



# stone building



## what is it?

Stonemasonry has existed since humans first made tools to work stone. Stonemasons work rock into the desired shapes, then use the stones to make structures. Whilst some stone work is done 'dry', much stonemasonry involves the use of mortars, and the understanding of the crucial relationship between the mortar and the stone. There are three main aspects to the stonemason's craft: choosing and shaping the stone; the lime process; and the structural work of building in stone.

Stonemasonry in the UK survived to the present day largely thanks to its role in conservation of our architectural and ecclesiastical heritage. In colleges, e.g. in York and Weymouth, ancient skills have been kept alive long after structural stone building and the use of lime mortars has fallen from favour in mainstream construction. We owe the continuing and developing tradition of this craft to the modern concern for Britain's built heritage. However, stonemasonry also has a role to play in sustainable building for the future, as well as perhaps, in the plans of self-builders.

Most stonemasons these days find work in urban centres, and for big companies that are not specialists in stonemasonry. Outside of this environment, stonemasons need to be adaptable and skilled in more than just building walls in stone. For this introduction, I was lucky enough to talk to Alastair McGowan whose work includes restoration, new build and training; he undertakes lime and stone projects, drystone walling and architectural/ecclesiastical restoration and conservation. These are the main different kinds of modern stonemasonry.

What we're not talking about is 'slipform' stonemasonry, which uses natural stone as facing only, on poured concrete walls.



*Various other things, apart from houses, can be built with stone.*



*Repointing a stone wall with lime mortar.*

## what are the benefits?

The craft of stonemasonry is very different to the industrial approach of the construction industry in which so many bricks laid per hour is the goal. Stonemasonry works with natural materials, and in sympathy with them. Stonemasons talk about the 'soft principle' - lime mortar is flexible and softer than the masonry unit. This gives buildings a resistance and durability that's lost with cement. The flexibility of buildings is a major factor in their longevity; it means that the building can move millimeters without cracking, can settle and shift with the Earth and the people who use it.

Stonemasonry is a skill won through long study and practice. Whilst the phrase to 'learn a trade' still has some minimal currency in our society, the understanding of how and why this is an innately good thing for a person has largely been lost - not however amongst those who practice a traditional craft or have acquaintances who do so. Heritage and traditional skill bursary schemes exist to help the transmission of crafts like stonemasonry.

Stonemasonry creates buildings amenable to long-term repair and maintenance. Stone buildings last for centuries, and can be endlessly cared for using the same materials with which they were first built. Stonemasonry is time consuming and relatively costly, but the results speak for themselves - rather than buildings that may well be obsolete or unusable within a generation, the works of stonemasons endure.

Stone is the most durable building material, but doesn't require the energy and pollution involved in the firing of bricks or cement manufacture. Cement mortars and renders should not be used in stone construction, as it sets harder than the stone, which means any moisture in the building will find it easier to escape via the stone than the cement, causing frost and evaporation damage to the stone.



*Damage to a stone wall due to the inappropriate use of cement mortar & render.*

## what can I do?

Becoming a stonemason is always an option, as long as there is either funding for the heritage skill bursaries or stonemasons willing to train apprentices. For the novice, if you want to build a stone plinth wall for a bale or earth building, that would be an achievable, as well as a really useful project to undertake. The forces at play in a large construction mean that it would always be worth seeking the advice of someone properly trained, and perhaps, even as a self-builder, employing someone to help, or to oversee the work.

In some places it might actually be easier to get planning permission for a stone building than for any other sort. There are parts of the UK where stone building is the local vernacular, and even places where building or repairing in an appropriate stone is obligatory.

If you buy a stone building, then you might as well learn about stonemasonry. You might still need a stonemason to help on more complicated jobs, but it's always a good idea to understand as much as you can about caring for your own dwelling.

You might buy a pile of stones that was once a house, and be determined to put the place back in the same style. This is one way to overcome the problem of sourcing stone. Quarried stone is expensive, and second-hand stone is often hoarded; imported stone is usually pre-finished for specific jobs (and for environmental reasons, it's not a good idea to transport something as heavy as stone over large distances). If you need stone then asking around or talking to local farmers is always a good idea, there are many abandoned

quarries and ruins around that might prove to be a good source of material.

A traditional craft like stonemasonry depends upon a highly specialised toolkit, and trying to work stone with inappropriate tools will lead at the very least to disappointment and frustration, and likely to bruised knuckles or worse as well.

A tungsten-bladed pitcher is used to drive a crack through a stone, a steel hammer to hit it. Nylon mallets and tungsten masonry chisels and points are used to shape the raw material for building. Alastair's tools mostly come from France, and putting the kit together is an expensive undertaking; the pitcher alone costs around £70.

Stones are heavy and tools can hurt. Health and safety has been of serious concern to stonemasons for thousands of years. Goggles and safety boots must be worn, and the art of safe lifting learned. Few of us will ever have to place stones on spires or tall chimneys, let alone work with Medieval cranes or rope-lashed scaffolding, but stonemasonry remains a craft that must be respected. Tendonitis or a splash of lime mortar in the eye are bad enough, but a stone on the foot, arm or leg can be catastrophic.

Traditional stonemasonry requires a specific mindset. The lime process can take anything from a day to weeks depending on the weather, and finding and preparing stone needs a methodical approach. These are not jobs that can be assaulted. On a cognitive level trying to sort stone for longer than a few hours in a day can be counter-productive. You can't work with lime when it's too hot, or when it's too cold, and stones need to be carefully selected and prepared. The work demands focus, but also patience. It is in essence the antithesis of industrial work.

## resources

- [lowimpact.org/stone-building](http://lowimpact.org/stone-building) for info, courses, links, books, including:
- Charles McRaven, *Building with Stone*
- Charles Long, *The Stonebuilder's Primer*
- Richard Kreh, *Masonry Skills*
- [buildingconservation.com/articles/stone/stones.htm](http://buildingconservation.com/articles/stone/stones.htm) – building stones of the UK
- [stoneroof.org.uk](http://stoneroof.org.uk) – Stone Roofing Association
- [nationalstonecentre.org.uk](http://nationalstonecentre.org.uk) – Nat. Stone Centre
- [oldstonematch.com](http://oldstonematch.com) – service matching old stones

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