How to grout ashlar masonry

- Grouting can be a means to consolidate open joints or voids within a structure, however it is not a technique that should be applied to buildings as a matter of course, it is best employed where other consideration, such as very fine joints with depths too great for conventional hand pointing methods simply will not work or where it would encourage “Tip Pointing”.

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- In this instance a fine ashlar structure means a wall where the masonry is fine tooled, squared and with joints in the range 1-3mm nominally or where joints have as a result of movement opened up to 5mm or more on the face.
- Projecting decorative element such as a cornice stone which has lost all of its mortar and where daylight can be seen through the joint would be an ideal example.

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Typical open cornice joint with daylight visible through the masonry. Filling a joint such as this by hand using conventional tools is almost impossible, or so time consuming it is never properly completed in normal contracts. Resulting in incomplete work and rapid failure of the joint.

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- Grouting to fill ashlar joints would never include a chimney which is a structure that has known voids and pathways (ie flues) for transportation of grout into the lower levels of a building.

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- Grouting for structural stabalisation is carried out from the lowest level upwards.
- However by varying the water content or the addition of fine sand, the rate and flow can be managed such that for most ashlar joints in a façade, it is often possible to grout joints in isolation, provided a common sense approach is taken.

Grouting a few rules

Here we can see an open joint in isolation. It is often possible to reasonably accurately calculate the theoretical maximum volume of a joint by taking height, width and depth 300mm x 5mm 100mm = 150000 cubic millimeters or 150 cubic deciliters equivalent to 150 Milliliters in liquid volume. Its would be a reasonable assumption on volume given t he variation in the joint from top to bottom. This will become more relevant and clear as the next few sections unfold.

Grouting a few rules

- Filling the joint must be done with care, if the projected volume of grout is exceeded then it is almost certain that the grout is finding other pathways and may be leaking into other elements of the building that were not intended to be grouted. Lowering the flow by reducing the water content or by adding filler will slow down or alter the flow rate.

Grouting a few rules - Risks

- Until a bit of experience is gained, by trial and error, there remains a potential risk for uncontrolled grout leakage.
- So approach a grouting exercise with a bit of care at the outset, learn what is required and grouting has the potential to be the fastest, most effient simplest option.

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Materials and tools you will need:

- Clay
- Flat working surface
- A rolling pin
- Straight edge
- Small tool

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- Clay can be reused and recycled
- Rolling pin can be a piece of plastic tube
- Flat working surface is any waterproof material, formica or similar with a smooth surface.

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- Roll out the clay – just like rolling out pastry
- About 6 -10mm thick is fine

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- Trim the rolled out clay using the straight edge
- These can be made up well in advance and a sheet of building paper laid between them to keep them apart.

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- Gather up spare clay, roll into a ball and keep for making more strips.

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- Cut up the rolled out clay in strips about 20mm wide

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- The strips of rolled out clay should look like this…

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- Apply the clay strip to a cleaned out joint and dampened (but not wet wall) over the centre of the joint to be grouted.

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- Lay it up (attach) with a flat spatula such as a small tool or better still a small wallpaper seam roller, do not press to hard, apply just enough pressure to stick unsupported to about ¾ the way up the joint.

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- Flatten the clay strip gently ensuring it does not fill the joint.

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- Squeeze the edges of the clay strip down to ensure there is a good bond to the stone

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- Make a clay ‘cup’ about the same size as a quartered tennis ball as shown.
- To avoid staining on the stone where the cup leaves areas of stone exposed at the fill level, rub with a little candle wax

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- Position the clay cup where the bed meets the perpend
- Press down the edges of the clay cup firmly to ensure no grout will be lost

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- The finished clay ‘cup’ should look like this

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- If necessary cover any open horizontal joints using clay cover strips as shown

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- Once the target joints have been covered. Flush out the joint with water, this will readily show any areas where leaks might occur and will also give you information as to the extent of any unseen voids. If necessary, create a small weep hole at the low point of the clay, this does not replace full washing of joints before applying the clay

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- Carefully pour the grout into the cup…
- The flow rate of the grout is determined by adding more or less water. The rate that water flows during flushing is the best clue to flow requirements.

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- In small quantities at a time…

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- Check constantly for leakage…

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- Fill at the same rate that the grout disappears into the joints…ie so the grout does not overflow

How to grout ashlar masonry

How to grout ashlar masonry

- When the grout finally fills the cup, allow to stand for up to 30 minutes, check to see if further filling is required…
- Meanwhile set up more clay strips

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- Moulded work is treated in the same way, clay will adhere to dampened surfaces and can be used on the underside of a string course or cornice., wrapped around and up to the tope edge where a clay cup can be formed for filling from above,
- The thickness of the clay band may need to be increase to 20 or 30mm depending on the volume of materials being filled from above, these can also be filled in lifts, say 1/3rd of the depth of the cornice with 12 hours between fills to ensure the pressure from liquid grout does not exceed the bond of the clay.

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- After the final fill wait for 12- 24 hours (depending on the grout specification) and remove the clay strips to check the integrity of the joints.
- There should be no gaps or open joints…
- The grout can be finished with small bent piece of stainless wire to form a nice neat finish if needed.
- Where a joint has been eroded or damaged, practice in placing the clay will leave a slight recess back to the weathered edge, avoiding very wide flat faces of light – white ashlar mortar looking unsightly.

How to grout ashlar masonry

- Mix dry ingredients carefully with minimum water content to a stiff putty like consistency;
- Using a drill whisk attachment combine the ingredients further before adding additional water as high shear mixing causes grouts to slump
- Add additional water slowly stirring with the whisk to determine flow – runny custard is a good verbal description of grout for gravity grouting.
- Add additional fillers such as fine sand to bulk up grouts for joints over 3mm with up to equal amounts of fine sand for 5-8mm joints.

How to grout ashlar masonry

- Each building is different and requires adjustment to binder / aggregates or fillers additions and water content.
- Where a grout is specified, only water or filler adjustment needs to be done on site.
- The SLCT run half day ashlar grouting courses at their workshops in Merryhill or can arrange bespoke on site training.

How to grout ashlar masonry

- If grout does not fill a space, the usual problem is insufficient pre-wetting or a dirty joint that restricts flow or both.
- Cleanliness is vital for grouting to be successful.
- Tape and fill joints that can be hand pointed, grout joints where there are clear voids.