

Making



Cast Stone



Easy

 **Tech Talk**
by Stone Legends

Installation Techniques

Behind the Scenes



Stone Legends is the Logical Choice

How long will cast stone last?

Structures built in the Roman Empire using cast stone methods are still in existence today, nearly 2000 years later.

What is Cast Stone?

Cast stone is a man-made limestone aggregate laid into molds and cured. The advantage to cast stone compared to natural stone is the ability form it into complex shapes and designs.

How does Stone Legends stack up to the competition?

Stone Legends has built a reputation over fifteen years for quality craftsmanship and creative design. We can offer a wide range of services from project planning and design to detailed site management services.

Time

Custom Project Management
Drawing Reservoir
Existing Tooling

Quality

Dedicated Artisans
Highly Trained Craftsmen
Advanced Curing Process

Cost

Competitive Pricing
Itemized Estimates
Detailed Job Site Tracking



Getting Started...

Stone Legends maintains a database of stone masons throughout the country and we can help find the best fit for your needs.

Stone Masons

Finding an experienced stone mason qualified in the latest installation techniques and attachments will minimize any potential problems in your project.



How much does installation cost?

Cost will vary according to several market factors including the cost of labor, the complexity of the units and the quantity of the stone to be installed. On average the installation cost will run from 40-60 % of the total cost of the stone ordered.

Before you Start...

- ☒ Make sure the entire work area is clean and dry prior to installation.
- ☒ Locate and verify all parts of the unit to be installed.

Basic Information Tips

Organize and inspect the stone by unit using the site map as your guide.

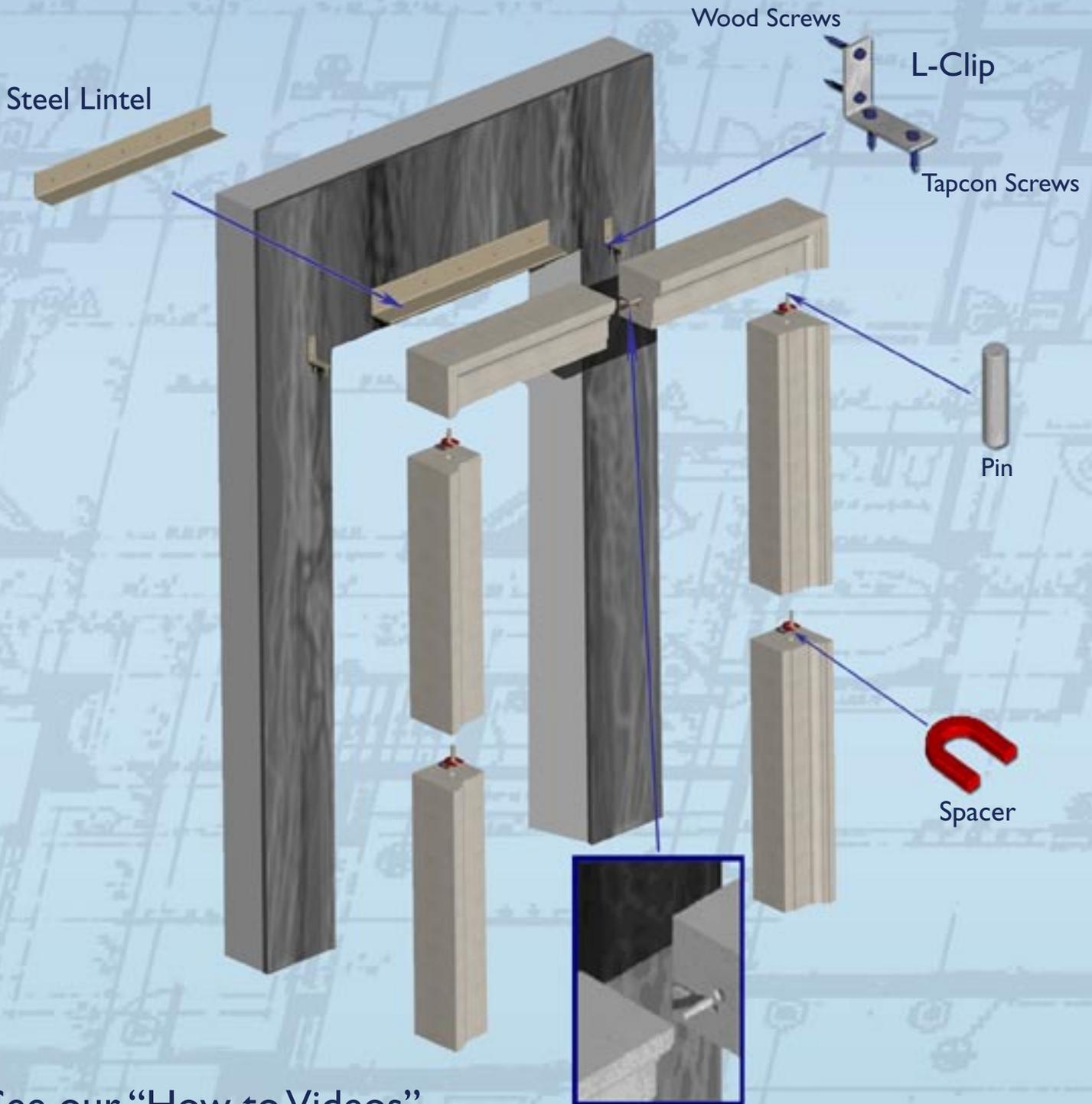
- ☒ Beginning at the base of the unit place each stone carefully into position according to the assembly package.
- ☒ Level each layer throughout the process utilizing shims to keep the joints even and controlling the overall dimensions.
- ☒ Secure each stone to the structure using clips, ties, screws, or other appropriate hardware. Utilize steel lintels as required.
- ☒ Support all heavy parts of the unit externally during the process to avoid any damage.
- ☒ Use regular mortar to fill the joints while leaving 1" inch clear set back from the surface to allow pointing.
- ☒ Point the joints with a matching sand and white mortar mix to finish.



Step by Step...

Detailed Assembly Instructions

Cast Stone Window Surround Example



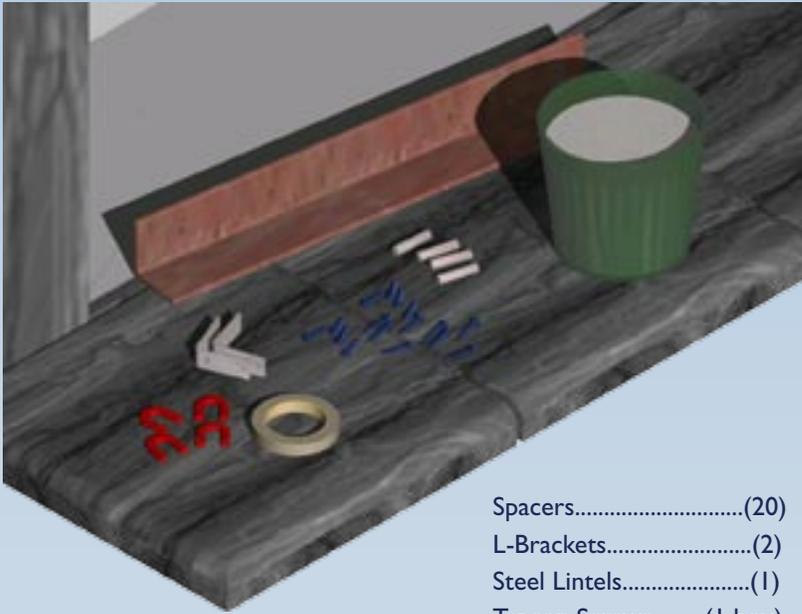
See our “How to Videos”

Photos and Drawings at www.StoneLegends.com

Step by Step...

What you will need

Hardware:

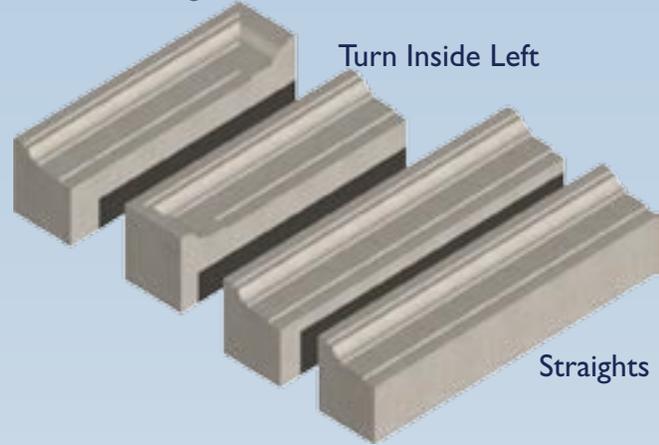


- Spacers.....(20)
- L-Brackets.....(2)
- Steel Lintels.....(1)
- Tapcon Screws.....(1 box)
- Masking Tape.....(2 Rolls)
- Pins.....(3)

Component List:

Turn Inside Right

Turn Inside Left



Straights

- Turn Inside Right.....(1)
- Turn Inside Left(1)
- Straights.....(2)

Tools Required:



Builders Square

Carpenters Square

Hammer

Pointer

Chisel

Trowel

Pencils

Tapcon Drill Bit

Spirit Level



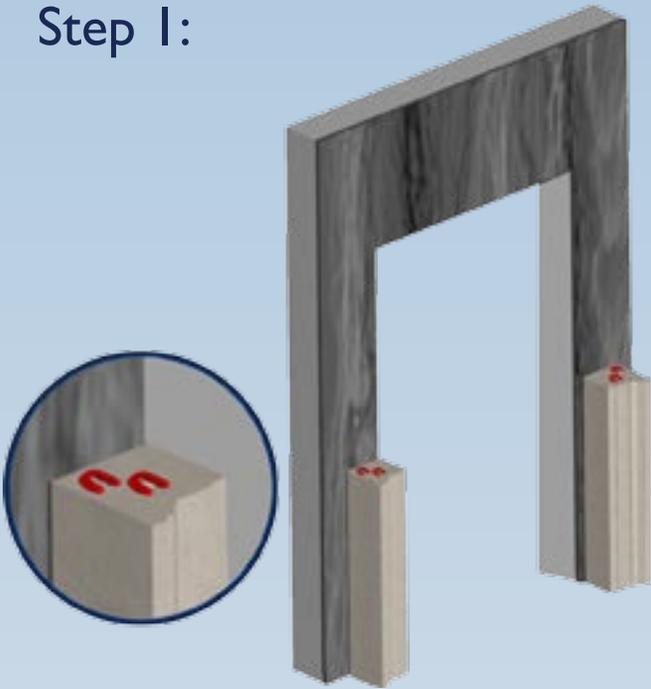
Angle Grinder

Electric Drill



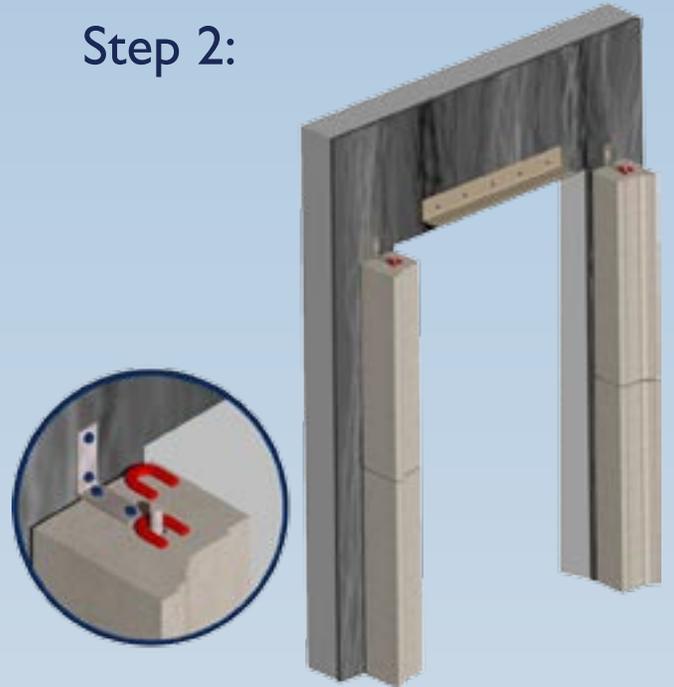
Step by Step...

Step 1:



Place the straight leg sections into position. Make sure it is Level. Mark and drill the holes for the steel setting pin. Utilize spacers to achieve the correct mortar joint spacing.

Step 2:



Secure the top of the leg with L-Clips and Tapcon Screws. Drill a pin hole in the top of the leg to secure the horizontal section of the surround.

Step 3:



The horizontal pieces of the surround can be held in place with steel lintels and tapcon screws. Wire and pin are used to keep the stone from tipping. Drill a pin hole to secure the facing stone of the horizontal section.

Step 4:



Install the last piece of stone. It will now be time to fill in the mortar joints.

* Stone Legends does not imply these installation methods are the only types available.

All attachments, steel sizes, gauge thicknesses, and anchor sizes should be calculated by a qualified structural engineer.

Stone Legends 301 Pleasant Dr. Dallas, Texas 75217 (800) 398-1199 Fax (214) 398-1293 www.StoneLegends.com

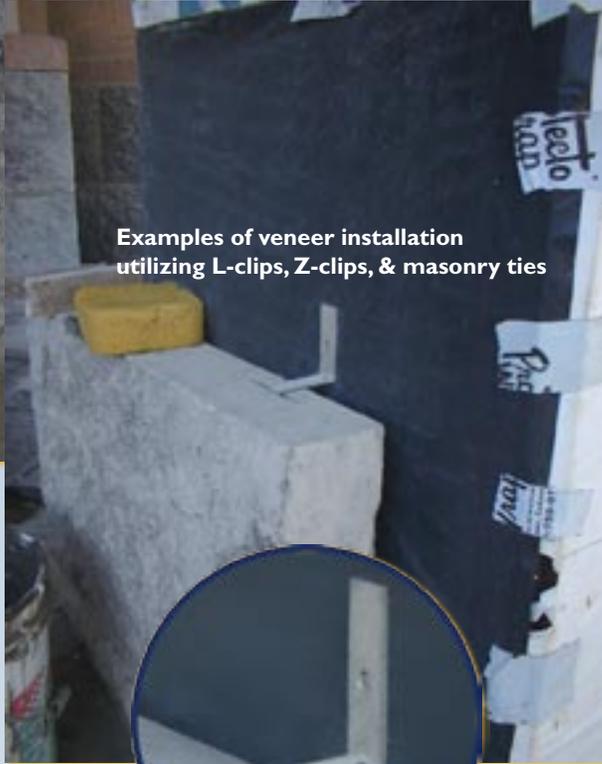
Architectural Stone Installation Methods

Lateral Loading

- Masonry Ties
- Z-Clips
- L-Clips



Masonry Ties



Examples of veneer installation utilizing L-clips, Z-clips, & masonry ties



Z-Clips



L-Clips

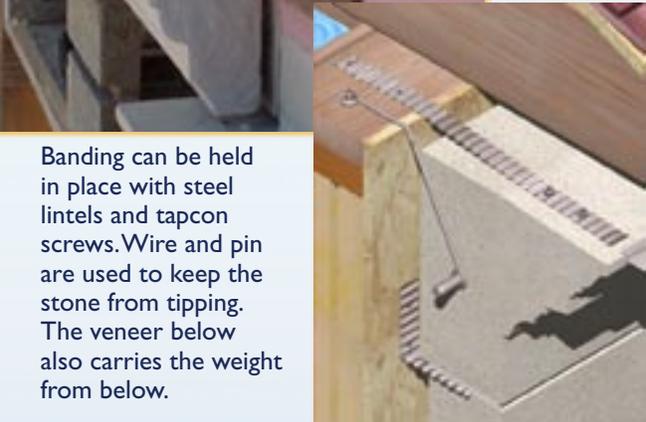
Masonry Ties, Screws, Wire & Pins

Wood Blocks, Straps, & Screws

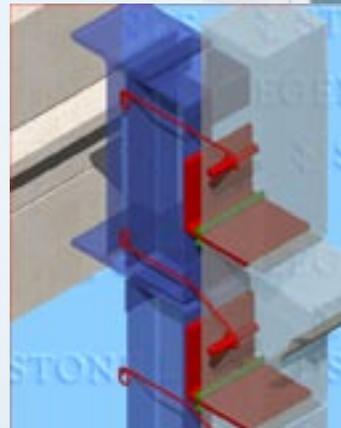


Span Loading

- Wire & Pin
- Wood Blocks
- Straps & Screws



Banding can be held in place with steel lintels and tapcon screws. Wire and pin are used to keep the stone from tipping. The veneer below also carries the weight from below.

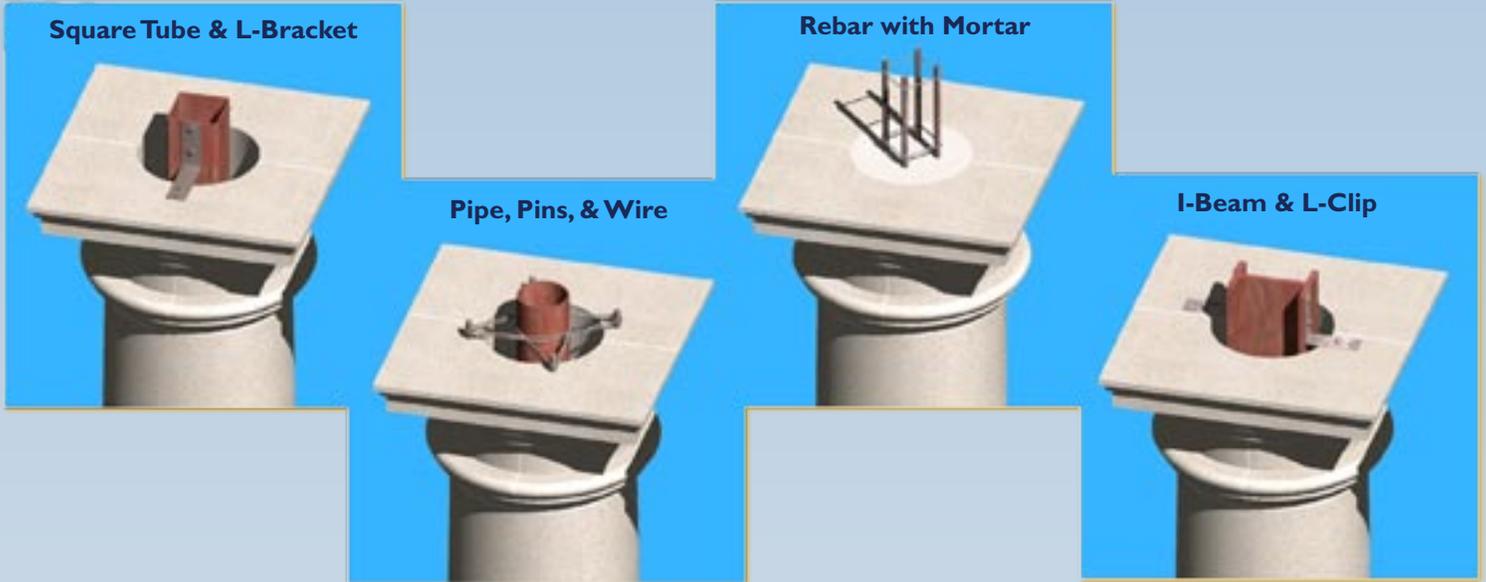


Supporting the weight from below is the main goal and preventing the stone from "rolling away" from the structure.

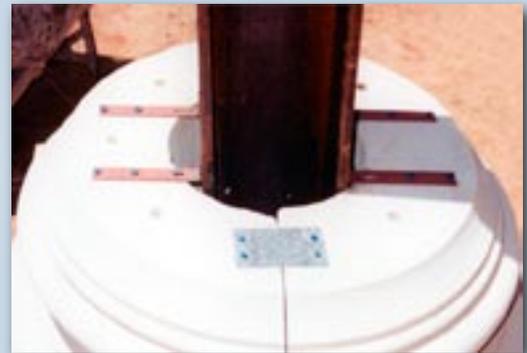
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Architectural Stone Installation Methods

Hollow Column Installation



Hollow Column Installation



* Note: A minimum airspace of $\frac{1}{4}$ " should be maintained at all times. This allows for the expansion and contraction of the steel and will prevent damage to the stone elements.



Precast holes are set with pins to align the column sections



Improper installation can lead to discoloration of the stone pieces.

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Architectural Stone Installation Methods

Exterior Stone Veneer



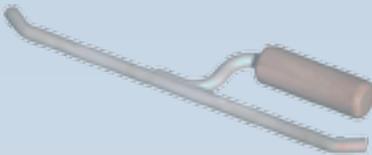
Stone veneer ready for mortar joint filling



Filling mortar gaps and smoothing with a pointer



Excess mortar is removed and cleaned



Wall & Pier Cap



Wall is prepared for cap installation



A hoist crane is used to lift & place heavier stones



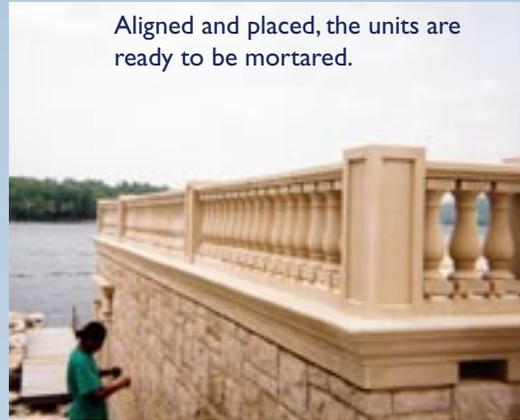
Architectural Stone Installation Methods

Balustrade Installation

Stone units are carefully lined up before installation begins.



Aligned and placed, the units are ready to be mortared.



Field Cutting

Stone Units can be cut on site to accommodate hardware or to custom fit the pieces.



Entryway Installation



Wooden forms are used to support the stone as it is being fitted and placed.



Architectural Stone Installation Methods

Window Surround Installation

These examples of installation highlight the use of L-Clips, Tapcon Screws, Straps, and Pins.



Note the protective tape covering the stone face, which will prevent any mortar spillage from staining the stone pieces.

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L-Clips & Tapcon screws secure the stone in position. Steel beams support and distribute the weight



A plumb line stages the offset of the surrounding veneer as it finishes out the window sill.

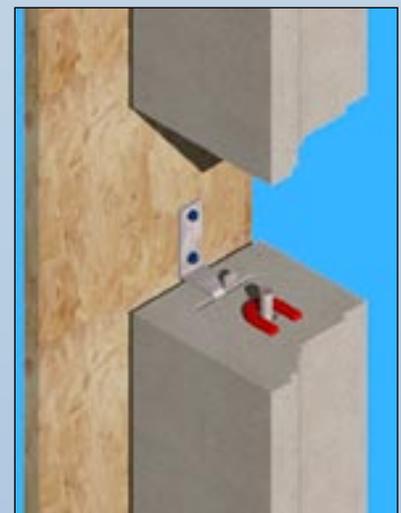
L-Clip



L-Clip



Groove & Pin



Architectural Stone Installation Methods

Steel Beam



Overhead Suspension

Hanging stone units requires the proper use of reinforcement for durability and safety reasons.

Our experience with project planning can avoid any potential installation concerns.

Straps



Weld Plates



Embedded weld plate inserts support the stone structure.

Threaded Inserts



Inset threaded bolts fasten onto a locking plate.

Red Oxide Coating

Any steel which comes in contact with the stone units should have a red oxide coating. These contact points should be revisited and touched up upon installation to avoid any potential rust discoloration to the stone.

Two-Way Clips



Two-Way Clips require inset grooves to protect the stone from cracking.

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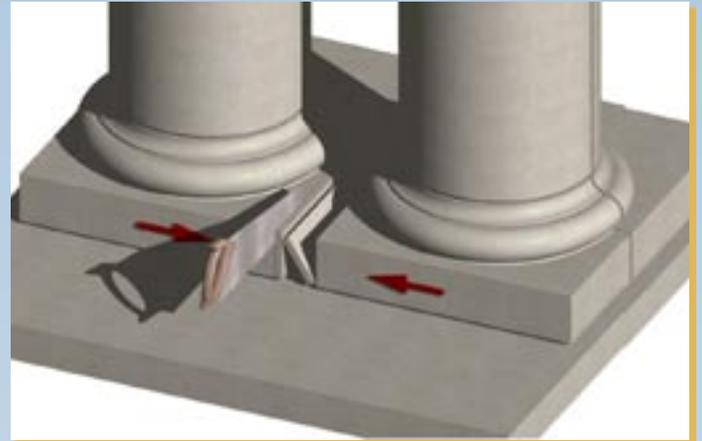
Problems? Questions?

We have solutions at Stone Legends...



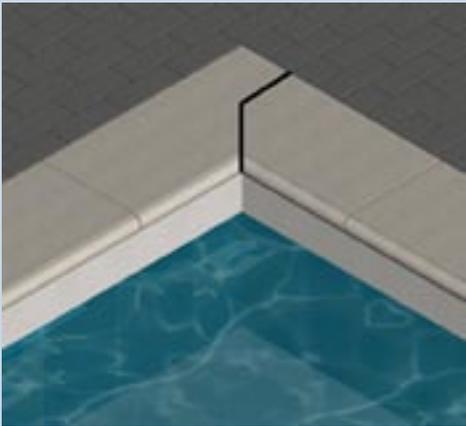
Q: How can I make an inside corner with straight pieces?

A: Make a left and right 45 degree cut on the two straight pieces.



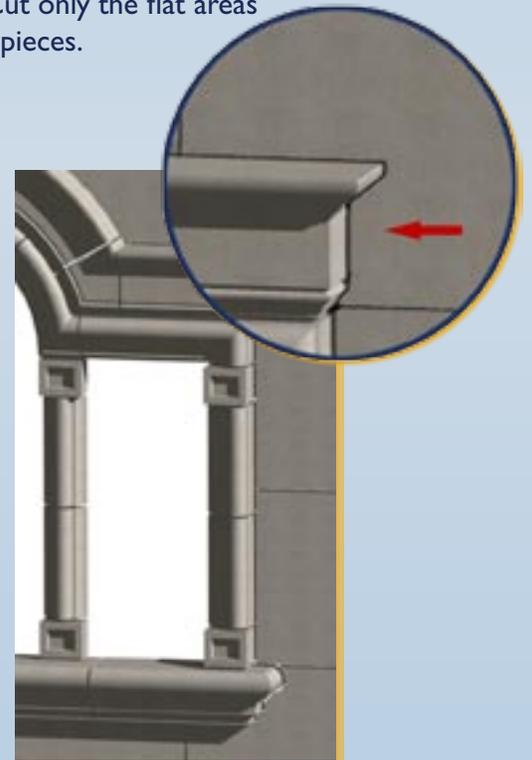
Q: I need to move the columns closer together but the bases are touching.

A: Trim the bases where they touch; Cut only the flat areas straight pieces.



Q: I need to make an inside corner with pool coping. How do I make it look professional?

A: It is better to cut the front half of the stone as pictured in the example.



Q: I have to cut the veneer panels to accommodate the sill and crown profiles. Is there a better option?

A: A backed cope will allow you to cut a square segment out of the panels.



Q: The handrail meets the newel too low at the base of the stair. What is the best solution?

A: Shift the newel closer to the base step so they intersect properly.

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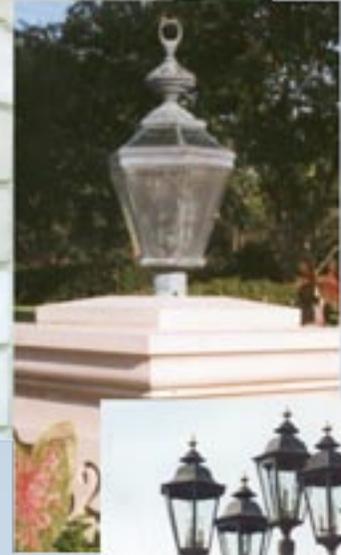
Special Services

Proper Handling



We recommend the use of two forklifts for large stone pallet removal. Adequate space around the trailer will be necessary to maneuver properly.

Installer Conscious Designs



Pre-cast holes can be utilized to prepare for electrical and plumbing applications as required.

Threaded Inserts



Using threaded inserts to lift & transport a unit is not recommended.



Threaded inserts can be added in the manufacturing process to attach the stone to other structures.

Reinforcing Cast Stone



Steel reinforcements can be utilized to strengthen any application of cast stone structures.

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Do It Yourself...

“Build By Part”

Set I: Select from our extensive list of profiles.

Salem2 Marshall I

Surrounds

Jamison2 Vincent I

Sills

MarcusSlope2 Bolson2

or

Cross Section

Choose from one of our matching profile families.

Chamfer

Jamison

Bolson

(Set Line)

Step 2 : Select your desired shape & size.

Example: Circle top window surround with keystone & sill.

Square Top

Circle Top

Eyebrow Top

Parts List:

=

We offer a full selection of unit sizes designed to fit the masonry opening of your windows.

Final Assembly

View more profile selections @ StoneLegends.com

* Some field cutting may be required

Restoration Projects

With time, the elements take their toll and deterioration can set in on great architectural landmarks. Reproduction of these complex designs requires precise planning and attention to detail. This intricate window was recreated to exact specifications and installed with the help of extensive project plans & site map drawings.



Original Window Sections



Stone Legends CAD plans



On-site layout of parts



Finished project window



Threaded inserts hold parts together



Preliminary stone setting

Frequently Asked Questions

Where can I see some of your stone installed?

You can start by checking out our online Gallery. We have stone installed in all 50 states and many foreign countries.

How can I get stone in a hurry?

Stone Legends has a large selection of inventory to choose from

What should I do to prepare stone for installation?

Make sure the stone is clean and dry before you begin to install. Mask off the faces of the adjoining stones before you assemble each joint with painter's masking tape. Once jointed, remove the tape.

What type of mortar joints should I use?

In exterior applications you should allow for a 3/8" mortar joint, interior applications generally use 1/4" to 1/8" stone depending on the project.

What kind of mortar mix is recommended?

Use regular gray mortar mix for installation, but NOT for the Pointing. Rake the joints back about 1" from the surface, and then mix four parts sand to 1 1/2 parts White mortar mix for color-matched grout.

How do I fix stone that's been chipped?

Stone Legends has patch kits available for our clients. Send us your job color, and we will send a matched color kit to you.

How do I protect my stone from the elements?

For a "natural" look, no maintenance is necessary. Unsealed, a natural patina will evolve. To protect your stone from the elements, we recommend PROSOCO's Weather Seal PD or ChemProbe's Prime-A-Pell®. If you wish to wash your stone, **DO NOT USE HIGH PRESSURE SPRAYERS**, the force will damage your stone.

What causes cast stone to crack?

This is usually caused by Freeze/Thaw. This is a term used to identify what happens when water seeps into stone, freezes and expands. Cracking is a term used to identify fine and random cracking in stone. This is a natural component of any cast stone, and has no affect on integrity, longevity, or stability.

What causes stone to have a hazy discoloration?

The hazy discoloration is caused by Efflorescence. This is a natural phenomenon that is caused by moisture, which has been absorbed into the stone. The moisture forces out the calcium within the stone through hydrostatic pressure. Efflorescence can usually be removed with products like Prosoco, or Sure Klean.

What is the best way to avoid water damage to a structure?

The most critical component to avoid water damage is flashing. Flashing is installed behind masonry products to direct water away from the structure. Slots, weep holes, scuppers and down spouts are other methods used to avoid this kind of damage.

Please visit our affiliated companies
for all of your stone needs.



*Stone
Magic*

Stone Magic manufactures a wide range of elegant
Cast Stone Fireplaces from their plant in Dallas, TX.

www.stonemagic.com

GALLERIA



Located in the heart of Dallas, Texas, Galleria Pierra is the newest
addition to our family of affiliated companies. It features the finest cast
and natural stone products available in the industry.

<http://www.galleriapierra.com/>



Stone Origins

Stone Origins has the custom design capability and logistical resources to
support every facet of your project from concept, to creation, to delivery.

<http://www.stoneorigins.com/>

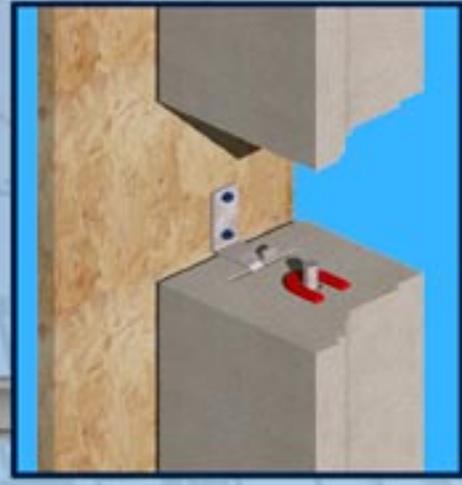


CAST STONE COMMERCIAL SERVICES

Cast Stone Commercial Services target the stone
needs of commercial clients around the nation.

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