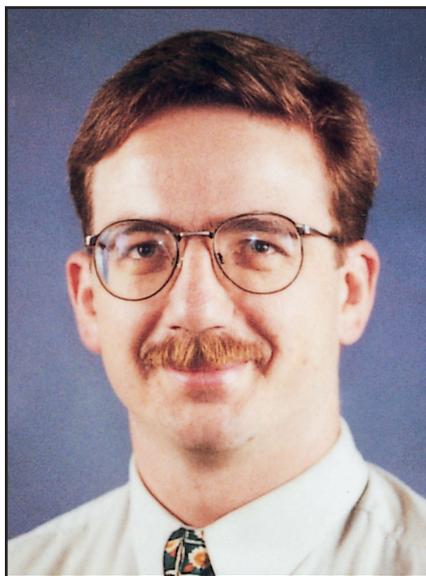


NAILING CORNICE PROBLEMS



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It's time to revisit an old issue – uneven cornice lines. We are receiving more and more calls to inspect houses with uneven ceiling and cornice line.

Coincidentally, the East Coast of Australia continues in the worst drought for decades.

One of the causes of poor ceilings is not to do with what is over the house, that is the trusses, but what is under it – the foundations. I am not suggesting that all poor cornice and ceilings are caused by bad foundations, but I am finding a growing number that are.

The symptoms are usually the same – bumps in cornices directly under trusses, corners of cornices cracked and even splits in the ceiling and wall plasterboard linings.

The way to determine the real cause of an unacceptable ceiling line is, as always, careful investigation of all the ceiling supports starting from the top down.

One possible cause of ceiling and cornice problems is the movement of the foundations of a house moving – perhaps due to unforeseen ground conditions when the slab was designed, perhaps due to excessive change of foundation moisture conditions causing the ground to shrink or heave under the edges of the slab.

What ever the reason, if the edge of the slab sinks relative to the middle then the

result is invariably seen in the condition of the ceiling.

There is a misleading symptom of this problem – cornice bumps are almost invariably worse below highly loaded trusses, girders, than common trusses. This results in the misimpression that the girders have failed and are progressively breaking through the ceiling.

When the slab edges settle down, the trusses are supported by them will also drop, but across their full span, an example can be seen in GN Guidelines #6.

Now, if an internal wall runs across the trusses and it is sitting on a section of the slab that has not settled, then the truss will be placing load on the cornice that attaches the ceiling to the wall (See Figure 1).

Cornice glue is a very strong adhesive and, like all gluing, is strongest when trying to slide the two glued items past each other. This is very true where the cornice is connected to the wall

trusses above the bump, either by string line in the roof space or use a laser level from below.

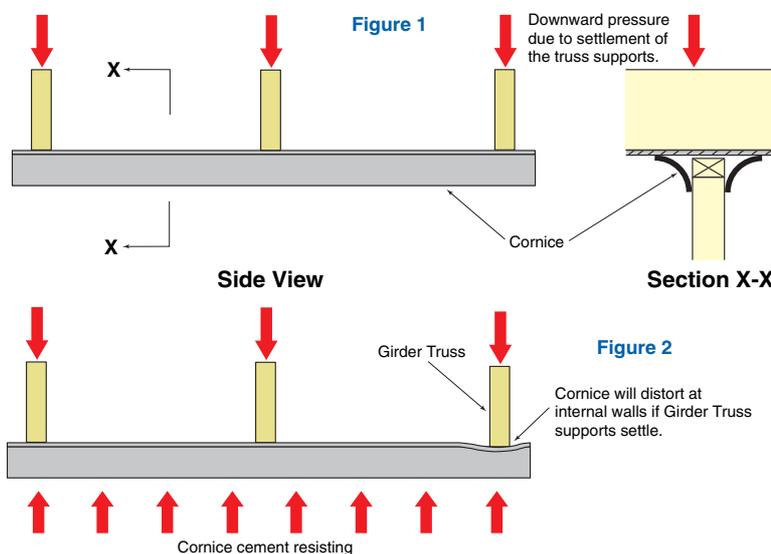
When using a laser level from below ensure that the ceiling is directly fixed to the truss bottom chords and that the glue depth is consistent along the length of the truss.

The trusses should be within 3 to 5 mm of straight between the heels. Note that is not necessarily level as the supports may be at different heights, take into account when using a laser level.

If it is found that the trusses are within acceptable tolerance widen the investigation to the supports including walls and floors. Crushing of the top plate can occur under heavily loaded girders which will allow the truss to drop across its length.

It is very important that you don't attempt to fix the symptom until you know what is the problem.

We have seen a number of cases where it was wrongly assumed that the



plasterboard, so the cornice does not want to move and resists.

At this point one of two things can happen (1) The truss bottom chord could flex upwards or (2) the cornice directly below the truss will bend downwards.

It is this second scenario that is visible to the occupants. As girder trusses do not flex easily, then scenario number two is invariably going to occur. (See Figure 2).

To find out the real cause of bumps in ceilings, it requires a thorough investigation. Start by checking the

truss must have been too flexible and was breaking the cornice because it had "failed". In these situations the trusses had been jacked up and propped off the internal wall.

The result was that the truss was actually bowed upwards some 30 mm and the web in the region was now buckled severely!

So measure and check the whole situation before "fixing" anything, do not rectify or modify trusses without approval from the manufacturer, the least you will do is void the warranty on the truss.