

ANOTHER MITEK ADVANTAGE

ROOF BRACING INTEGRITY

A number of articles have been written on the subject of roof bracing.

The authoritative guide for bracing roof trusses is "AS4440-2004 Installation of Nail-Plated Timber Roof Trusses".

One of the basic premises of AS4440 is that the supporting structure must be stable in its own right, meaning that the supporting structure should not rely on the roof trusses and bracing for building stability; on the contrary, it must be capable of supporting all design forces, including vertical and lateral forces from the roof structure.

When the word 'bracing' is mentioned most people think of wind bracing. In actual fact, it also serves to provide lateral stability.

This is particularly the case with roof truss top chords in compression under dead and live loads.

A member under compression requires lateral restraint and these lateral stability forces need to be braced back to the supporting structure.

AS4440 contains many standard details of how bracing is to be fixed to the trusses and to the supporting structure and all fabricators provide additional fixing and bracing guidelines for roof trusses to builders.

Despite this, on more than one occasion, I have observed that even the most basic connection details are sometimes overlooked.

I am sure you have heard the old saying that "a chain is only as strong as the weakest link".

This is particularly true with bracing, as failure to securely fix all aspects of speed brace in accordance with AS4440 will compromise the structural integrity of the whole bracing system.

The result is not only an unsafe workplace for builders, truss installers

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and following trades, but also unacceptable and unsightly movement of trusses which can result in an uneven roof line, or at worst, even collapse of the roof structure at later date.



Photo 1



Photo 2

METHOD OF FIXING

Speed brace should be wrapped around the truss top chord at the apex and be nailed to both the back face and top edge of the truss top chord.

By contrast, photo 1 illustrates an avoidable practice of not wrapping the brace around the truss top chord.

At the other end speed brace should normally be securely fixed to the supporting structure by bending the brace down at a gentle angle (less than 45 degrees), nailed to the side of the top plate, then wrapped under the top plate and nailed to the underside.

Photo 2 shows an example of speed brace loosely bent at too steep an angle to the top plate and not securely fixed to the side or underside of the top chord, but on top. In tension, the nails will easily pull out and release the speed brace.



Photo 3

Of course the roof truss installer is not the only one who can create a weak link in the bracing system as following trades have also, on occasions, been known to demonstrate poor work practices.

Photo 3 illustrates a situation where the speed brace has been carelessly cut to accommodate a flue without any reinforcement or repair.

Adhering to all of the requirements of AS4440 when installing bracing is critical to the maintenance and structural integrity of the roofing system.

Rectification at a later date can be both a costly and a time consuming process and something that can easily be avoided by simple attention to detail.

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