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GN GUIDELINES No. 196

ANOTHER MITEK ADVANTAGE – OCTOBER 2013

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'GET THEM TO STOP IT'

On average, engineers in our Sydney office receive two calls per week requiring rectification to trusses that have been cut by following trades.

If we extrapolate this to every state design office, it equates to roughly six instances per week nationally!

This is not a new problem and fabricators would be well aware of the time and money involved in attending to the challenges created by these unauthorised modifications.

The message I want fabricators to convey is 'Stop Cutting Our Trusses'.

Take this Guideline and pass it onto your builders, and in turn ask them to pass it on to their subcontractors and following trades.

This is a message we need to reinforce to all 'tradies' in the building industry.

The simple fact of the matter is that usually, this is an avoidable expense. Unauthorised modifications cost both time and money to fix properly, and in some cases can be quite dangerous.

Take the truss in Photo 1 for example. A web was cut to fix flexible ducting and a vertical strut was screwed into position in a poor attempt to compensate. Note:

1. Trusses work because they are made up of triangles. Webs (sometimes incorrectly referred to as "internal struts") join the top and bottom members (chords) to form a series of triangles. The triangles are what hold the truss in shape. Without them, the truss shape will flop about.

2. The strength of a nailplate is very high and not easily substituted by nails/screws/bolts in the compact area it occupies.

3. The positioning of nails/screws/bolts is critical to achieving its full strength; the minimum distances to timber ends and edges (which vary with each fixing type and size) must be maintained.

In Photo 2, a bottom chord was cut to fit a down-light. Note:

1. It is the outer perimeter of a truss (chords) which does the most work and because they are heavily loaded they are normally made with high strength materials.

2. It is also the outer perimeter of a truss which controls truss deflection. If their continuity is broken, you can expect a significant increase in deflection.

3. The amount of tension force pulling apart the bottom chord is quite substantial – even more so when it is carrying other trusses, as was the case in this truncated girder.

Photo 1: Could the ducting not have been moved over a little?

Photo 2: Could the down light not have been repositioned?

4. When a tension member is cut, the gap quickly separates and opens up, and not only is deflection inevitable, other components are also forced to pick up the extra load and the entire truss performance is compromised.

Is there really anything I need to say about Photo 3!!??

All it takes is a little effort to reposition the services and these modifications would have been avoided.

Nevertheless, mistakes do happen and adjustments are sometimes required. Firstly, if communication is improved, the needs of following trades can be accommodated from the start.

Secondly, when an alteration is required, it is vital to get the appropriate rectification details before cutting or drilling anything.

Photo 3: Is this a case of cut first and ask questions later?

Ad-hoc patchwork by the tradesman are often much more expensive to correct than if rectifications were done only once with approved details.

Each timber truss is a carefully calculated and fully engineered structure, which is why it should be treated accordingly.

I encourage all truss fabricators to take the opportunity of inviting builders and tradesmen to see how their trusses are designed on high-end computers, how computerised equipment are used to precisely cut timber, how computer outputs are used to select and accurately position nailplates, and the large hydraulic presses that are required to press them.

Perhaps that will help to engender a bit more respect for your engineered products.

So, please pass this message along as often as you can. TTN