Guideline

November 2019

Welcome to this update on technical and informative advice for the building and construction industry on issues relating to building controls and good construction practices.

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Bottom plate fixings

NZS 3604:2011 and other options

The BRANZ helpline has received several queries relating to fixings of bottom plates.

Firstly, it's worth remembering that NZS 3604:2011 *Timber-framed buildings* is an Acceptable Solution to New Zealand Building Code clause B1 *Structure*. It contains a complete stand-alone solution without anything further required.

If you are using this pathway to show Code compliance, use the solutions in the standard:

- For concrete slabs, see clause 7.5.12 – if you're using cast-in bolts, 7.5.12.1 provides details, and if using post-fixed anchors, see 7.5.12.2–7.5.12.4.
- For timber floors, see Table 8.19 for required nailing.

Clauses 7.5.12.3 and 7.5.12.4 provide target fixing values for internal and external walls (usually from actual fastener tests). Nails to Table 8.19 are deemed to comply with the same values. If you step outside NZS 3604:2011, specific engineering design is required. This could include shot-fired pins (or any other fixings) that are backed up by test data.

It is important to note that some proprietary bracing systems require hold-down bolts with an uplift capacity greater than that specified in NZS 3604:2011. For example, a bracing system providing 150 bracing units per metre will typically require a hold-down bolt with a minimum characteristic uplift capacity of 15 kN.

Some proprietary bracing systems have followed this track. While shot-fired pins are not provided for in NZS 3604:2011, they are an Alternative Solution provided within some proprietary bracing systems. They are required to meet the same criteria as in clause 7.5.12.4, so they are equally as valid as the bolts in NZS 3604:2011 for the relevant proprietary bracing system.

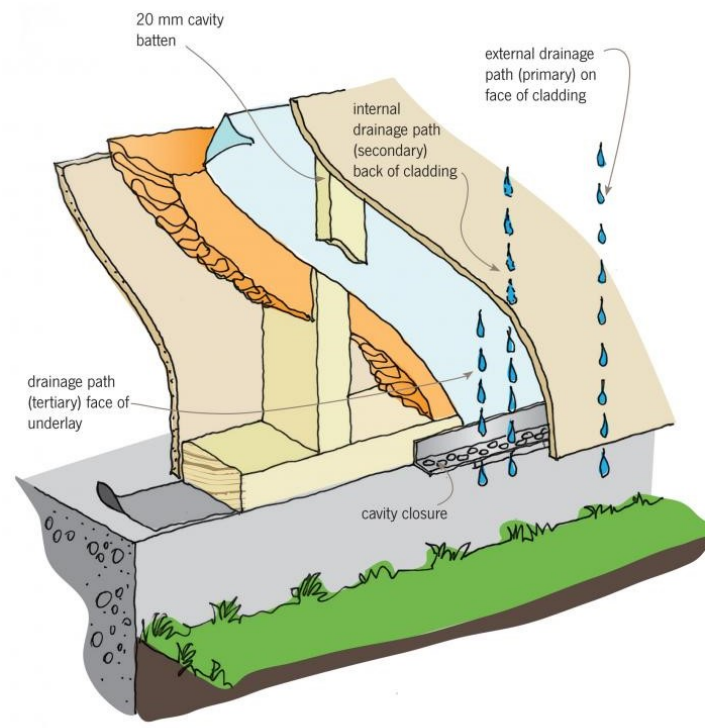
Decks under 1 m high may still need a barrier
How quickly does land beside the deck fall away?

In New Zealand Building Code clause F4 *Safety from falling*, a barrier must be provided where someone can fall 1.0 metre or more from a building.

Even when a deck itself is less than 1 metre above ground level, if the land just beyond the deck slopes quickly away at a steep angle, a barrier still may be necessary. A 1998 court decision and a 2008 determination both looked at the issue. They make it clear that the horizontal distance between a deck and a steep slope must be considered. Measure the height of a potential fall at a point 1200 mm horizontally from the edge of the deck – if the fall is over 1 m at that distance, a barrier should be installed.

Cavity closers go over the underlay
Clarification for some helpline callers

When installing claddings over a drained and vented cavity, continuous horizontal battens are required at the top of the wall to prevent air movement into adjacent spaces such as the roof space. A ventilated cavity closer along the bottom of the wall that meets the requirements outlined in Acceptable Solution E2/AS1 is also required. It is important to ensure that all elements of the cladding system are installed at the correct stage in the building sequence. The first step in all cladding installations should be installing the wall underlay over the framing. It is only *after* the wall underlay installation is complete that all other elements can be installed. A typical installation sequence is joinery support bars, flashings, base cavity closers, top horizontal battens and vertical cavity battens. Getting the correct sequence is important to ensure performance – both weathertightness of the finished construction and effective drainage/drying.



Should you remove underfloor foil before installing new insulation?

Key considerations

It is common for houses with old foil underfloor insulation to have new bulk insulation installed. Should the old foil be removed before the new insulation goes in?

It is not essential to remove the old foil if you can install the new bulk insulation safely and securely. It should be tight against the underside of the floor, with no airflow between the floor and the insulation. Options include:

- pushing the foil up between the joists
- cutting the foil down the middle and leaving it draped without removing it
- cutting the foil, installing bulk insulation, then holding the foil up under the new insulation with strapping – this may be useful where there is a lot of air movement, for example, with pole houses.

The critical issue is around safety:

- Always turn the power off when installing underfloor insulation.
- Always let someone know when you are working in the subfloor space.

Check for electrical cables under the floor. Knowing the location of cables is especially crucial if you plan to staple foil out of the way against the floor or joists. Foil installation/repair is banned because people have been electrocuted when steel staples pierced cables. Plastic staples are an option but may be difficult to use with some native timber.

Foil retrofitted across floor joists may be easier to remove but only if it hasn't been strapped. If it is in good condition with no holes or tears, it could be left, as it should be performing satisfactorily. Existing foil insulation does not meet the requirements in the new healthy homes standards for rental homes, however.

New Body aims to reduce building worker suicide rates

Getting support to those who need it

The programme MATES in Construction has been formally launched to raise awareness of the issue of builders and other construction workers dying from suicide and to help save lives.

The MATES team includes field officers and is beginning in Auckland. A similar scheme in Australia has seen suicides rates drop.

Almost 7% of working-age male suicides in New Zealand were building industry workers. One in every six builder suicides is an apprentice.

BRANZ funded a study (SR411 Mental health in the construction industry scoping study) addressing the topic.

Hearing loss claims rising
The construction industry has high claims

In October, ACC released the numbers of claims around hearing loss caused by noise on the job. The numbers for the construction industry show a steep rise in the financial years 2013–2019, from 400 new claims in 2013 to 815 in 2019, giving the industry one of the highest levels of claims. (Figures for other industries also rose.)

Good ear protection is crucial. Earmuffs and earplugs are rated from Class 1 (less than 90 decibels (dB)) to Class 5 (105 to less than 110 dB). Talk to your safety equipment supplier about what is most appropriate for your type of work. For the best protection:

- wear earmuffs directly on your head – not over a beanie or hood
- choose protection that fits and feels comfortable for long periods of wear
- when buying tools or equipment, ask about noise and look for quieter models
- keep tools and equipment maintained – equipment in bad shape can be noisier.

Employees exposed to loud noise over long periods should undergo annual hearing tests to ensure their protection is sufficient.

Don't burn the building down!
Take care on the tools

Investigations into the cause(s) of the SkyCity Convention Centre fire will take time to complete. Regardless of the finding in this case, it is a good opportunity to reflect on the need to take great care on construction sites with any work that could lead to a fire.

A permit must be issued for hot work performed outside of a workshop. This includes gas cutting, torch welding and arc welding, brazing and so on. It is crucial to follow the relevant standards, in particular NZS 4781:1973 *Code of practice for safety in welding and cutting*. Many insurance policies require people carrying out hot work to comply with this standard.

For specific tasks, refresh yourself on the manufacturer's recommendations and safety instructions for any tools involving heat or naked flames, for example, and industry guides such as the Code of Practice for Torch-On Membrane Systems, published by the Membrane Group NZ Inc. As the Code of Practice says, "Fire prevention in the first instance is the responsibility of the applicator" using industry best practice.

Substituting 2 x D12 bars for a single D16 in residential concrete foundations
Can you do this?

In the October Guideline, there was an article about D12 and D16 bars. Just to clarify: Two D12 bars can be used in place of a single D16 in simple residential concrete foundations.
However, you can't generally do this the other way round – that is, you can't use a single D16 as a substitute for two D12s for foundations within the scope of NZS 3604:2011 and especially not where specified as part of a specific engineering design.

Recent news

- In October, the government announced new steps to encourage young people into **vocational education and training**. These include a new brokerage service to build relationships between schools and local employers to highlight local trades and vocational opportunities.

- An ecolabel specification for **construction and demolition waste** is now up and running. The Environmental Choice New Zealand initiative aims to reduce the waste going straight to landfills.

- The government has announced that it will create an independent, stand-alone Crown entity to **regulate drinking water** in New Zealand. The required legislation should make its way through Parliament in 2020.

- A new system for calculating land elevations has estimated that much **higher numbers of people are at risk from rising sea levels** than previous studies suggested. The US-based study indicates that around 15,000 New Zealanders live almost on the high tide mark, 71,000 within a metre and 240,000 within 2 metres of the mean high tide line.

- An **issues and options paper** about potential changes to the resource management system was released by the Resource Management Review Panel. The paper is open for comments until 3 February 2020.

- The 2018 Census results showed that **318,891 homes were affected by damp** – 44,520 were damp all the time (3% of all homes), and 274,371 were sometimes damp (18.5%).