

Tiling tips: — No 12

Update: Slates & tiles

Mechanically fixed end ridge tiles

icane force winds of 1987 and 1990, the most common form of roof damage was the loss of end ridge tiles. Until the high winds struck, the ridge tiles had sat in place under their own self-weight. But once wind suction became greater than the self-weight of the ridge tile, they became objects of further destruction, bouncing down the roof and breaking more roof tiles or slates.

When the ridge tiles were originally laid in mortar, the bedding may have been adequate. But over the years movement in the roof caused the bond between the mortar and the ridge tile, or the roof tile, to crack, leaving no bond or mechanical fixing to help the tiles resist wind suction forces.

Differential movement

All materials will expand or contract when heated or cooled. Some materials will also expand

and contract with moisture content, such as timber. It can be calculated that a timber trussed rafter roof will, on average, rise and fall by approximately 40mm more than the brick and block gable end walls, between the warm wet and cold dry times of year. This difference in movement places more stress on the end ridge tiles than others along the ridgeline. The result is a greater risk of end ridge mortar failure.

In response to this form of failure, British Standard 5534, *The code of practice for slating and tiling: Design 1997*, stipulates that the end 900mm of ridge tiles should be mechanically fixed. This also applies to where a ridge passes over an intermediate wall or against a solid abutment. There are various end ridge-fixing methods, of which the most secure solution is screwing the end ridge tiles to the roof structure.

Mechanical fixings

To fix an end ridge tile correctly, the ridge board or a ridge batten must extend to within 100mm of the verge edge and be a minimum of 38mm wide. The ridge board

to allow the screw fixing to penetrate the timber by at least 40mm. Any ridge batten should be fixed to the roof structure with holding down straps or screws, not nails, as they could pull out under load. The ridge tile should be neatly drilled in the centre to allow the fixing to pass through into the ridge batten or board below.

The best fixing would be a dome head stainless steel screw with a neoprene washer and a shaped plate to match the apex of the ridge. The washer should seal the hole in the plate to stop water tracking down it and the plate to spread the load out over the ridge tile for an area of approximately 50 by 50mm. A screw can be tightened down with little disturbance to the mortar; however a nail of the same size will need to be hammered in, disturbing the mortar and leaving the head clear of the plate. The use of wires is not very satisfactory, as it is only possible to secure one end of the ridge.

Dry fix ridge systems

The end ridge of a dry fixed ridge also needs to be secured. Most dry fixed ridge systems have



- The use of a verge clip to secure the end ridge tile is not a satisfactory solution, even if it did hold down the top surface

straps or plates at the joint between the ridge tiles to hold down the two edges. At a gable end there is no joint resulting in only one end being held down. The recommended end ridge fixing for a dry fixed ridge is to use a block end ridge tile with an additional fixing hole and screw, or the use of a plastics end cap nailed into the end grain of the ridge board or batten. If the dry ridge finishes onto a mortar bedded verge without a block end ridge or end cap, it should be fixed as if it were a mortar bedded ridge.

The secure fixing of all end ridge tiles as recommended by BS 5534 should help to reduce future insurance claims and thereby help to reduce all associated insurance premiums.

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