

## **Thorverton Stone's Short Guide to Cast Stone**

When specifying your stones, aim to involve Thorverton Stone at an early stage in your project, right at the earliest design stage if possible.

### **Cast Stone:**

Cast stone is an incredibly versatile material designed to replicate natural stone. It weathers similarly, is as strong and durable, is easier to produce and equally long lasting. It is even claimed to be carbon negative over its life, absorbing more CO<sub>2</sub> than it makes to produce it. It has been used extensively in new buildings and renovations, commercial and residential projects alike for many years – Coade Stone, invented by Eleanor Coade in the 1700's, is an early example.

### **Ingredients:**

Whilst Mrs Coade used Grog as an ingredient (*see Wikipedia*), today we manufacture our cast stone by combining natural aggregates with a cementitious binder and water. Here at Thorverton Stone, we add a water-proofing agent, (*alarmingly, not all companies add this*) iron-oxide pigments for colour (if required) and a further ingredient to help with strength and durability. All our stone is manufactured to comply with BS 1217:2008 as a minimum. (*See below for typical test results*).

### **Manufacturing Methods and Design Considerations:**

At Thorverton Stone the majority of our work is bespoke design. We are easily able to replicate existing items or change dimensions for more standard products such as window cills. We make our stones to fit our customers' requirements. Even our porticos are made to measure.

We manufacture by three methods: Semi-Dry (one-part); Semi-Dry (two-part) and Wet Cast.

Semi-dry is our main method of manufacture which uses low water content. This allows for the specially prepared moulds to be re-filled several times per day. We use either a one-part mix or a two-part system of a facing layer and high strength backing mix. The main limitation on the number of stones made per mould in a day is the size and shape of the stone. Any imperfections on the stone are removed immediately the stone is turned out, but other finishes such as etching, exposed aggregate or blasting are carried out when the stone has cured. The natural texture is slightly grainy, similar to limestone.

The wet cast method uses far more water and only one stone per mould per day can be cast. The texture of a wet cast stone is closer than that of semi-dry and extra "finishing" techniques (such as an acid wash) are more likely to be required.

### **Manufacturers of Reconstructed Stone Architectural Dressings**

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Registered in England & Wales No. 3530364

### **Reinforcement:**

Whilst our lintels and some other of our stones are reinforced to be structural and load-bearing as standard, the designer is free to incorporate/ request other reinforcing details as necessary. Note that all reinforcing must be verified by a structural engineer. Typically, we use high tensile “H” bar steel and stainless steel where necessary. Rock bar (a basalt fibre composition) is used in certain instances.

For the semi-dry manufacture method, quite intricate reinforcing can be incorporated such as specially made cages or bent steel. Whilst intricate steel reinforcing is less easy to do with wet cast stone, fibre strands can be added into the mix making very strong pieces and potentially thinner sections.

For guidance on the working loads for our standard structural lintels please contact us.

### **Strength, Density and Water Absorption**

All figures are typical of independent test results of our products

Strength	> 35 N/m <sup>2</sup>
Density	2,250 Kg/m <sup>3</sup>
Water Absorption	< 0.5mg/m <sup>2</sup>

### **Mechanical fixtures and pre-located fixing holes:**

Lifting sockets are cast into large heavy stones as standard but may be requested for any stone if wished. Jamb stones and similar items include cast in dovetail slots as standard, but other fixtures will be cast in if requested. Brick ties are supplied as standard as are lifting loops to match the lifting sockets.

If stones require pre-located dowel holes or similar, these may be cast in during manufacture, on provision of detailed drawings.

### **Drilling and Cutting:**

In some circumstances it may be necessary to drill or cut the stones on site. Drilling and cutting our stone poses no problem provided suitably sharp (diamond tipped) equipment is used. If reinforcing steel has been exposed, please contact Thorverton Stone for advice.

### **Handling:**

For the best looking stones, care should be taken when handling them. Corners and edges are vulnerable to damage if poorly treated giving an unsightly result. Also, as they can be heavy, Health and Safety procedures should be followed when lifting them. See our guide to handling cast stone on the Practical Information page of our website, [www.thorvertonstone.co.uk/practical\\_info.cfm](http://www.thorvertonstone.co.uk/practical_info.cfm)

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**How to Order:**

Specifying the stones is simply a matter of detailed and accurate dimensions, quantities and colour preference. We will help with all of these matters, see our website [www.thorvertonstone.co.uk](http://www.thorvertonstone.co.uk) and download the “data sheets” (right hand side of the page) for further guidance. Once we know what you need we will prepare a quote for you including details of your stones and our prices. Sign and return a copy of our quote to us and your order is under way.

**Lead time and Delivery:**

After manufacture, the stones cure for two weeks before delivery. Typically a minimum of 4 weeks lead time should be allowed for, thereafter we are happy to schedule work in phases delivering “just in time” to suit the building programme.

Delivery will be made via either a specialist pallet haulier who offer a pallet-truck offload but cannot move the pallet thereafter, or a flat bed lorry which requires fork-lift offload. We can arrange for a “piggy back” fork-lift on the flat bed lorry if requested.

**Customer Service:**

We are here to help so contact us early with your ideas, designs, details and building programme. With Thorverton Stone your stone-work will be hassle free and look stunning for years to come.

***Cast Stone, as YOU need it...***

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