



CRAIG KLINGE
Fabricator Support
Manager/Engineer

STILL MISSING A LINK?

More than 18 months have passed since we last emphasised the importance of bracing the vertical ends of half trusses and cut-off trusses to link the top chord bracing down to the supporting wall structure (Refer GN Guidelines No. 181).

Clause 4.3.1 in the Australian Standard AS4440-2004 "Installation of nailplated timber roof trusses" states that "The requirement for a top chord bracing system is to transfer forces generated in the top chord restraints (usually roof battens or purlins) back to the supporting structure."

However, during some recent inspections of commercial projects, we observed this important link was still either missing or the installation was incorrect.

Fortunately for these projects, we were able to instruct and guide the contractors to do the right thing before certifications were provided.

The troubling part for me, as an engineer, is the vast number of half and warren type trusses installed in residential dwellings that may not have been inspected.

It is quite possible that bracing to vertical ends of trusses may also be missing in some of those buildings.

What do I mean by "missing"? Exactly that: there is no cross bracing installed on the end vertical webs whatsoever.

This is clearly in violation of the above clause in AS4440.

The builder installs Speedbrace to the top of the trusses and wraps the ends around the apex end of the half trusses. It's all done correctly but then inexplicably stops there.

While the top chord bracing and battens will prevent truss buckling and hold the roof plane square, if the ends of the bracing are not then tied down to the supporting structure, what is there to stop the trusses from toppling over like dominos?

Also, when vertical end bracing has been installed, it is not always done correctly. So what are the important features of this bracing?

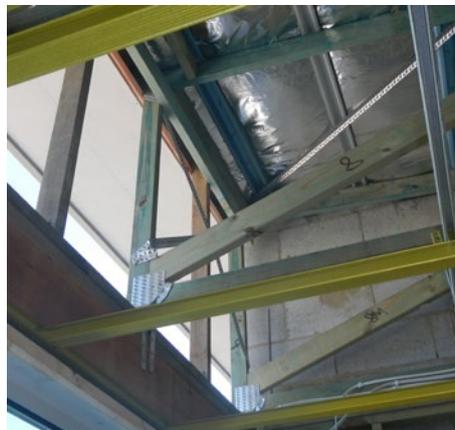
- The bracing must extend from the top chord to the wall frame. It does not mean from the top of the vertical web to the bottom of the vertical web (see Figure 1). The forces need to be

transferred directly to the supporting structure.

The angle of the bracing must be between 30° and 45° to the top plate. Each diagonal brace should cover a horizontal distance equal to or greater than the height of the vertical web.

- A timber block should be inserted at the apex to resist the compression force when the diagonal speedbrace goes in tension.

■ Figure 1: Incorrect vertical end bracing



Let's not forget the other important purpose of vertical end bracing.

It is not only for the long term bracing

of the roof but also for the stability of the structure during construction.

By fitting this bracing during installation, not only will the trusses remain straight and plumb while the remainder of the trades complete their work below but their stability will also protect workers on top of the trusses from sudden collapse.

Should a truss become out of plumb after installation, future issues may arise, either in the top chord plane or deflection of the ceiling. This will result in future call backs to the project and possible costly rectifications.

The relevant details (Figure 2) for carrying out this bracing can be found in the Fixing and Bracing Guidelines booklet that is commonly supplied with every job.

These booklets provide up to date information on all aspects of truss installation to ensure that they perform as designed.

Should you require further information on any aspect of roof bracing, or if you are interested in holding a truss installer's course presented by an engineer for your team, please contact your truss fabricator or nailplate supplier. **TTN**

