GANG-NAIL GUIDELINES No.93

ANOTHER MITEK ADVANTAGE

IMPORTANCE OF TILE INSTALLATION

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Gang-Nail Guidelines may seem an odd place to discuss the installation of roof tiles but as you will see from this article, roof tiles and battens actually form an integral part of the structural integrity of the roof truss system.

It is well understood that roof tiles are there to protect ***us*** from the weather, and that they do this by keeping the water out of the roof space.

It is also known that sometimes they leak, due to cracking, damaged pointing or poor installation, etc. Generally the result of the leak is little more than stain on the ceiling.

However if the leakage is not rectified, over a long period of time, there can be a more serious effect on the integrity of the structure.

In Robert Tan's article last month (Guideline 92) he spoke of the importance of not allowing the trusses to be exposed to the weather.

Apart from the obvious issue of timber decay due to the prolonged exposure of trusses, another adverse and potentially serious consequence is the effect on the nailplates.

In a situation where the roof covering leaks and wets the truss top chords and nailplates, then a cycle of wetting and drying is taking place inside the finished roof similar to that of a truss exposed to the weather.

If the leaks are not rectified this may eventually reduce the strength of the timber and the joint.

Some tiled roofs which do not have sarking over the entire roof (particularly lower pitched and long span roofs) or roofs which do not have pointing or poorly maintained pointing on ridge tiles, may allow sufficient water penetration so as to result in loss of timber and or joint strength.

Another issue is the function of tile battens in a trussed roof.

Apart from supporting the tiles, battens also act to prevent top chords of trusses from buckling sideways.

As illustrated clearly in the photograph *(see photo)* - the top chord of the girder truss is severely buckled to one side due to lack of restraint from the tile batten.

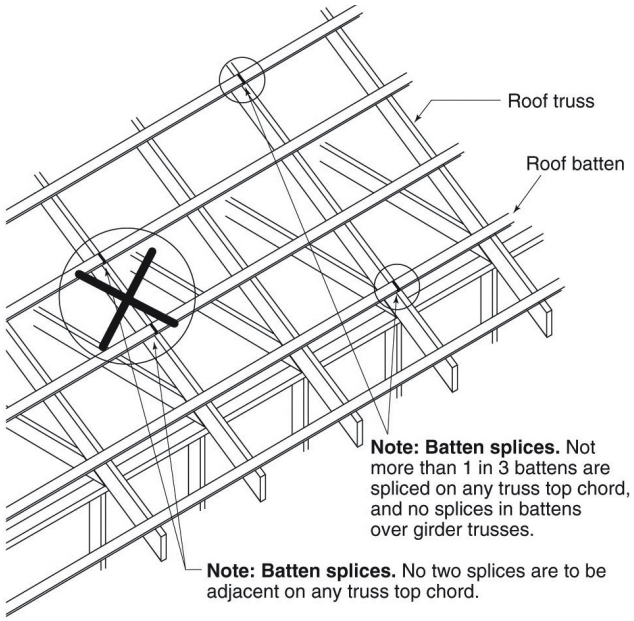
When this occurs the noticeable consequence is that the ceiling line comes down and usually the girder is blamed as being under designed.

However, the reality is that a buckled truss will not perform as designed (See GN Guideline 29) if it does not have adequate lateral restraint to the top chord.

Every truss, and each ply of a double or triple, should have at least one effective nail per batten to hold it straight.

The photograph shows a two ply girder truss which has buckled sideways resulting in the bottom chord deflecting downwards.

Too often trusses have been reported as "failed" only to find on inspection that the top chord has buckled - allowing the bottom chord to drop down. One of the common causes of buckling of girder top chords is the ineffective nailing of battens.



Also be aware that tile batten splice locations should be staggered - see the excerpt from our Truss Installation Guide. *(See drawing)*

The bottom line is: check that tile battens and tiles are installed correctly to ensure the proper performance of the trusses that support them, and shelter us.