

In a series of articles on interlocking concrete roof tiles, experts from the **Concrete Tile Manufacturers Association** have pooled their knowledge. This Construction Note discusses side abutments.

Side Abutment

A side abutment occurs where a verge meets a wall that rises above it. The side abutment will normally be at right angles to the eaves and ridge. If the side abutment is not at right angles to the ridge or eaves it is known as a raking abutment. Rainwater should flow away from a raking abutment, but if rain water flows towards the side abutment, it should be considered as an inclined valley against a wall, not a raking side abutment.

Side abutments should always be formed with a flashing, without any form of mortar bedding. The elimination of mortar helps to accommodate differential movement between the timber, or steel, roof structure and the solid wall.

The Building structure

The wall construction should be built up to 65mm above the highest point of the tiles, and a cavity tray or similar device installed in a stepped manner. For some wall materials a parallel chase is cut into the wall, especially where a solid wall is rendered. The minimum height the cavity tray should finish above the rafter, or counter batten, will vary between 130 170mm depending upon the profile of the tiles being used. The cavity tray should be installed to allow the lead cover flashing to be inserted directly below the cavity tray to a depth of at least 25mm. The wall can be completed prior to the roof being constructed. The end rafter (A) should be spaced away from the abutment wall by approx. 50mm and strapped to

provide lateral restraint.

Profiled interlocking tiles

With profiled interlocking tiles (B) the recommended method of protecting the roof/wall junction is to install a continuous cover flashing. Whilst the flashing is visible down the abutment, it provides much better protection than a secret gutter that may become blocked by debris, or flooded by a storm deluge. Lead soakers should never be used with interlocking tiles, as the lead needs to be supported in its length, and with interlocking tiles this will not happen beyond the 75 100mm of the headlap.

Underlay/Battens/Tiles

The underlay (C) should be laid to finish 50mm up the wall. The batten (D) cut and fitted to end against the up turned underlay, ready for tiling. The tiles should be set out

to minimise cutting where possible. Starting at a right hand abutment should present no problems. At a left-hand abutment, it should be possible to finish on a whole, or half, tile by shunting the tiles in or out. Where this is not possible tile will have to be cut to suite. With a raking abutment the tiles will need to be cut to fit.

Fixings

British Standard 5534: The code of practice for Slating and Tiling requires all perimeter tiles to be mechanically fixed. A lead cover flashing acts as a continuous tile clip, but it would be safer to additionally nail/clip fix each edge tiles.

Flashing

For a profiled interlocking tile the lead cover flashing (E) should be laid in lengths not greater than 1.5 m, but for other metals this dimension may differ. The width of the flashing will vary from 270 400mm depending upon the profile of the tiles and the distance from the wall to the top of the first full corrugation. The Flashing will need to be cut, folded and dressed to turn in under the cavity tray (G) to a depth of at least 25mm. The flashing should turn down the wall by a minimum of 65mm onto the top surface of the tiles, across the tiles and over a complete corrugation roll, into the bottom of a trough. Where the corrugation is very small the minimum horizontal coverage should not be less than 150mm.

Each piece of flashing should lap with the next section of flashing by between 150 390mm, depending upon the true pitch of the upper tile surface. A tile will always lay at between 3 and 5 degrees shallower than the rafter onto which it is fixed, depending upon its design, length, and thickness. The flashing should be dressed down onto the top surface of the tiles to follow their contour as closely as possible. In exposed locations it may be necessary to secure the edge of the flashing with clips to prevent it being lifted in high winds. The material and spacing of the clips will depend upon the metal used for the flashing.

FIGURE 1: Side abutment with stepped flashing

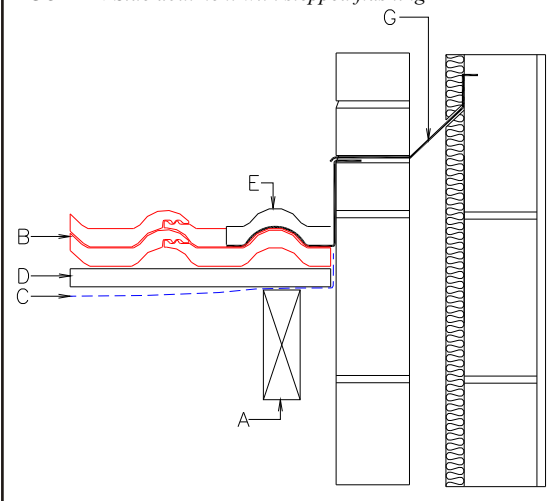
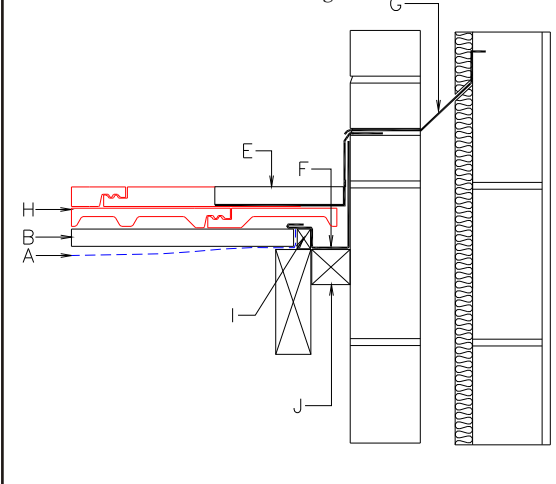


FIGURE 2: Side abutment with secret gutter



Construction Notes - No 7 Side abutment

At the top end of the abutment flashing should be a ridge, a hip, a top edge abutment, a back gutter or a butterfly junction. Which ever occurs, the appropriate design of saddle, or junction, in the same material, will be needed, to lap over and integrate with the abutment flashing.

Flat interlocking tiles

With Flat interlocking tiles (**H**) the recommended method of protecting the roof/wall junction is to install a continuous cover flashing and a secret gutter. The continuous cover flashing provides the majority of the protection against water entry, more so than a secret gutter on its own. There will be occasions when the wind will blow water under the flat horizontal leg of the flashing, and in these instances the secret gutter will drain the small amount of water away. Lead soakers should never be used with interlocking tiles, as the lead needs to be supported in its length, and with interlocking tiles this will not happen beyond the 75 100mm of headlap.

Underlay/Battens/Tiles

The underlay (**A**) should be laid to finish on a 25 x 25 mm lath (**I**) laid up the edge of the end rafter. A 50 x 50 mm batten (**J**) should be installed between the wall and the last rafter to support the secret gutter. The batten (**B**) cut and fitted to finish against the 25 x 25 mm lath, ready for tiling. The tiles should be set out to minimise cutting where possible.

Where the tiles start at a right hand abutment there should be no problems. At a left-hand abutment, it should be possible to finish on a whole, and half, tile by shunting the tiles in or out. With a raking abutment the tiles will need to be cut to fit.

Fixings

British Standard 5534: The code of practice for Slating and Tiling requires all perimeter tiles to be mechanically fixed. A lead cover flashing acts as a continuous tile clip. But it would be safer to additionally nail/clip fix each edge tiles.

Flashing

For flat interlocking tile the secret gutter (**F**) should not be less than 50mm wide and 25mm deep. It should be installed between the wall and the end rafter, and turn up the wall to finish approx. 65mm above the top of the tiles. At the bottom of the secret gutter a fantail end will be needed to allow any water in the secret gutter to discharge into a gutter at the eaves, or back onto the roof tiles, as at a chimney or dormer. The lead cover flashing (**E**) should be laid in lengths not greater than 1.5 m, but for other metals this length may differ. The width of the flashing will vary from 270 300mm depending upon the distance from the wall to the edge tile. The Flashing will need to be cut, folded and dressed to turn in under the cavity tray (**G**) to a depth of at least

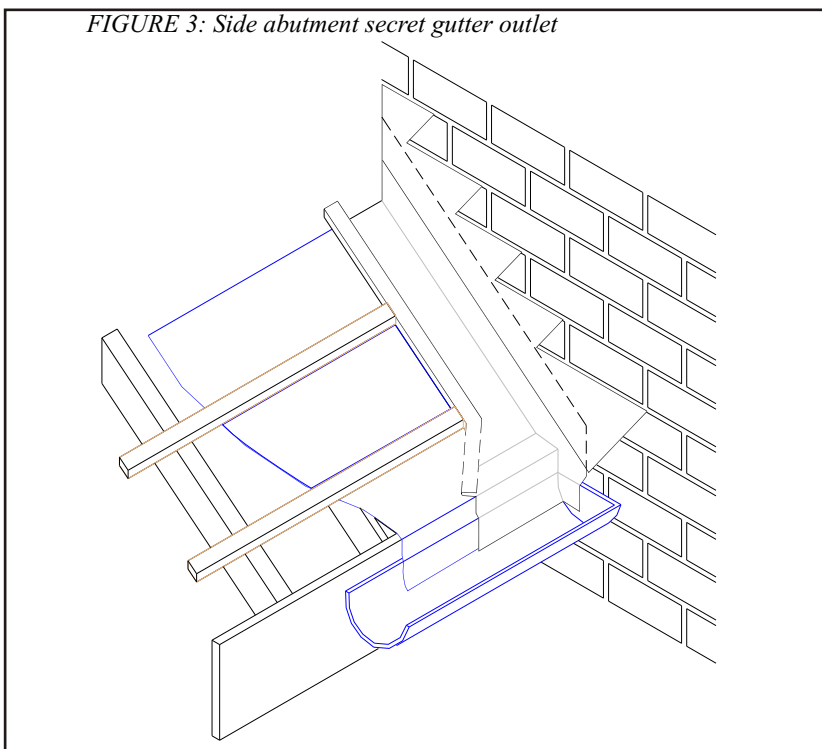
25mm. The flashing should be turned down the wall by a minimum of 65mm onto the top surface of the tiles, and across the tiles horizontally by 150mm. Each piece of flashing should lap with the next section of flashing by between 150 390mm, depending upon its true pitch. A tile will always lay at between 3 and 5 degrees shallower than the rafter onto which it is fixed, depending upon its design, length, and thickness. The flashing should be dressed down onto the top surface of the tiles to follow their contour as closely as possible. In exposed locations it may be necessary to clip the edge of the flashing to stop it being lifted in high winds. The material and spacing of the clips will depend upon the metal used for the flashing.

At the top of the abutment flashing will be, either a ridge, a hip, a top edge abutment, a back gutter or a butterfly junction, which ever occurs the appropriate design of saddle, or junction, in the same material, need to lap over, and integrate with the abutment flashing.

SUMMARY

- Lead Soakers should never be used at abutments with interlocking tiles.
- With flat interlocking tiles an additional secret gutter should be installed below the cover flashing.
- The cover flashing should be lapped under the cavity tray.
- Water running down a roof should drain parallel, or away from, the abutment flashing.

FIGURE 3: Side abutment secret gutter outlet



CTMA members are:

Cemex
Forticrete
Lafarge
Marley Eternit
Sandtoft