

# Slating & Tiling

## TIPS 55

### timber battens – repairs

In most cases, slates or tiles are either put onto new buildings or they are used to re-roof an old roof; either way, all new battens will be used.

But there are instances where the roof may be fairly new and repairs need to be undertaken that do not warrant the total re-battening of the roof, but require the battens to be cut, repaired or re-fixed. Where the roof structure is constructed from timber trussed rafters, the repair needs to be undertaken very carefully to maintain the integrity of the roof structure.

“... the repair needs to be undertaken very carefully to maintain the integrity of the roof structure ...”

#### Single batten replacement

BS5534 and BS8000 Part 6 state that no batten should be less than 1.2m long, such that at 600mm centres the batten will rest on at least three rafters. Battens that only span between two rafters are more likely to sag than those that go over a central support (hogging moment).

Where the batten goes over a rafter, there is tension in the top fibres, while there is tension in the bottom fibres between the rafters. One helps to cancel out the other and keep the battens reasonably straight. If the end of the batten rests on a rafter (end bearing) there is no hogging moment, and so the batten is more likely to sag under load.

If an isolated batten between two rafters has to be cut out and replaced, it is better to either cut out and replace the batten over three rafters, or to install an additional batten of the same size below the short section of batten. The lower batten should be long

enough to span over – and be nail fixed to – four rafters. The short and long battens should also be nailed to each other.

#### Multiple batten replacement

BS5268 requires that battens should be joined on the centre line of a rafter, and with trussed rafters, no more than one in any group of four consecutive battens should be joined on the same rafter. For tiles and slates where the batten gauge is less than 200mm, no more than four in 12 consecutive battens should be joined on the same rafter.

If more than one batten has to be replaced, the batten joints should be staggered. The reason for this is that the battens provide the lateral restraint for the timber trussed rafters, and any group of consecutive joints in the battening will affect the rigidity of the structure.

For interlocking tiles, this means that either the battens need to span over five rafters and be staggered (meaning that an area of roof up to 4.2m wide may be affected), or an additional batten long enough to span over two additional rafters must be installed below the existing section of batten that has been reinstated, and the additional batten must be nailed to the rafters, and to the replaced section of batten.

#### Verge or side abutment

Where the battens end at a verge or side abutment, and are either rotten because they have been embedded in the verge mortar, or need to be lengthened to allow for the correct installation of a dry verge system or gable wall cladding, the rotten or affected battens should be cut back and staggered, to make sure only one in any group of four consecutive battens join on one rafter. This means that the shortest batten will be about 1.5m long and the longest approximately 3.3m long where the rafters are at 600mm centres.

The alternative is to install an additional batten of the same size



#### Batten average

*This roof was only 30 years old, and where the batten ends were embedded in the verge mortar, the end 150mm of timber had rotted away and needed replacing. The rest of the batten was perfect.*

(and approximately 1.5m long) directly below the replaced end section of batten, and twice nail the short end section to the additional batten, then also nail the additional batten to each rafter and the existing batten for maximum rigidity.

#### Mid span support

Where a batten is cut between two rafters to accommodate a pipe or flue, and the end of the batten is unsupported, a short length of batten approximately equal to three times the batten gauge should be slid up under the unsupported end of the batten and screwed to the unsupported batten and the battens above and below.

#### Batten joints

Battens should always be joined at a rafter. The ends of the battens should be square cut and tightly butted to the adjacent section of batten and skew nailed into the rafter, to prevent the batten end from splitting.

With timber trussed rafter, this may result in an end bearing of less than 17mm. Therefore, it may be better to cut the batten in line with the side of the rafter and install an additional 38mm x 38mm timber noggin onto the side of the rafter flush with the top of the rafter, to allow the new section

of batten to be nailed to it. This is easier said than done, as the noggin should be below the underlay, while the batten is above it. This is normally only possible where the underlay is also cut through for access.

#### General

Where repairs are being undertaken, new battens of the same size should always be used. Edge fixing into battens thinner than 25mm thick is not advisable as the nail-to-edge distance will be very small and can split the batten, taking away any strength that may have existed. Where the battens are cut out or modified, the resulting repair needs to maintain – or improve – the integrity of the roof.

#### Tips

- Knotty, rotten or split battens have little or no strength and should be cut out and replaced.
- Where battens are joined at a rafter, increase the end bearing by nailing a 38mm x 38mm batten to the side of the rafter.
- Unsupported ends of battens can be supported with a vertical batten screwed to the battens above and below.



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