

Slating & Tiling

TIPS 51

interlocking roof tile clips 1

It is the little things that make all the difference in our lives. They are the things that are difficult to see and are therefore easy to forget, and the untrained eye is not aware of their existence, or importance. For interlocking roof tiles, the important little things are the tile clips.

With interlocking tiles, there are three main types of clip: eaves clips for eaves tiles; verge clips for verge tiles; and tile clips for every other tile on the roof. This first article will not be dealing with the eaves and verge clips, although many of the issues covered will be the same as for tile clips.

Purpose

Tile clips are the most efficient method of preventing interlocking roof tiles from being sucked off of a roof by hurricane force winds, and they should also help to prevent tiles from chattering at lower wind speeds, (but that may vary from one clip design to another).

Each design of tile clip will have a slightly different performance figure with each design of tile. The performance is called wind uplift resistance and is measured in Newtons (N). In very general terms, a tile's uplift resistance is the sum of its dead weight resistance plus the resistance of the fixings.

The dead weight of a tile will resist (depending upon the rafter pitch) approximately 1,000N of wind suction force. One head nail fixing will provide approximately 500N resistance, while a well-designed clip could add between 2,000N and 6,000N resistance; making clip fixings between four and 12 times better than a single head nail fixing.

Designs

Almost every design of interlocking tile will have a clip specifi-

cally designed and made for it. Some are good and some are not so good, but regardless, there is almost no alternative tile clip for each roof tile.

Most roof tile manufacturers have tried to design a universal tile clip, but so far nobody has succeeded. Some clips will fit a few tiles that are similar, but nobody has ever made a clip that works adequately for all interlocking roof tiles, whatever they may claim.

There are three basic designs of tile clip: tile-to-tile clips; batten nail clips; and batten hook clips. Some clips have features that make them both batten nail and tile-to-tile, or batten hook and tile-to-tile, but nobody has ever produced a clip that could be classified in all three categories.

Tile clips are also manufactured from a range of materials, from aluminium and stainless steel to plastic. Galvanised steel clips are popular in dry countries like Australia, but would not last long in our climate. Of the metal clips, most are manufactured from strip or sheet material, while some are made from spring wire.

The rigidity of some sheet metal clips can resist uplift loads with little or no movement of the tiles. This is good as it prevents the tiles from lifting and rattling. However, those made with spring wire have a varying rate of resistance: the greater the suction, the more the tiles lift, the more the clip bends and the greater the resistance force.

Therefore, a spring wire clip will allow the tile to lift before the maximum resistance value is achieved; then the spring forces the tile back into position, which may cause tile breakage. Spring type clips are not ideal for single pantiles, as the spring pulls the left-hand side of the tile down and out of its normal

laying position.

Plastic clips are the most complicated to look at, but often the easiest to install, as injection moulded plastic allows the designer to include stiffening ribs and features that would be impossible to reproduce in any other material. In contrast, metal clips have to be punched and bent to shape, and are therefore limited by the production process. They can also be bent on-site to fit, if needs be.

Design constraints

To perform its function, the tile clip has to hold the tail of the tile down by fitting into the left-hand interlock, pass down the head of the lower tile, and either lock under the head of the lower tile (tile-to-tile clip), or allow a nail to be passed through the clip into the narrow face of the batten (batten nail clip), or pass around the underside of the batten, so that any upward movement of the tile will cause the clip to grip the batten (batten hook clip).

The end of the clip that locates into the side interlock must be as thin as possible and shaped to suit the shape and size of the interlock edge, to ensure it does not interfere with the tile above. The portion of the clip that passes down the top edge of the lower tile needs to be as

vertical as possible, to give a straight pull. The greater the horizontal distance from the interlock to the nail fixing, the less effective the clip will be. The distance from the top of the interlock to the underside of the tile below is critical for tile-to-tile clips, and to the underside of the batten for the batten hook clips and batten nail clips. Generally, flat tiles have a shorter distance to the top of the batten

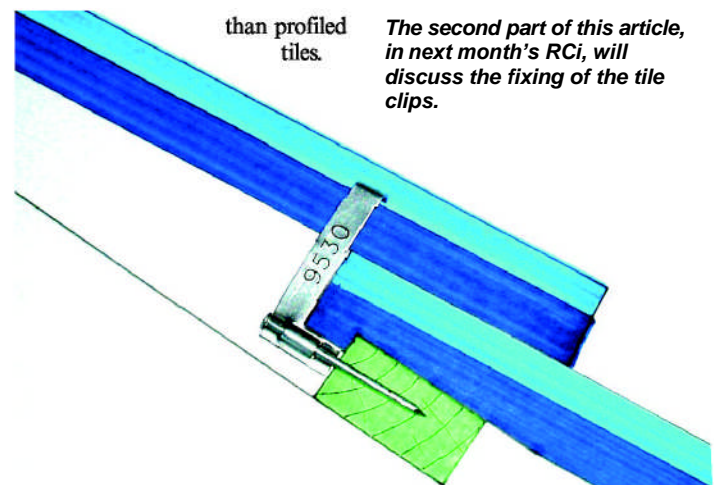
Once below the top face of the lower tile, the clip must not interfere or clash with the tile nib, especially if the clip is nailed to the batten. This can become a problem with some flat tiles when the perpendicular joints drift out of alignment. Where tile-to-tile clips are used, the lower tile should be head nailed to transfer the wind uplift force from the clip, via the tile, to the batten below.

Where the tile clip is nailed to the batten, the nail should be driven into the centre of the narrow batten face. With a 25mm-thick batten, the distance to either edge will be, on average, 11mm. While this is 4mm less than the minimum recommended by BS5268, it has been found over many years not to be a problem and, therefore, is acceptable. However, if the nail fixing is into a 19mm batten, or is off centre of the 25mm batten, then the distance of the nail fixing to the edge of the batten will be less than 11mm, and the risk of splitting the timber is higher. Once the batten splits, the grip of the nail will be affected, along with the resistance value of the tile clip.

Batten hook clips are mostly designed to fit specific batten sizes, and may be a slack fit for smaller batten sizes, or may not work at all if the batten is too large. Often the clip position will clash with the rafter or counter batten position and make it impossible or difficult to fit the clip.

Tips

- Always use the tile clip recommended by the tile manufacturer.
- Metal clips are generally stronger and will last longer than plastic clips.
- All tile clip designs have a better uplift resistance than head nail fixings. ■



A tile-to-tile and batten nail clip design that is correctly installed, with the nail fully driven into the centre of the batten

Compiled by Chris Thomas
The Tiled Roofing Consultancy
2 Ridlands Grove, Limpsfield Chart
Oxted, Surrey, RH8 0ST
tel: 01883 724774

Email:
chris.thomas@thetiledroofingconsultancy.com

To view previous Slating & Tiling Tips, go to
www.thetiledroofingconsultancy.com

