

Unique beauty



Neil Tobin, Managing Director at Keymer Tiles, describes the manufacturing skills that lie behind the natural beauty of hand made clay roofing tiles.

The manufacture of true hand made tiles begins with the careful selection of the clays, which tends to be local to that particular area. The Weald of Kent and Sussex and the Gault of Cambridge are just two examples. The colours of the raw clay vary, and it is a mixture of these that is layered together to form a kerf and allowed to weather for at least a year. The kerf is then mixed together in a souring shed where water is added. Unlike most other clay manufacturing processes, for hand made tiles it is essential the clay is kept wet and malleable for moulding.

Through the mill

The original method of hand throwing tiles is now discouraged, due to repetitive strain injuries, so the clay is put through a milling process to produce a 'batt' from which the tile is made. This process consists of a wet pan, high-speed rolls, a pug machine and batt machine. Before the introduction

of these machines, the maker would collect his clay in a wheelbarrow from the stockpile. Today, most extruders are de-airing and force the clay out at high pressure, thereby aligning the particles in the clay, which creates a machine-made tile. A pug is very low pressure and is used merely to bring the milled clay back together, in a form that can produce batts, without aligning the clay particles.

The hand-makers use a process that has been passed down through generations. The clay batt is dusted with sand, placed into a mould and pummelled, then the excess clay is bowed off. The sand, which has been mixed with manganese dioxide to produce the correct colour, acts as a lubricant enabling the tile to be released from the mould.

A punch forms the nibs and a strike plate impresses the maker's name and identification mark. Two nail holes and an identification code are also struck into every tile. A master tile maker will produce 2,000 standard size tiles each day, but less than half that number if making special tiles. The bench and mould are individual to each maker, and the moulds require constant checking to avoid any uneven wear. This process, carried out every week, is known as 'lumping up'.

Battle of the tiles

Figures maintained by the Clay Roof Tile Council show a marked increase in the sale of hand made and handcrafted tiles. The introduction of handcrafted tiles is fairly recent and a cause of consternation to traditional hand makers. After much consultation, the Council agreed on the following official definitions –

- A hand made tile is a tile formed by hand in a moulding frame.
- A handcrafted tile is a tile manufactured by machine to replicate features of a hand made tile.



The beauty of hand made tiles is evident, the roof elevating the elegance of the house.

Hardening up

The tiles are stored on individual curved trays that gives them their camber or curve. They remain on the trays for 10 days, during which time they dry and harden enough to be handled. The drying process also causes them to shrink in size by 7%.

They are then checked for quality and placed in a crate to be transported to the setting/drawing dock. The dried tiles are checked again before being set onto a kiln car, which involves building an 8.2m³ block of 5,400 tiles. Three of the outer walls are built first, then the space in between is filled before the final outer wall is constructed.

The completed kiln cars are then moved into pre-kiln heaters, where six cars at a time remain for up to 40 hours, at a temperature of 110°C. This reduces the moisture content to below 1%. If

excess moisture remains in the tiles, it will turn to steam in the making process and blow the tile's face. When the tiles are fully dried, they are taken to the shuttle kilns. These large steel structures are lined with ceramic fibre tiles to retain heat. Each one has three banks of burners fired by natural gas. Six kiln cars are placed in each kiln where the final process takes place – the temperature in the kiln is slowly raised to 960°C then held on 'soak'. This ensures the tiles are fully vitrified and will remain durable and frost-resistant. The kiln is then allowed to cool. This process takes seven days, and during this time the tiles reduce in size by a further five percent.

The cars are then taken to the setting/drawing dock where they are checked for quality before being placed into a crate ready to be transported to the customer.



Unique touch

The making process ensures a variation in the individual tile – clay has a memory and, as each tile is moulded, the maker's efforts are highlighted in the subsequent drying and firing processes. The traditional single camber – as opposed to the more modern double cambered

product used by many machine-made and concrete tile manufacturers – ensures a unique variation in each tile that gives a roof movement. Hand made tiles do not all sit flat next to each other in total conformity, but in gentle undulations reminiscent of a centuries-old cottage.

The biggest advances over the years have been in drying and firing, with more efficient kilns that use less of our natural resources. With so much effort going into the making of each tile, the cost of production and, therefore, the selling price is much higher than machine-made tiles.

In demand

Despite the introduction of the handcrafted tile (see box on left) and the cry from every UK manufacturer that there are ever more imports that do not have to conform to our rigorous standards, sales have remained resilient.

Why? Because people recognise the beauty of a hand made roof – how it enhances the aesthetics of the property. Old clay roofs that need replacing can only retain their elegance through the use of hand made tiles.

Heritage and conservation organisations are holding their ground and insisting that traditional materials be used and, where available, local materials that reflect the area in which the property is situated. Export sales are also growing, thanks to the increase in the replication of traditional UK buildings using UK-manufactured products. The use of hand made clay tiles is seen as the ultimate accolade, and the guarantee of a unique roof can be a final selling point. Hand made clay tiles will always be in demand by those that require the very best in building materials and respect both the aesthetics and tradition of our built environment.

Further information

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