

# Slating & Tiling

## TIPS 85

### Flashing side laps

In the roofing industry we all know about metal flashings, especially lead sheet flashings. They have been with us since what feels like the beginning of time, but only became common during the 20th century. We all know that down to a true pitch of 30° the vertical lap of lead sheet over any surface should be no less than 150mm, and as the true pitch drops so the length of the vertical lap increases. But what most people forget is that the horizontal lap also needs to increase as the true pitch drops below 22.5°.

#### Horizontal laps

In most situations, such as a top edge abutment, a flashing will lap onto the surface of the tiles by at least 150mm (depending upon the true pitch, which is less than the rafter pitch), bridge across to the abutment upstand, rise up the vertical face by at least 75mm, and either tuck into brick joint, or be head nailed and lapped by a cover flashing or another material, like vertical plain tiles or rendering. In this situation the flashing changes pitch as it rises from the tiles to the head nail fixing. But with some flashings one or more of the sections of the flashing can be at a lower true pitch than the rest and it is the true pitch of the lowest section of the flashing that should determine the actual horizontal lap that is used.

If we were to take a chimney back gutter that is more than 2m wide, using Code 4 lead the back gutter should be made in two pieces. The joint between the two sections should not be lapped as the sole of the back gutter is horizontal and therefore the joint should be a lead covered timber core roll a lead roll. This will ensure the joint is weathered and the lead can expand and contract without cracking.

But there are instances where flashings can be almost horizontal and are regularly installed with a 150mm horizontal lap, which is incorrect as no lap joint should be formed below 11°. As an example, the flashing at the change of rafter pitch on a mansard roof may require the flashing on the steep lower slope to be 100mm horizontal lap, but where the flashing passes under the tiles or slates on the shallow upper roof slope the pitch of the flashing will quite often fall below 11° and can be horizontal.

As we have seen with the chimney back gutter, below 11° the flashing should not be lapped but formed in some other way. With a mansard it would be inappropriate to use a lead covered timber core roll joint. It may be tempting to run a very long length of lead flashing, or weld sections of lead flashing together, so that there are no laps; this should

never be done as it will severely restrict the thermal movement of the lead sheet, and it will prematurely crack. What is needed is a welted joint.

#### Recommendations

The recommendations of the Lead Sheet Association are as follows:

Joints between flashings are usually laps. With abutment flashings, the side laps should be not less than 100mm increasing to 150mm for locations that are exposed to high wind and rain. Flashings over 200mm girth will require a side lap of at least 200mm with the lap clipped.

Where it states high wind and rain, this is defined in BS 5534 as equal to, or more than, 56.5 litres of driving rain per metre square, per spell, which is two minutes.

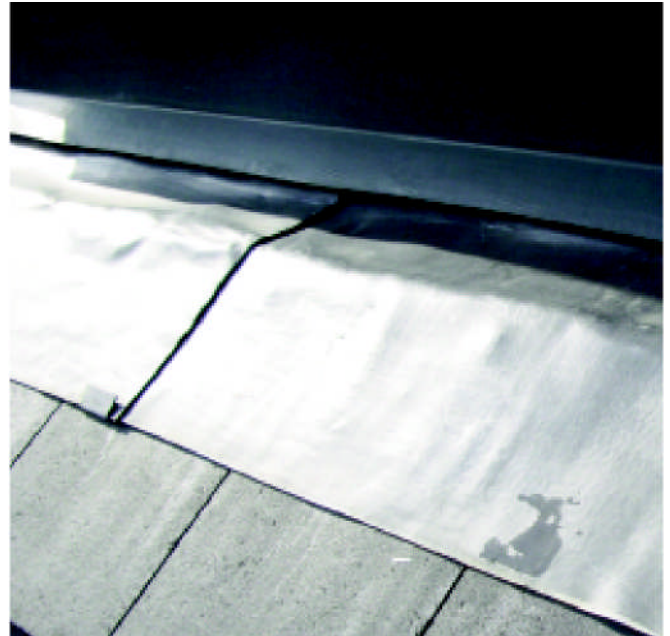
Where it mentions 200mm girth, this refers not to the total width of the lead sheet but the lap of the flashing over the surface below (head lap). This means that as soon as the true pitch of the tiles or slates at an abutment drops below 22.5° (normally about 27.5° rafter pitch) the horizontal lap needs to increase to at least 200mm, and for the same pitch in an exposed location 250mm.

Whilst it would be logical to increase the horizontal lap at the same rate as the vertical lap increases as the rafter pitch drops down towards 11°, experience would suggest otherwise. This also means that at true pitches below 11° the lead flashing should not be lapped horizontally, and rolls, or welted seams should be used instead.

#### Conclusion

When installing a lead flashing, determine the horizontal lap by measuring the true pitch of the lowest pitch of any section of the flashing, and if below 11°, either raise that section, or use some other jointing system between the sections of flashing.

Between vertical and 22.5° true vertical pitch 100mm or 150mm horizontal lap (depending

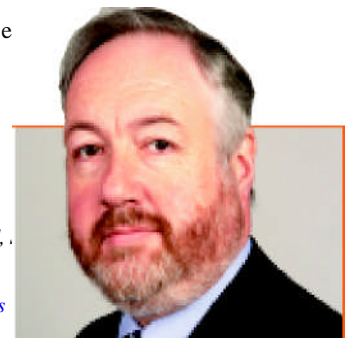


*The apron flashing below a GRP dormer has an almost flat section between the head of the concrete tiles and the bottom of the GRP skirt. The horizontal lap was 150mm and leaked because of the lap in the almost flat section.*

upon the driving rain exposure of the roof) should be used, and between 11° and 22.5° true vertical pitch the horizontal lap should be 200mm or 250mm depending upon the exposure of the roof.

#### Tips

- Where flashings lap under tiles, or other sections of flashing, the horizontal lap requirements between sections of flashings still applies.
- Lead sheet should be fully supported. Be careful that there is not an unsupported gap between the head of a tile, or slate, and the vertical upstand at an abutment, where the flashing can develop into a trough.
- All horizontal laps should be lapped away from the prevailing wind direction and should always be clipped.



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