

# Tiling tips: — No 5

## Update: Slates & tiles

### Shunts and tolerances

All manufactured products are designed to be a specific size, colour and weight. They also have built into their specification a manufacturing tolerance, as it is impossible to make identical components. Generally the smaller the manufacturing tolerance the higher the cost of the product due to the higher reject rate. Roof tiles and slates are no different; no two tiles or slates are identical.

#### Clay tile tolerances

Clay tiles generally need the largest manufacturing tolerances, due to the shrinkage of the clay during drying, which can be between 10 and 12 percent, the stacking arrangement and the firing temperature in the kiln. Some kilns and clays produce tiles that are very consistent, but variations must be expected, such as twist and camber.

#### Concrete tile tolerances

Concrete tiles can be manufactured to fairly fine tolerances due to negligible shrinkage during curing and the stability of the material. However, concrete in the

wet stage can be deformed due to recovery of what is a liquid during the extrusion and cutting process. The result can be an uneven top surface or bowed sides, especially the left-hand interlock.

#### Resin slate tolerances

Single lap resin slate, made in a press, has a smaller manufacturing tolerance than either clay or concrete. It is pressed into a mould and heat cured, making the finished product a very close replica of the mould. Resin slates not made in a press can often be more variable than clay tiles due to the wet nature of the process.

~ Solar cell manufacturer Intersolar Group has appointed Nusrat Shah as its chief financial officer. Shah, who joins from advanced software group Telelogic Group where she was vice president of finance for the European market division, is named in this year's Who's Who of Britain's young entrepreneurs. Intersolar is the UK's only photovoltaic cell manufacturer. It has worked with a large volume housebuilder to trial the environmentally-friendly systems on domestic properties in support of the government's drive to promote this energy source. ■

#### Site tolerances

Having made and delivered the tiles to site every roof is slightly different in size and accuracy from eaves to ridge, hip to valley, verge to verge. The building process

needs components that can be

fitted together regardless of the problems left by the previous and adjacent construction trades and components, and can cope with the movement of the structure during its 50 to 100 year life span. With roof tiles this is achieved with differing tile modules, variable head lap, interlock shunt, half tile modules with some designs, and as a last resort, cutting the tiles. Wherever possible the tiles should be laid as close to mid shunt as possible.

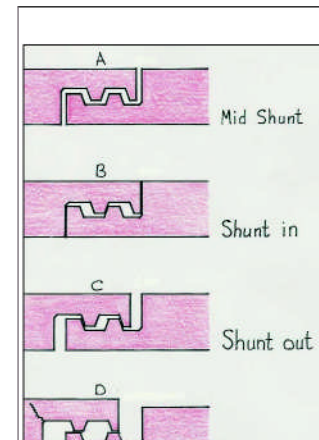
#### Single lap tiles

Interlock shunt with single lap tiles can be anything from 0 to 10mm depending upon the tile design and material. Flat concrete interlocking tiles generally have 6mm of shunt (3mm). A tile designed to have a coverage width of 300mm can be laid at anything between 297mm and 303mm. By laying 50 tiles (15m) along a batten it is possible to gain or lose half a tile by shunting in or out. The upper and lower halves of the interlock should not come into contact with each other when laid correctly. If the upper interlock has been shunted out too far, or the interlock is not straight (lock splay) the ribs are likely to come into contact with each other and result in corner or interlock breakage. The interlock in most cases is the thinnest part of the tile, so is the easiest part to break. With most tile designs it is not possible to shunt in too far, but when it is possible, it can be as detrimental as shunting out too far as the tiles ride up on each other and affect the course of tiles in the course above.

#### Plain tiles

With double lap plain tiles it is not possible to shunt the tiles in, but it is possible to gap them out by anything between 0-3mm. Any larger than 3mm and the performance of the roof covering to wind driven rain will be affected. It only takes ~ Interlocking tiles should be laid as close to Mid shunt (A) as possible, but may be shunted in or out (B and C) to gain a few millimetres. Tiles should never be over shunted (D) as it will lift the tile and stress, or crack, the interlock.

27 tiles (4.5m) shunted out to make up half a tile.



#### Eaves and tops

Where eaves and top tiles are needed, or tiles from different batches are used on the same roof slope, they may be a slightly different width to the remaining tiles on the roof. This is due to being made separately, or even hand made. In these instances it is best to check by taking 12 tiles, lay them shunted in and then shunted out taking the average over 10 tiles for both the eaves and standard tiles. Alternatively you can set out the roof at the eaves and the ridge with a course of each and get the best compromise fit and set out the tiles between using chalk lines.

#### Remember

Tiles and slates without shunts would be difficult to lay, especially those that lock in with the course of tiles on the course above and below, such as a profiled tile. Movement in the roof structure due to expansion and contraction of the structure below is absorbed by the shunts, gaps and head laps. Tile corner breakage can occur if tiles are shunted out beyond the design tolerance of the interlock.

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