MiTek®

GN GUIDELINES NO.214

ANOTHER MITEK ADVANTAGE – MAY 2015

By Tim Rossiter, Chief Engineer NSW

The humble, internal wall bracket

There is a simple little bracket used in the framing industry that does not contribute to the structural capacity of trusses and wall frames that is, nonetheless, very important for both aesthetic and functional performance.

When incorrectly fixed, it has been responsible for expensive and time consuming remedial work. I am referring to the 'internal wall bracket' (IWB), also known as the 'L–bracket'.

BASIC FUNCTIONS OF IWB

IWBs are normally spaced 1800 mm apart – that is, every second or third truss, depending on truss spacing. They have two fundamental functions:

1. To align internal non-loadbearing walls; and,
2. To provide lateral support to internal, non-loadbearing walls – especially around doorways (where parents of teenagers will be all too familiar with slamming doors!).

WHAT IWBS ARE NOT MEANT FOR

IWBs are not sheer connections for bracing walls. For that application, timber shear blocks fixed in accordance with AS1684 (refer to GN Guideline 137) may be used or, alternatively, the BraceWall Bracket (Image 1), is a much simpler and more elegant solution.

IWBs are also not suitable for supporting bulkhead framework over hallways and kitchens.

WHAT'S THE FIXING PROBLEM?

As IWBs are installed before the roof is loaded, allowance has to be made for truss cambers to settle. That is why IWBs have slotted holes to let the nails slide vertically as required. Newer versions of IWBs have longer slots to allow for the rise and fall of heaving slabs (Image 2).

Nails should be fixed at either the top of short slots, or the centre of extra-long slots, which also have markings to assist nail location. They must never be nailed home hard, and never driven in with a nail gun.

The operative word to remember is 'slide'. Any fixing that prevents or inhibits the sliding action is likely to result in one of two problematic scenarios;

Scene 1 – Nails fixed at the bottom of slots, or locked in with a power nailer (Image 3).

In this scenario, the nails clearly cannot move down, which sets the truss with a permanent camber. However, the trusses beside it do not have IWB fixing, and this will settle with time. The alternating fixings with and without IWBs then result in a wavy, cornice line.

Unfortunately, this isn't noticed until weeks after the house has been handed over as the trusses creep down. Enter: expensive and time consuming repairs such as, engineering inspection, cornice removal, bracket release, waiting period, bracket re-fixing, cornice replacement and repainting.

Scene 2 – Too many nails hammered home hard.

In this instance, the nails could move when static friction is overcome. As an example, a storm event sends vibrations through the house and the nails previously stuck in the IWBs suddenly break free and immediately slide down the IWB, along with the truss. The result is a sudden crack in the cornice and an unhappy and worried homeowner who interprets it as a truss failure due to the storm!

Revisit the expensive solution above again, and add 'regain owner's confidence'.

A concerned fabricator recently sent me a photo taken over Easter, showing that the builder managed to break every fixing rule outlined above, and even added an extra bracket to the other side, just to be sure the truss wouldn't settle.

More education is obviously required!

The little IWB may not be a major structural bracket, but it may cause big headaches when misused. It is a requirement in AS 4440 and AS 1684 and referred to in the Building Code of Australia, so it's important for structural compliance. Keep passing this message around – treat the humble IWB with both respect and due diligence.

Remember the old saying (now with added metrics): 28.35 grams of prevention is worth 0.453 kilograms of cure. T

Image 1.

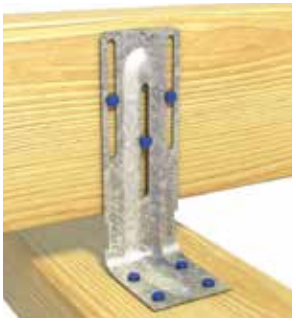

Image 2.

Image 3.