



GENERAL ARCHITECTURAL STONE

General Architectural Stone

The installation of architectural stone requires special care and, though Materials Marketing is neither directly involved in/responsible for this portion of a job, it is wise to be familiar with some of the issues that come up.

Using an example of a fireplace, let's look at the issues, one by one:

1. Piece size as it relates to
 1. ability to lift and maneuver on the jobsite
 2. requirements for blocking in the walls
 3. need for mechanical fastening to aforementioned blocking; assessing the type/style of mechanical fastener(s)
 4. means by which mechanical fasteners are attached to a piece of stone and/or, from one piece of stone to another
2. Adhesives used to complete the installation and how they differ
3. Sealing architectural stone
4. Grouting architectural stone

1) Piece Size:

a) Please note (as mentioned in the Weights and Measures sheet) that over a certain weight...this depends upon the piece dimension and installation conditions...that architectural stone can be VERY cumbersome to lift. This is especially true of Mantle pieces and headers for Hearths/Hoods and doorways where the pieces are being installed at or above eye-level. Though there is no specific rule on this, please know that pieces that exceed 200 lbs will likely cause "issues" on typical residential jobsites. (Be advised that the weight of pieces is provided for you in your estimates.)

What kind of issues? Any or all of the following: inability of an installer to lift; susceptibility to damage due to difficulty in maneuvering the piece; having a disgruntled (and vocal) installer on the site providing bad PR. Be mindful of the weights of pieces when designing them and communicate weight issues to your client.

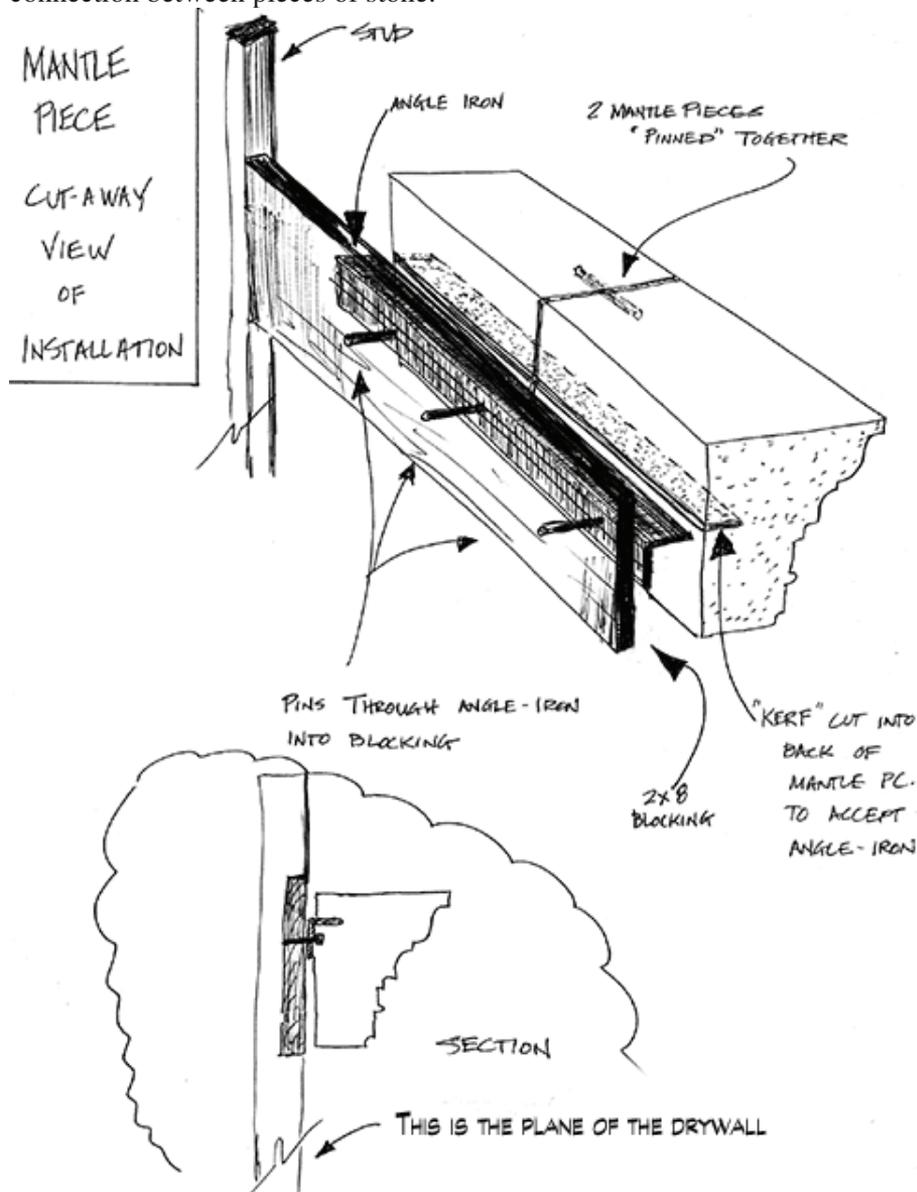
b, c & d) Architectural pieces of stone have a gravitational tendency to want to either fall straight down or rotate away and down from that to which they are attached. To prevent this from happening, several steps must be taken: blocking must be put between studs in the wall (2x6, 2x8 or 2x10); mechanical anchors must be attached between the stone and the blocking by "kerf" cutting the back of the stone (putting a long horizontal slot into the back) and fastening angle irons, lag bolts, metal pins, etc. Occasionally, pieces of stone are also "pinned" to one another to unitize them, i.e., to keep them held together as a single unit; and, a combination of adhesives must be applied between the anchors and the stone, between the pieces of stone and between the back of the stone and the wall.

GENERAL ARCHITECTURAL STONE

2) Adhesives:

Adhesives: Different kinds of adhesives are used in conjunction with one another to adhere a piece of architectural stone to a wall. Thinset is used to adhere most pieces of stone to a substrate and one piece of stone to another. Thinset is made from high-grade Portland cement and sand. Epoxy is a very strong adhesive (both in durability and in smell), which is used to adhere mechanical anchors to the stone and also to adhere heavy pieces of stone to a substrate. The nature of epoxy is such that it sets up (hardens) very quickly which helps installers to complete more in a day; however, it also requires that they move swiftly while working. Epoxies for these applications are available at many granite/stone yards and at least one brand, AKEMI, is regularly used on our jobs.

Example of blocking/anchoring a mantle: Example of blocking / anchoring a mantle and its connection between pieces of stone:





GENERAL ARCHITECTURAL STONE

Sealing and Grouting Architectural Stone:

Once a piece is adhered to a substrate, it is time to begin the next phase of installation: sealing and grouting the stone. Normally, sealing precedes the grouting of stone; however, when a job requires that the stone be “slurry grouted”, i.e., that the grout be applied to the entire piece of stone—not just the joints—then the reverse is true. Either way, all stone should be sealed. What will a sealer do? Sealers are not miracle cures nor can they protect against every eventuality; however, they do help to protect stone against “normal staining” and/or can aid in the process of cleanup required when extreme staining does occur (red wine stains, highly pigmented material stains). Stone also needs to be “periodically” re-sealed. How often? There is no rule, as the location of stone and what it is exposed to—in both usage and elements—differs dramatically. [Here is a reasonable litmus test: if you pour some water onto a piece of stone and the water “beads up”, i.e., does not penetrate into the stone, the sealer would appear to still be doing its job.]

3) Sealers:

Sealers: There are different kinds of sealers on the market and they basically fall into two categories: **Topical/Penetrating** and **Color Enhancing/Non-color Enhancing**.

Topical/Penetrating: For architectural stone, use penetrating sealers first, and then a color enhancer if that is what is desired (some sealers combine both). Color enhancers deepen the color tone of a stone. Non-color enhancers do not. A client should always test a sealer in a discreet area first to see the effect before proceeding on an entire installation. (Some brand names to consider: StoneTech and Miracle Sealer; each company has several products for different applications)

An important note about exterior applications of architectural stone: When stone is exposed to the elements (rain, wind, dirt, heat, freeze-thaw cycles, etc) the demand for sealing is paramount. A premium is put on waterproofing the stone and the grout in these applications. Exterior sealers are available from Hydrozo and Prosoco. Both of these companies back up their products with testing data and warranties! Exterior sealers are generally non-color enhancing.

4) Grouting:

Grouts: Architectural stone utilizes sanded grouts. There are many companies to choose from in this arena! For what it is worth, most of our concept boards utilize grout from CUSTOM BUILDING PRODUCTS, which is readily available at HOME DEPOT. Other products to consider: LATICRETE or MAPEI...sometimes it depends upon the area/region of the country or installer preference as to what gets used.

It is recommended that installers take some of our stone from the piece and pulverize it (turn it into a powdery consistency) to mix in with the grout to help the grout color and consistency to better match the stone. (The stone that is a by-product of drilling for the mechanical anchors will do nicely!) If this extra step is taken, the percentage of pulverized stone should not exceed 10–15% of the total, as it can interfere with the bonding agents (adhesive character) of the grout.

Presuming that a piece of stone is not being slurry grouted, each grout joint should be taped off after the sealers are dry so that the grout does not get into the face of the stone. Generally a “bag



GENERAL ARCHITECTURAL STONE

grout” technique is used so that the grout only goes where directed. A grout bag is like a pastry bag...but on steroids!

During the grouting process, excess grout is wet-wiped off of the stone and when dry, the face of the stone is cleaned again when the tape is removed from the grout joints. After a final cleaning, sealing/enhancing the entire piece again may be advisable.

Presuming a piece is meant to be slurry grouted, the grout will fill in all of the available crevices on the face of the stone in addition to the grout joints. As well, the color of the stone will be affected by the color of the grout. The finished appearance of a slurry grouted piece of stone—versus one that is not—can be dramatically different.

DISCLAIMER

The intention in providing the above information is purely educational in nature. MATERIALS MARKETING does not install stone; as such, the company is not “responsible for the accuracy or efficacy” of the enclosed. However, by understanding this information, you can begin to see what the final stages of your projects are like and, consequently, can converse on the topics involved.

www.mstoneandtile.com

1.800.368.3901