

# WAVES BELONG AT THE BEACH!



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In a recent MiTek News (Issue No. 53) John Tadich discussed how the timber grade and truss chord panel lengths affect roof lines, and some of the measures that can be taken at the time that the trusses are designed to avoid “wavy” roofs.

In this article I would like to look at the same symptom - “wavy” roofs, but in this case caused by poor installation.

There are a number of obvious things that cause an uneven roofline:

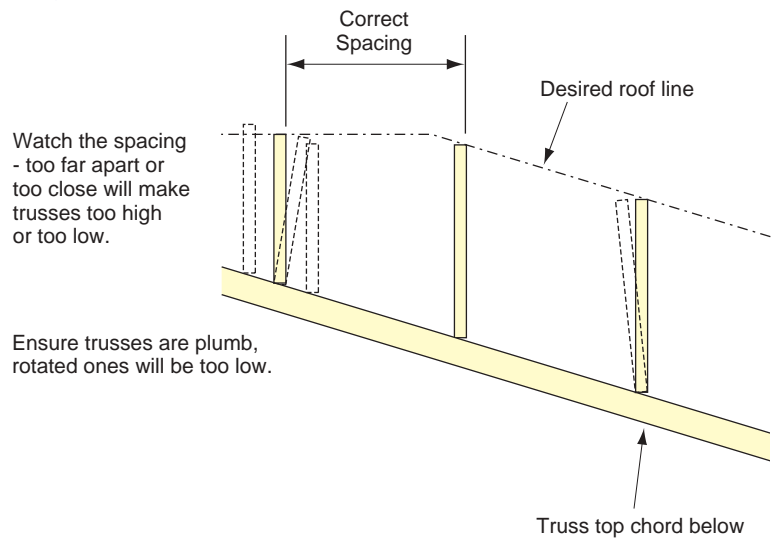
(a) Trusses with chords that have buckled sideways - this will cause a dip to occur in the region of the problem because as a chord buckles sideways it allows the truss to move downwards.

This can occur during the installation of the trusses or by following trades forcing the chords sideways before they are fully restricted by the battens or purlins.

Leaving them exposed to the weather for extended periods can also cause sideways buckling.

(b) Trusses out of plumb - when trusses are not plumb the height of the truss is effectively reduced and hence “drags” the roofline down. If trusses are excessively out of plumb

**Figure 1 - Section**



then their load carrying capacity can also be significantly reduced.

(c) Trusses out of line - these will have their apex and heels out of line with adjacent trusses and will cause a depression in the roof.

(d) Supports not level - this starts the trusses at the varying heights, so even if the trusses are placed straight and plumb there is no hope of the roofline being straight!

However there are a couple of not so obvious problems that deserve a special mention:

1. Valley/Saddle trusses. These are not considered very important structurally because they basically only transfer the roof load directly to the trusses they sit on. As such there is often not as much care taken in placing them correctly.

However, they are extremely important to the roofline. As can be seen from Figures 1 and 2, there are many ways of getting a roofline wrong by misplacing the saddle trusses. The errors will compound too.

For example, placing saddle trusses at the wrong spacing by only 10 mm will mean that the sixth saddle truss is 50 mm out of position, for a pitch of 22.5 degrees that is 20 mm too high or too low.

The correct and careful use of string

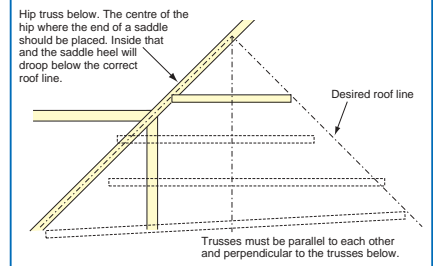
lines will ensure that the trusses are in the right place.

2. Tile battens. I have been involved in a number of inspections that have been requested because of a “wavy” roof that end up being an optical illusion.

If tile battens are not straight the appearance will be that there is a dip in the roof when viewed from the ground. Again the judicious use of a

**Figure 2 - Plan**

Note: Supporting trusses not shown for clarity.



string line will show up the problem for what it really is.

Rectifying both of these problems after the roof is tiled and pointed is time consuming and hence costly.

The solution - take care from the beginning, as the problem is very likely to show up somewhere down the track.

Here's hoping the only waves you see in the future are at the beach where they belong!