

Getting Started

Congratulations on your decision to enhance the look of your home with Boulder Creek Stone products. Boulder Creek Stone products are made from a lightweight concrete material that replicates the look and texture of natural stone, and offers the benefit of being able to be installed directly to any surface.

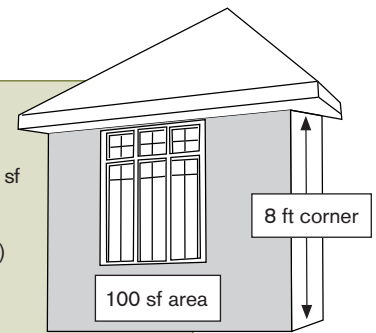
Calculating Materials Necessary

If you haven't already purchased your materials, you may be wondering how much Boulder Creek Stone will be necessary to complete your project.

- First, measure the square footage of the total area to be covered by stone.
- If you will be using corners on your project, plan for each linear foot of corner pieces to cover $\frac{3}{4}$ square foot of area.
- Example: if you had a 100 square foot wall with an 8 foot corner, the corner pieces would cover 6 square feet of the wall. So, subtracting 6 from 100, you would need 94 square feet of flat stone to cover the face of the wall, and 8 linear feet of corner pieces.
- The grouted stone patterns are packaged assuming a $\frac{3}{4}$ " grout joint. If your grout joint will be different than this, it may be necessary to order more or less product accordingly.

example:

total surface area = 100 sf
 corner height = 8 ft
 $8 \times \frac{3}{4} \text{ sf} = 6 \text{ sf}$
 (coverage by corners)
 100 sf - 6 sf = 94 sf



Tips

Some things to keep in mind before, during and after the installation process:

Keep the Stone Clean During Installation

- Keep your hands clean.
- If you get mortar on the stone, let it dry (like grout) until it becomes firm, then flick it off.
- If wet cement is smeared on the stone, it leaves a thin film that dulls the stone. Take a sponge and clean water right away and keep washing with clean water until film is all gone.

Salt will Damage the Stone

- Do not use salt where it may splash or get on the stone.

Prevent Mud Splashing

- Where rainfall may splash mud on the stone, put down hay or straw to prevent mud splashing.

Check Local Building Codes

- Building codes vary from area to area.
- The absence or incorrect installation of water proofing, flashings, J-weep, stucco stop, caulking around doors and windows, cant strips, gutter and down spouts may result in water infiltration and cause damage in later years.

Cold Weather Installation

- Installations should be protected from temperatures below 40° F (4° C).

Environmental Considerations

- It may be required to moisten the scratch coat and the back of the stones being applied.

DO NOT USE ACID TO CLEAN THE STONE

Tools and Materials

For the installation, we recommend the following tools and materials:

- | | | | |
|-----------------------------------|------------------|------------------|-------------------------|
| • Hammer | • Tin Snips | • Level | • Dust Mask |
| • 1 $\frac{3}{4}$ " Roofing Nails | • Wheel Barrow | • Grinder | • Grout Bag |
| • Hammer Tacker | • Hoe | • Circular Saw | • Medium Bristled Brush |
| • $\frac{1}{2}$ " Staples | • Masonry Trowel | • Safety Glasses | |

Stone Installation Instructions

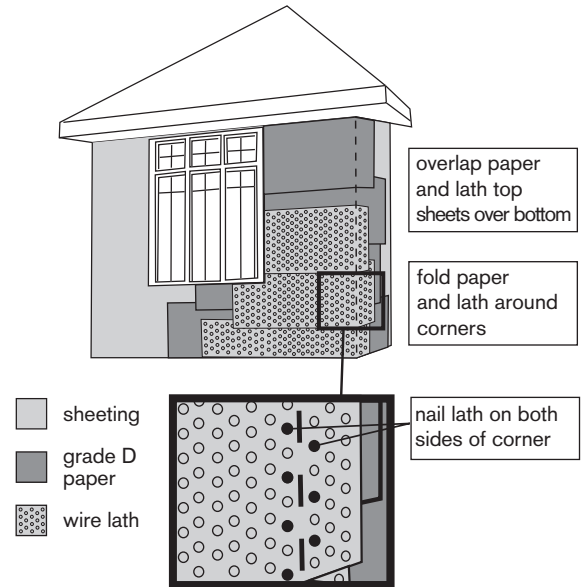
Step 1: Preparing the Surface

Weather Resistive Barrier (WRB)

If you will be installing the stone on an exterior non-masonry surface it is recommended to apply a WRB such as a two ply Grade D 60 minute paper or two layers of 15# felt. First, install a J-weep 4" above grade, then apply WRB starting with the bottom edge at the lip of the J-weep continuing upward in a shingle-like fashion. Overlap WRB a minimum of 2" on horizontal seams and 6" on the vertical seams.

Wire Lath

- Directly over WRB, or directly over the sheathing on an interior project, cover the area with wire lath. Boulder Creek recommends using 3.4 lb sq/yd or 2.5 lb sq/yd corrosion resistant lath.
- Install the lath horizontally.
- Overlap the lath a minimum of 2 inches on the vertical seams, and at least 1 inch on the horizontal seams. The overlapping lath must begin or end on a framing member.
- The lath should feel smooth as you run your hand down over the lath and rough as you run your hand up over the lath.
- Use fasteners (nails, staples, etc) that will penetrate the framing members a minimum of 1 inch. Fasteners to be placed every 6 inches vertically into framing members.
- When working with corners, fold the lath tightly around the corner. This rule applies for inside corners also; fold the lath at a 90 degree angle and fit it tightly into the corner. See diagram above.
- Never have a seam on a corner.
- **It is very important to fasten the lath on both faces of the corner. See diagram above.**

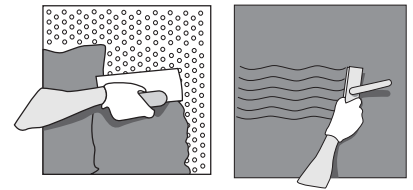


Step 2: Scratch Coat

- **Mix Mortar**
Dry mix together 1 part Portland Type I or II or Type S cement with 2-1/4 parts sand. Slowly add water to the mixture a little at a time and continue mixing the mortar adding small amounts of water as needed until it is the consistency of peanut butter.
- Use a masonry trowel to work the mortar into and over the lath. Cover the entire area of lath with the mortar mixture. The lath should be fully encapsulated with mortar.
- While the mortar is still slightly wet, use a stiff bristled brush or scratch coat rake to rough up the scratch coat.
- After the scratch coat has become sufficiently cured to support the application of the stone, the stone could be applied. It may be necessary if the scratch coat has become dry prior to application of the stone to re-dampen the scratch coat and may be necessary to re-dampen while applying the stone. There should be no free standing water on the surface when the stone is applied.

Apply the scratch over the lath using a masonry trowel

Use a medium bristled brush to rough up the scratch coat



Step 3a: Applying the stone - GROUTLESS and DRY-STACKED Patterns

Layout the stone

Before you apply any of the stone, lay out a couple of boxes in front of your project. This will give you a sense for the variety of shapes and colors you'll be working with. Arrange the pieces so they fit and look nice next to each other, and try to avoid clumping colors together in one area.

Stone Installation Instructions

Mix mortar

Blend together water and bonding agent according to manufacturers' recommendations. (Verify with bonding agent manufacturer for proper usage instructions.) Dry mix together 1 part Portland Type I or II or Type S cement with 2-1/4 parts sand. Slowly add pre-blended water and bonding agent mixture a little at a time and continue mixing the mortar adding small amounts of water as needed until it is the consistency of applesauce. An alternative to adding a bonding agent and mixture above would be to use a pre-blended polymer modified mortar.

Moisten surfaces

Thoroughly wet the scratch coat/wall surface with water prior to applying setting bed mortar and stone. It may be necessary (i.e. dry, arid conditions) to also wet the back of the stone prior to applying the setting bed to the stone.

Install corners first

Start at the corners and work toward the center of the wall. Be sure to alternate long and short returns on corner pieces. There are no special pieces for working on inside corners, just meet the two pieces together.

Cutting the stone

Any power saw with a masonry blade will work. This cutting will be very dusty, so be sure to wear safety glasses and a dust mask and do all cutting outdoors.

Work from the bottom up

With these patterns, you should work from the bottom up. In these installations the pieces should be placed tightly together. Be sure to check your work often with a level. If you'll be working with a dry stackable pattern, it is recommended that you mix your mortar with a latex bonding agent, available from your supplier. (Verify with Bonding agent manufacturer for proper usage instructions).

Apply the stone

The back of each stone should be entirely buttered with mortar mixture to a nominal 3/8" thickness. Firmly **work** the stone onto the scratch coat while pressing and moving back and forth to set the stone, mortar should slightly ooze or squeeze out around the edges of the stone during this process. Be cautious not to disturb or bump an adjacent stone as any further movement once a stone is set will break the bond. If this occurs, the affected stones and mortar will need to be removed and the procedure of setting the stones restarted. It may be necessary to remove excess mortar from around the stone.

Step 3b: Applying the Stone - GROUTED Patterns

Layout the stone

Before you apply any of the stone, lay out a couple of boxes in front of your project. This will give you a sense for the variety of shapes and colors you'll be working with. Arrange the pieces so they fit and look nice next to each other, and try to avoid clumping colors together all in one area.

Mix mortar

Dry mix together 1 part Portland Type I or II or Type S cement with 2-1/4 parts sand. Slowly add water to the mixture a little at a time and continue mixing the mortar adding small amounts of water as needed until it is the consistency of applesauce.

Moisten surfaces

Thoroughly wet the scratch coat/wall surface with water prior to applying setting bed mortar and stone. It may be necessary (i.e. dry, arid conditions) to also wet the back of the stone prior to applying the setting bed to the stone.

Install corners first

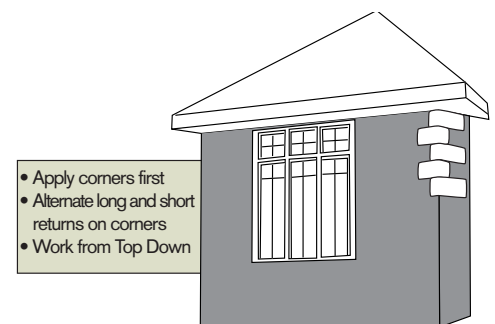
Start at the corners and work toward the center of the wall. Be sure to alternate long and short returns on corner pieces. There are no special pieces for working on inside corners, just meet the two pieces together.

Cutting the stone

Any power saw with a masonry blade will work. This cutting will be very dusty, so be sure to wear safety glasses and a dust mask and do all cutting outdoors. Other times you may want to break the stone to keep a more natural looking rough edge. You can use a nipper to trim small amounts off the stone, or the back of your masonry hammer to crack a piece in half.

Work from the top down

Whenever possible work from the top down to prevent cement from dripping on stones beneath.



Stone Installation Instructions

Guidelines

With some patterns, it's a good idea to lightly etch guide lines into the scratch coat, using a 4' level and a pencil.

Apply the stone

The back of each stone should be entirely buttered with mortar mixture to a nominal 3/8" thickness. Firmly **work** the stone onto the scratch coat while pressing and moving back and forth to set the stone, mortar should slightly ooze or squeeze out around the edges of the stone during this process. Be cautious not to disturb or bump an adjacent stone as any further movement once a stone is set will break the bond. If this occurs, the affected stones and mortar will need to be removed and the procedure of setting the stones restarted. It may be necessary to remove excess mortar from around the stone.

Step 4: Applying the Grout

Mix Grout Mortar

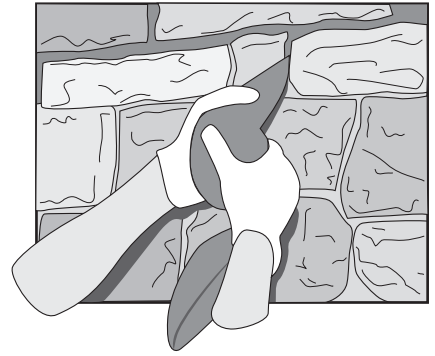
Dry mix together 1 part masons cement (Type N or Type S) with 2-1/4 parts sand. Slowly add water a little at a time and continue mixing the mortar adding small amounts as needed until it is the consistency of peanut butter.

Cut Grout Bag

Cut about a 1/2" hole in the tip of your grout bag. It's best to start by cutting a smaller hole, and you can always cut more later, but if the hole is too big, the cement will drip out and stain the stone.

Using Grout Bag

- Fill your grout bag about half full with the grout mixture
- Twist the top end of the bag and squirt some grout back into the bucket. This will prevent air pockets from causing the grout to accidentally squirt out explosively.
- Keeping the top end of the bag twisted, gently squeeze the grout into the joints. Fill all the gaps between the stones with grout mortar to slightly above the desired finish depth. The grout will tighten and seal up the area around the stone.



Letting the grout dry

Let the grout dry until it is firm but not solid. Do not let the grout turn gray or it will be very difficult to strike.

Striking the Grout

- Striking the grout gives your project a finished look. Strike the grout to achieve the desired look. Use your striking stick to scrape along the joints until the grout has a clean, even look to it.
- We recommend using a hardwood stick such as oak for striking. Keep the sticks square by cutting the tops off of them if they get worn down.
- The grout should crumble away like sand. If it smears, or crumbles away in large chunks, that means the grout is still too wet.

Sweeping the Stone

Finally, use your medium bristled brush to sweep the dust off the stone.

For further information about Boulder Creek Stone products, please visit us online at www.boulder creekstone.com and www.boulder creekarchitect.com or call us at 1-800-762-5902.



MINERAL COMPOSITION UNITS
SURFACE BURNING CHARACTERISTICS
89TN
Flame Spread 0
Smoke Developed 0



LISTED CAN/ULC-S102.
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