

Slating & Tiling

TIPS94

Soakers

Soakers, in the context of slates and tiles on pitched roofs, are metal or plastic flashings that are installed between each course of plain tiles and double lap slates, to weather the junction between a roof slope and an upstand that is parallel with a rafter, such as a wall or roof window at a side abutment, at a party wall junction, between two roof slopes at a valley or a hip, or in a line of slates or tiles on a curved roof or swept valley, where side lap joints are too close on consecutive courses. For each of these situations the shape and size of the soaker can be slightly different.

Materials

Soakers are traditionally made from code 3 lead sheet (1.3mm thick) but could equally be made from code 4 lead sheet (1.8mm thick) but should not be thicker, as the thicker the material the more the soaker will affect how the tiles and slates lay in an array. It is possible that soakers could be made from aluminium sheet (min. 0.7mm thick), zinc sheet (min. 0.8mm thick), or copper sheet (min. 0.55mm thick), but none of these metals are as easy to bend or stretch into shape as lead.

In most instances the thinness of the metal allows them to be bent reasonably easily, provided the grade of material does not crack once bent. In most instances aluminium and zinc soakers are supplied pre-cut and bent to save time on site.

The plastic or GRP pre-formed soakers can often be thicker than the metal equivalent and are easy to install in certain instances, but are not as adaptable in all situations. In terms of length of service, lead should last the longest with copper second, plastic will come last.

It is essential that the soakers are fully supported, especially with lead, as the soakers will not support their own weight and will deform down into any gap they have to span.

Shape

Most people think of soakers as being L-shaped in section, being a square of metal bent parallel to one edge. This is almost true for side abutment situations,

but for hips and valleys they are more delta and kite shaped, and for curved tiling may be long curved strips. The shape will vary depending upon the situation and the rafter pitch.

Fixings

Traditionally the top edge of the soaker is turned down at right angles by approx 25mm to form a continuous nib that hooks onto the top edge of the plain tile, or the slate batten. To save 25mm of material some slaters will nail the soaker to the slate batten with two copper nails, saving the turn down, but this is not possible with plain tiles, as there is no batten to nail into.

Side abutments/party wall junction

The width of a soaker at a side abutment is the sum of the vertical upstand of at least 75mm, plus the horizontal cover width of 100mm (minimum total 175mm). If the tiles/slates do not abut the wall, or roof window, tightly, the horizontal cover width should be increased to ensure that there is 100mm of soaker between the slates and tiles.

The exposed vertical edge of the soaker should be protected with a cover flashing which is turned into a wall or other feature, to protect it. Where a raking side abutment results in water flowing towards the abutment, the side lap should be treated as half a valley.

At a party wall junction with a timber core roll running up the party wall line, the vertical leg of each soaker needs to be at least 125mm to ensure that the soaker can be dressed over the timber core roll and nailed in place, before it is covered with a capping. The length of the soaker should be the sum of the head lap plus the gauge, plus the 25mm turn down.

For plain tiles this will be not less than 175mm for vertical tiling, and 190-200mm for pitched roofs, depending upon the head lap. For slates the formula is very similar, plus 25mm for the half width of batten. Therefore for slates laid at 100mm head lap, 400mm long slates will need a soaker 300mm long, for 500mm long slates 350mm long, and for 600mm

long slates 400mm long. If the soakers are head nailed they can be reduced by 25mm.

Hips

At a mitred hip, water will run away from the hip line, therefore very little water should get onto the soaker, so, as with a side abutment, the horizontal side lap only needs to be 100mm at 35° and above and for slates below 35°, 150mm. Note the lap dimension on either side of the centreline of the hip mitre is measured not at right angles to the hip line but horizontal (along the batten).

Because the top and bottom edges of the tiles/slates run away from the centre line at an angle, the resulting soaker is delta shaped and bent down the centreline to fit the angle of the hip.

The rafter pitch will affect the length of the flashing as well as the head lap of the slate, or tiles, so it is best to make a cardboard template laid on the actual tiles/slates before cutting the soaker to avoid a lot of waste.

Valleys

A valley is in effect the opposite of a hip, therefore mitred valley soakers are almost an upside-down hip soaker with the 25mm down turn at the opposite end. Because water runs towards a valley and a lot of water will find its way down the mitre joint, the horizontal side lap needs to be at least 150mm for rafter pitches of 45° and above, where the valley meets at 90° plan angle.

If the plan angle between the roof slopes is greater than 90° the true valley pitch increases; if the plan angle is less than 90° then the true valley pitch gets shallower and may require an adjustment to the side lap.

At below 45° valley soakers should not be used with plain tiles but with slates the soaker should be kite shaped and be the full length of the slate plus 50mm, and both the top edges should be the width of one slate from the centre line of the valley.

In all instances if the valley is longer than 6m, soakers under mitred valleys are not recommended, as the volumes of water at the bottom of the valley can be too great for the soakers to cope with.



This is what lead soakers look like on a mitred hip, when the cut slates on one side have been blown off because they were only once nailed

Curved roofs

Often where tiles or slates are laid on an internal or external curve, such as a turret or a swept valley, the tiles/slates are cut to a taper, and the side lap can either drift close to coinciding on consecutive courses, or becoming too small to keep water from running sideways through the double lap system.

Where the side lap on plain tiles falls below 55mm side lap continuous soakers should be installed.

With slates, the side lap dimension needs to be calculated dependent upon the width of the slate, the position of the nail holes, the pitch of the slates, and the driving rain index relative to the location of the building. The width of the soaker will vary, the tighter the radius the more the soaker will curve. The length of the soaker will be the same as for a side abutment.

Conclusion

Metal soakers are an effective way of weathering the vertical and inclined edge junctions of double lap tiles and slates, but should never be used with interlocking tiles or slates.

Where water runs away from the soaker the side lap needs to be a minimum of 100mm, and where water runs towards the soakers, such as a valley, the side lap should be a minimum of 150mm, and greater at rafter pitches below 45°.

Tips

- Make a cardboard template before you cut any metal to make a soaker.
- Plain tiles are cambered and therefore the soaker needs to be

dressed to follow the shape of the tile.

- Always try and finish the lower edge of the soaker flush with the leading edge of the tile or slate course to give the full cover protection.

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