly referred to as the Dry-stacked) installation procedure.

The standard installation procedure leaves grouted joints between all stones. The Tight-fitted or Dry-stacked installation procedure fits stones tightly together with hidden or minimal grouted joints. While much of the installation procedure is the same for both variations, differences will be noted throughout these instructions. Brick installation is covered under the standard installation procedure.



## ONE

### ★ INSTALLATION INSTRUCTIONS ★

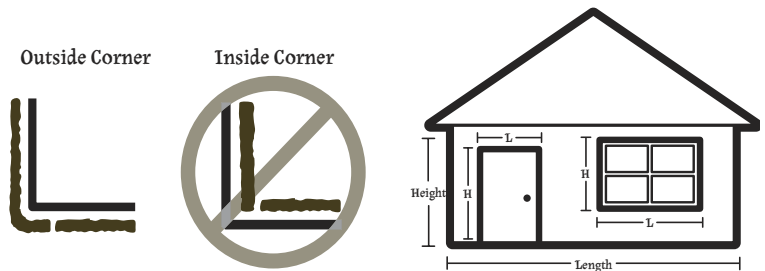
Carefully read and follow all installation instructions. Read and observe safety precautions. Building code requirements vary from area to area; check with local authorities before starting your project. Lone Star Stone products are covered by a 30-Year Limited Warranty when installed in accordance with the manufacturer's instructions.

## TWO

### ★ ESTIMATING THE AMOUNT OF STONE REQUIRED ★

To determine the quantity of stone required, you must first measure the area to be covered and calculate it into square feet. Square footage is easily calculated by multiplying length by height for all stone areas. You can deduct any non-stone areas such as window or door openings by using the same formula and subtracting from the total. Next you will need to measure the linear feet of all outside corners to include stone. For each linear foot of corner stone, there will be one square foot of stone coverage. The total linear footage should be deducted from the total square footage. See diagrams and formulas below.

#### FORMULA



$$\begin{aligned} & \text{Total Area of Stone Coverage} \\ & - \text{Any Deductions (doors / windows)} \\ & - \text{Linear Feet of Corner Stone (order this)} \\ & = \text{Square Feet Flats (order this)} \end{aligned}$$

## THREE

### ★ TOOLS REQUIRED ★

Choosing the correct tools will ensure proper installation, and will help a project go quickly and smoothly. The following tools may be needed:

- ★ Safety glasses and other personal protective equipment such as gloves and dust masks
- ★ Hammer and/or staple gun with air compressor
- ★ Screw gun
- ★ Wheelbarrow and hoe or half-inch drill and five-gallon bucket
- ★ Mixing paddle
- ★ Mortar mixer
- ★ Plaster's hawk and trowel
- ★ Mason's trowel
- ★ Margin trowel
- ★ Masonry saw, circular saw, table saw or grinder with carborundum or diamond blade
- ★ Wide-mouth nippers and/or hatchet
- ★ Level and chalk line
- ★ Metal jointing tool or wood stick
- ★ Grout bag
- ★ Whisk broom

## ☆ MATERIAL REQUIREMENTS ☆

### MORTAR COMPONENTS

1 part type N or S masonry cement with 2-3 parts masonry sand

-or-

1 part Portland with 1 part lime and 5-7 parts sand



For Dry-stack installations it is recommended to add latex modifier or bonding agent to above mixes

### NOTE: MORTAR

Weather conditions should be considered. 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 40°F. Mortar will not set up properly under such conditions. Do not use antifreeze compounds to lower the freezing point of mortar.

### FLASHING

To maintain the weather-resistance of the exterior wall on which stone products are installed, rigid, corrosion-resistant flashing should be installed at all penetrations and terminations of the stone cladding. Flashing type and locations should be in accordance with applicable building code.

### WEATHER-RESISTANT BARRIER

Barrier should be equal to U.B.C. Standard No. 14-1 for Kraft waterproof building paper or asphalt saturated rag felt.

### METAL LATH

Minimum 2.5 lb. galvanized expanded metal lath (diamond mesh) or minimum 18 ga. galvanized woven wire mesh. For metal buildings and open stud construction: minimum 3.4 lb., 3/8" rib, paper-backed, galvanized expanded metal lath, or other code-accepted mesh or lath.

### FASTENERS

Wood frame: Galvanized nails or staples providing 1" penetration into the framing.

Steel Frame: corrosion resistant, self-drilling and tapping pancake head screw (min. 7/16" head) providing 3/8" penetration beyond inside surface of metal.

Concrete or masonry surface: concrete nails.

## ☆ SURFACE PREPARATION ☆

### RIGID BACKWALL

Wallboard, plywood, paneling, OSB, exterior core gypsum, concrete board or polystyrene insulation board installed over a rigid backwall.

Cover sheathing with a weather-resistant barrier with lap joints 6" at vertical joints and 2" at horizontal joints in shingle fashion. Then, in accordance with local building code, lap (overlap 4" both vertically and horizontally) and install lath or mesh using galvanized nails, screws or staples 6" on center vertically, penetrating studs a minimum of 1". Continuously wrap weather-resistant barrier and metal lath a minimum of 16" to next framing member around all outside and inside corners. Apply scratch coat as needed. Allow to dry 24 - 48 hours.

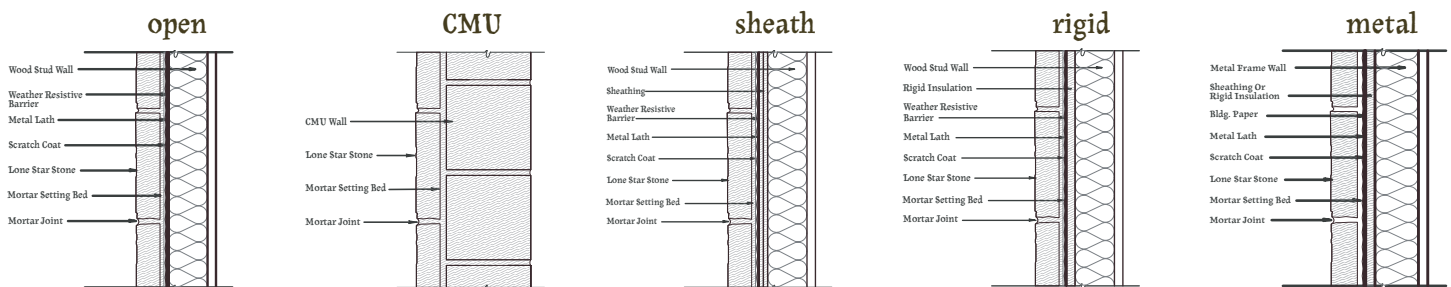
### CLEAN AND UNTREATED

Concrete, masonry and stucco: No further preparation is needed. Examine newly poured concrete closely, ensuring that its surface contains no release agents. If it does contain a release agent, remove as recommended by release agent manufacturer and return concrete/masonry to original finish. Apply scratch coat as needed. Allow to dry 24-48 hours.

### DIRTY, PAINTED OR SEALED

Concrete, masonry and stucco: Sandblast or waterblast to original surface. Remove sandblasting dust by washing and securely attach lath. Apply scratch coat as needed. Allow to dry 24-48 hours.

## SURFACE PREPARATIONS



### METAL BUILDINGS

Lap and install 3.4 lb., 3/8" rib, paper-backed, galvanized expanded metal lath to metal cladding supports, using corrosion-resistant, self-drilling, self-tapping pancake head screws. Screws are installed on-center equal to one screw/sq. ft. and shall not exceed 6" on center in one direction. Apply scratch coat. Allow to dry 24-48 hours.

### INSTALLING STONE AT GROUND LEVEL

Keep the finished edge of the Lone Star Stone product a minimum of 4" above grade if earth or 2" above pavement. Use a 2" x 4" leveling strip (straight-edge).

### PREPARE YOUR WORK AREA

Spread Lone Star stone out at the job site to have a good variety of sizes, shapes and colors from which to choose. Plan for variety and contrast in the overall design. Use small stones next to large ones, heavy-textured pieces next to smooth ones, thick stones next to thinner ones. Mixing Lone Star stone from different boxes during application will allow for a desirable balance of stones to your finished project.

### MIXING MORTAR/GROUT

Mix to a firm, moist consistency. Mortar that is too dry and crumbly will not provide a proper bond. Mortar that is too wet will be weak and messy.

## SIX

# ★ APPLYING LONE STAR STONE ★

### STARTING POINT

Mortar and stone may be applied either from the bottom up or from the top down. Working from the top down may help avoid splashing previously applied stone with mortar. Anything Tight-fitted or Dry-stacked should always be installed from the bottom up.

### LEVEL AND PLUMB JOINT LINES

Some stone styles look best when applied level and straight. Maintain level and plumb lines by using chalk lines or leveling strips as needed.

### JOINT WIDTH

In order to obtain the most natural look, joints should be as narrow as possible. The average should not exceed 1/2" in width.

### 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.

### INSTALL FLAT PIECES

After the corner pieces are in place, flat pieces are applied working toward the wall center.

### SETTING THE STONES

Apply mortar evenly to the entire back of the stone and adhere it to the surface. Apply even pressure to the stone to ensure a good bond. All edges or voids around the stone must be filled with mortar. Care should be taken to avoid smearing mortar on surface of stone.

### KEEP 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. Cut or trimmed edges may be turned away from direct line of sight and covered with grout to make them less noticeable.

### GROUTING AND FINISHING JOINTS

If additional mortar is required, use a grout bag to fill in joints (Fig. 1). Care should be taken to avoid smearing mortar on surface of stone.



Fig. 1

When the mortar joints have become firm, they should be pointed up with a wood stick or metal jointing tool. Setting time will vary depending on wall surface and climatic conditions. Rake out excess mortar, then compact and seal edges around stones (Fig. 2).



Fig. 2

When mortar is sufficiently set up, the finished job should be brushed to remove loose mortar and to clean the face of the stone. Never use a wet brush, as this may cause staining that may be difficult to remove. Do not use acid or acid-based products.

### CUTTING AND TRIMMING

Safety glasses and a dust mask should be worn when cutting any concrete products. Cut in a well-ventilated area. Stones can be cut and shaped for fit.

Use wide-mouth nippers or a hatchet. Some broken stones may be found in the box; these also may be used in filling gaps between large stones. For best appearance, coat all cut or broken edges with mortar. If possible, position cut edges up when they are above eye level and down when below eye level.



### ADDITIONAL INSTRUCTIONS

#### FOR TIGHT-FIT OR DRY-STACKED APPLICATIONS (LEDGESTONE, DRY-STACK & STACKSTONE)

#### FIT THE JOINTS TIGHTLY

These veneers may be installed with Tight-fitted (mortarless) joints. Generally, components should be placed butting each other and aligned for level and plumb. When installing, pre-wet the back of the stone. Mortar may be tinted to match the color of the stone you are installing to help conceal the joint lines.

### 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.

### STARTING POINT

Products are applied starting from the bottom (first course) and working up. 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. Frequently check the installation for level and alignment.

### 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. Choose the correct length component to ensure that vertical joints do not line up.

### SETTING THE STONES

Apply mortar generously and evenly across the entire back of the stone and adhere it to the surface, allowing any extra mortar to seep out around the edges.

Apply pressure to the stone to ensure a good bond. Be cautious not to loosen adjacent stones when placing the stones on the wall. Clean excess mortar from the stone and seal all edges to prevent gaps between the stone and the wall. Check to ensure that the stone is level and plumb.



### CUTTING AND TRIMMING

Safety glasses and a dust mask should be worn when cutting any concrete products. Cut in a well-ventilated area. 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. Stones can also be cut and shaped using wide-mouth nippers or a hatchet. Place finished edges at exposed areas and any cut edges within stone courses out of the direct line of sight.

## SEVEN

### ★ INSTALLING HEARTHSTONES & WATERTABLES ★

**NOTE:** Hearthstones are not recommended or warranted for a surface area subject to foot traffic.

### HEARTHSTONES

Start by placing mortar strips ¾" deep and 3" wide approximately 1" apart on the prepared surface. Place the first Hearthstone on to the mortar bed and level. 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.

### WATERTABLES

Watertables provide a transition piece between a stone wainscot and other exterior finishes. Install using galvanized metal support brackets (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" O.C. Use mortar and construction adhesive to bond stone at bracket locations. Caulk and flash as required.

## EIGHT

### ★ CLEANING, EFFLORESCENCE, SEALING AND SCUFFING ★

#### CLEANING

Care should be taken to avoid smearing mortar on the surface of the components. Accidental smears should be removed using a dry whisk broom only after mortar has dried completely. Never use a wet brush or wire brush. Do not power-wash, sandblast, use acid or acid-based products.

Dirt and other materials may be removed with 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 power-wash, sandblast, use acid or acid-based products.

#### 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 Lone Star Stone. 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 dealer.

#### SEALING

Sealers are not necessary on Lone Star stone; however, some customers may use sealers to help prevent staining and to aid cleaning in applications prone to smoke, soot, dirt or water splashing. If you choose to use a sealer, make sure it is a silane or siloxane-base breathable sealer. Take note that sealers may alter 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.

#### SCUFFING

Scuffing occurs on all natural stone. Occasionally, some scuffing will occur on the surface of Lone Star stone. This can enhance the natural appearance of your stone installation. Some scuff marks can be removed by cleaning as described above.

# LONE STAR STONE

