

# WALLING AND MASONRY STONE

## CARE GUIDE



## HOW TO GET THE VERY BEST OUT OF YOUR STONE

Our stone has many benefits, it's durable, ethically and sustainably sourced and has many green attributes. Following good practice, you can ensure your exterior stone lasts for centuries to come. Read on to find out how...

### STONE SPECIFICATION

Some building applications require stone with certain physical properties. If you are using natural stone for areas exposed to harsh weather conditions or water saturation such as copings, stone for parapets, retaining garden walls or external floor tiles, check the stone you are sourcing has the physical properties to withstand the elements and is frost-resistant. Ask our experienced team for advice and recommendations on the right materials for your project.

### STORING STONE ON SITE

If your stone is being delivered to the site over the colder months, it is very susceptible to weather damage until it's laid. The packaging provided upon delivery will not be suitable for winter protection. Freezing conditions will adversely affect your limestone so make sure it is properly protected with a minimum of two layers of insulating material covered by strong polythene or tarpaulin. This will keep water out and protect your stone whatever the weather.

Stone stored at ground level, especially in the garden, needs protecting from rising damp. This can be done with a plastic membrane underneath the stone to ensure the damp can't penetrate.

### UNFINISHED BUILDINGS

These can be particularly vulnerable to harsh winter frosts and snow. Make sure part-built walls are covered with two layers of heavy sacking material and protected from water infiltration with an outer layer of robust polythene or tarpaulin.

### GOOD BUILDING PRACTICE

With good building practice, you can expect your limestone to last for years, providing it is correctly fixed.

### WATER SATURATION

Most limestone stays structurally sound with one or two faces to the weather, so long as there are no other forces at work such as rising damp or water soaking from the rear or above. The main reason for the failure of some limestone is water saturation due to poor building practice which, in turn, causes frost damage.

A common cause is the hard landscaping of the adjacent ground surface. A drainage gap should be provided for rainwater to drain prior to soaking the limestone wall. Where this is not possible ie. steps, a 'fall away' from the stone face is essential.

Stone failure can also be caused by insufficient coping stone. Copings require a sufficient overhang (minimum 50mm) and drip grooves to help stop rainwater from penetrating the stone. A correct mortar mix (see below) is also recommended to allow the stone to 'breathe'.

### DPC

If building with limestone below DPC, water saturation is likely. Masonry above the first 150mm and below 150mm of ground level are most at risk from water saturation and therefore frost damage. (Guidance Eurocode 6 design of masonry structures BS EN 1996-1-2 1995). The cavity should be kept open to 150mm below ground level in order for the stone to breathe. Incorporating engineering bricks or below DPC weatherbed limestone below the damp proof course is recommended.

## AIRFLOW

It is essential that air is able to circulate behind natural limestone; all limestone exposed to freeze/thaw conditions requires airflow to the rear of the stone. The cavity should be clear of groundwater, mortar, debris and insulation. Weep holes sited at ground level and above all lintels will often provide sufficient ventilation. Where insulation batts are used, a minimum air gap of 25mm should be maintained.

Where a wall has a common boundary with another building, a membrane should be inserted to separate the two structures and prevent passive damp.

## EXPANSION JOINTS

The maximum horizontal distance between vertical movement joints recommended for natural stone is 20m (according to guidance in the Eurocode 6 Part 2 BS EN 1996-1-2 2005). This applies when the build ratio length versus height is 3:1 or less. The distance should be reduced when a building design lies outside this ratio. The use of movement tolerant ties are recommended.

## MORTAR MIX

Traditional mortars were made from lime and sand and/or other coarse aggregates, sometimes with additives such as brick or coal dust. The pointing acted as a 'sacrificial material' so that moisture within the wall would be drawn through the joint and evaporate, instead of through the brick or stone. The use of lime - a porous material - allowed the building to 'breathe'.

Modern mortars tend to be cement-based, and are usually harder than the surrounding brick and stone, and are impervious, unlike lime mortars. This means that moisture is not transferred through the pointing, but through the brick and stone. When this freezes, the brick and stone decay instead of the pointing, leading to difficult and costly repairs, not to mention causing damage to the appearance of the building.

Another common problem is that water can freeze behind cement pointing and force it out. When this happens, the arrises (edges) of the stone or brick are likely to break away, leaving joints exposed and spoiling the appearance of the wall. Pointing for traditional buildings should always be lime-based, mixed to match the original mortar as closely as possible in colour and texture.

### **The correct mortar mix for 8-10mm bed masonry is:**

- 9 parts gritty yellow building sand
- 2 parts hydrated lime
- 1 part white cement (preferably Portland)

### **For sawn masonry material for 3-5mm bed, the mortar mix is:**

- 7 parts Stamford Stone extracted lime
- 5 parts hydrated lime
- 1 part white cement (preferably Portland)

## FALLING SHARDS IN WINTER

Quarry sap is a natural inclusion in most newly quarried stone and usually takes between 12 months and three years to dry out. When the quarry sap has dried out of the limestone, it's considered at its hardest and most weather resilient.

On rare occasions during winter months, slight spalling from the faces (fragments of stone that have not fallen off during production) will fall as shards following freezing conditions, this is natural weathering of the stone and not cause for concern, it usually stops after the first or second year following construction.

## CHEMICAL TREATMENTS

Treatments are widely available to help protect your limestone from the elements. They are designed to allow the stone to breathe, preventing trapped moisture. However, because stone is a natural material, please do seek specialist advice before you buy any man-made treatments.

## WHO IS BEST TO BUILD MY PROJECT

A stone specialist or mason is always the best choice to build in natural stone, ensuring it is safe and enduring. Get in touch with our team of stone specialists for advice or details of our recommended fitters.

With good building practice, you can expect your limestone to mellow and mature gracefully. Its unique aesthetic and enduring qualities mean it should look good for centuries to come providing it is correctly fixed and given the proper care and attention. Visit our Gallery for inspiration.

If you've got more questions you'd like answering, check out our FAQs page, download our walling stone brochure or give us a call today on 01780 740970.

### 5-YEAR WARRANTY

For peace of mind, all of the stone products selected by us come with a 5-year warranty. Providing you have followed the correct building practices, we guarantee that our stone won't let you down. If the stone fails due to incorrect fixing or poor building practice, your warranty will be invalidated. Please contact our experienced stone masons for advice if you have any questions or concerns.

### ONLINE LEARNING:

The Society for the Protection of Ancient Buildings (SPAB) runs regular courses where you can learn how to protect your stone and avoid costly repairs.

For more information, go to [www.spab.org.uk](http://www.spab.org.uk)

### OTHER USEFUL RESOURCES:

[www.maintainyourbuilding.org.uk](http://www.maintainyourbuilding.org.uk)  
[www.english-heritage.org.uk](http://www.english-heritage.org.uk)

