

Slating & Tiling

TIPS 34

Keeping out birds, rodents & large insects

We like to think that the only things that live in our house are our family and pets. In reality there are millions of mammals and insects living in the cavities. Roofs are an attractive living space for many species, such as birds, bats, mice, rats, squirrels, flies, and wasps.

To safeguard against health risks from nests and droppings, we should close off all possible points of entry. While we will never keep out very small insects and airborne micro-organisms, we can keep out those larger than 4mm wide.

Size

There are two control dimensions. BS5250: *Code of practice for the control of condensation in buildings*, requires that all ventilation grills must pass the 4mm ball test to stop all large insects from getting through the grill.

BS5534: *Code of practice for slating and tiling*, recommends that no space at the eaves should allow a 16mm ball to pass through (known as the BS TIT Test, named after the smallest British bird that nests in houses).

Ventilation

It is well documented that we need to ventilate the roof in order to reduce the risk of condensation forming on the underside of the underlay. We can do this by using proprietary ventilation grills and vents.

These grills and vents should comply with the 4mm ball test. While it is possible to install flymesh screen which is much finer, it tends to block up with wisps of fibre insulation, dirt, seeds, and cobwebs. These restrict the flow of air if left to build up.

If the means of high or low level ventilation is via a continuous grill, the sections of grill should either lock together or butt up tight to prevent any gaps greater than 4mm. This especially applies at the end of a run where the grill meets a valley, hip, or verge.

Gaps between tiles & slates

A tiled or slated roof will, by its very nature, be made up of small elements with gaps, either in the form of a side lap joint, or a head lap joint. Generally the roof covering will be between 4mm and 30mm thick. To prevent large insects getting up between the tiles or slates the side lap gaps should not be more than 4mm. Head-lap gapping with most tiles and slates is less than 4mm, except double cambered, or cross cambered, plain tiles, and some stone slates, where the shape of the tile in section results in gaps bigger than 4mm. Having a steep rafter pitch will keep out the rain, but will not keep out large insects. With some stone slates the gapping is so big that back bedding is needed to prevent insects from getting into the batten cavity.

Eaves

The most common point of entry into the roof is at the eaves, especially with corrugated and profiled interlocking tiles. Birds perch on the gutters and mice run along the gutters, looking for corrugations big enough to climb through. The closing of the corrugations at eaves level will prevent the small birds and rodents from entering the batten cavity. However, this is unlikely to stop large insects from getting in, especially with comb eaves closers. The traditional method of eaves closure with clay pantiles, of mortar bedding onto a plain tile, is very effective, but it makes the eaves tiles almost impossible to clip to the fascia board.

Verge

The practice of mortar bedding a verge will fill in the otherwise large spaces at the verge left between the underside of the tiles and the top of the rafters. This space can vary from 30mm to 55mm if left.

Most dry verge systems for interlocking tiles and slates appear to be very good at sealing the top and bottom sur-



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faces. However, some of the continuous dry verge designs do have a design fault. To take away any water that enters the dry verge system there is a drainage channel that is open at the bottom where it discharges into the eaves gutter. Small birds and rodents can easily climb up this channel, and turn off into the batten cavity, like a shopper in a supermarket.

Other vulnerable points are at the apex of the dry verge under a block end ridge tile which, if not closed off correctly, will allow birds or bats to get in under the ridge tile.

Valley

The majority of inclined valleys are mortar-bedded and, if done correctly, will keep out small insects. Similarly, if the valley is laid dry (as with slates or plain tiles) small birds and rodents are unlikely to get in as the gaps up over the tilt fillet are greater than 4mm, but less than 16mm. However, a large insect will.

At the top of valleys where they meet a top edge abutment flashing, or where the bottom discharges back onto a roof, there is nearly always a hole up through which small birds and rodents can climb.

Top edge abutment

In most instances the lead flashings at a top edge abutment will be more than adequate to keep out intruders, except where a roof finishes up under a soffit, such as at the side of a dormer.

It is difficult to fix the top course of tiles into a diminishing space, and even more difficult to fix a lead flashing and is often left out altogether. This leaves an open invitation to birds who want to nest. The solution is to

form a vertical boxing down from the soffit, a little way down the roof, to replace the top one or two courses of tiles or slates. The flashing can be fixed to the boxing.

Conclusion

Mortar bedding the perimeters of a roof is a very effective and cost effective means of keeping insects and small intruders out of a roof, but is not the total solution. Eaves, and top edge abutments that occur under a soffit, are very vulnerable and need to be carefully detailed to keep out intruders. With the correct choice of dry fix components it is possible to keep out all small birds and rodents, but it may not be possible to keep large insects out of the batten cavity. Provided proprietary ventilation grills and vents are used installed correctly, no large insects should get in under the underlay.

Tips

- To keep out large insects, no gaps should be wider than 4mm
- To keep out small birds and rodents, no gap should be wider than 16mm
- Choose the design of dry fix verge systems carefully
- Use the manufacturer's recommended eaves closure when installing corrugated interlocking tiles
- Box out under a soffit where it meets a pitched roof slope.

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