BRANZ

May 2022

GUIDELINE

Welcome to the BRANZ monthly technical update

Construction and COVID-19

Protection framework in place

New Zealand is operating under the rules of the COVID-19 protection framework. You can find out what this means for building work and building sites on the CHASNZ website.

If you have a workmate who is finding it tough to cope with everything that is happening, help is available through the MATES in Construction website or phone 0800 111 315.

In this issue:

EQC gets an overhaul

New law brings changes

The Natural Hazards Insurance Bill, introduced into Parliament in March, will make quite a few changes to the Earthquake Commission scheme, including how (and which) damaged buildings are repaired. It also includes some of the recommendations from Dame Silvia Cartwright's Public Inquiry following the Canterbury Earthquakes.

Changes include:

- improving consistency between the rules used to determine if a building is mixed use and the resulting cover for that building
- clearer regulations relating to repairing buildings and land following a landslip or other land damage
- improving the cover and simplifying the excesses and calculations for retaining walls and bridges and culverts
- extending and standardising building cover for items located beyond the boundary of the land on which a residential building is situated
- clarifying that cover does not extend to paying for building upgrades such as seismic improvements of earthquake-prone buildings that were legally required before a damage-causing natural hazard event occurred
- introducing a clear statement of the repair standard for buildings and land cover
- updating and standardising claims excesses
- updating the list of excluded property
- introducing an out-of-court dispute resolution service so claimants can access support in the immediate aftermath of a natural disaster
- increasing the monetary cap on residential building cover from $150,000 to $300,000 per dwelling (both excluding GST) from 1 October 2022, which was announced last year.

EQC will get a new name, Toka Tū Ake | Natural Hazards Commission. This better reflects the broad range of hazards covered - earthquakes, landslips, volcanic activity, tsunamis, hydrothermal activity, floods, storms or fires caused by a natural hazard. (For a storm or flood, natural hazard damage only covers damage to land.)

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Don't break your bottom plates

Keep bottom plates whole

There are all sorts of reasons why bottom plates in a house may be cut during construction, with cuts for service pipes being one we have seen many times.

This isn't a good idea. Vertical loads are transferred downwards through walls via bottom plates to the floor and foundations, and loads are evenly distributed through the whole wall. The only gaps in bottom plates should be at door openings, where the loads are transferred down either side of the opening.

If a section of bottom plate is cut away to allow service pipes through, the load is no longer evenly distributed and the wall can no longer be used as a bracing wall over its entire length.

NZS 3604:2011 *Timber-framed buildings* doesn't make any provision at all for sections of bottom plate other than door openings to be cut away. It does allow for holes or notches, but only where bottom plates are fixed to timber floor framing (para 8.7.5.2). In this case, where a hole or notch is more than 50% of the width of the plate, the plate must be fixed against sideways movement with one 100 × 3.75 mm nail on each side of the hole or notch (Figure 1).

NZS 3604:2011 doesn't provide for holes or notches in bottom plates that are fixed to a concrete floor slab - the paragraph in the standard only mentions the use of nails, which obviously aren't appropriate for slab floors. (As a side note, where this is unavoidable with a slab, an engineer can provide a solution using post-installed concrete anchors to the bottom plate.)

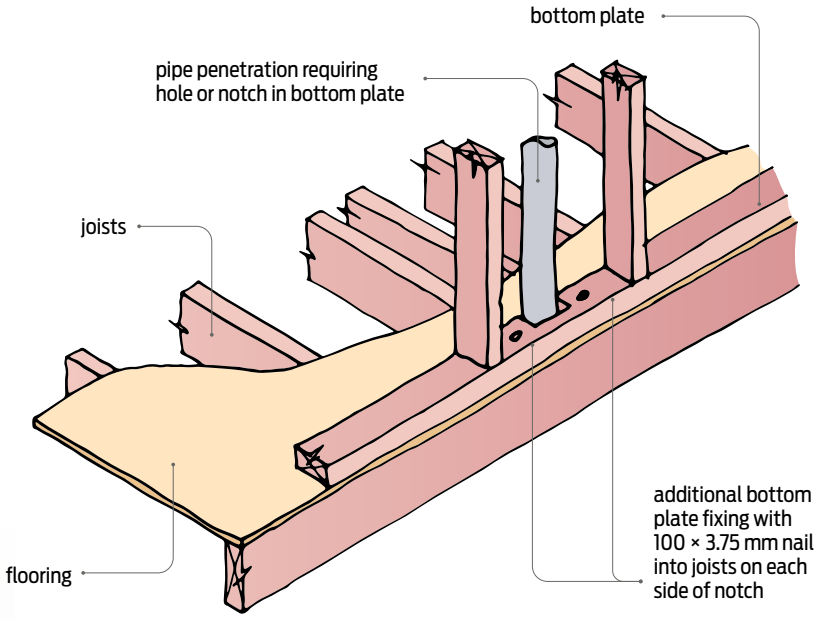

Figure 1. Additional bottom plate fixing either side of a hole or notch.

Good planning at the design stage can partially help ensure the problem does not arise. Designers have the initial responsibility for determining the location of service pipes and where they exit the structure. Given that only a tiny percentage of designers are involved during the actual build, however, the onus falls on the contractor and/or project manager to ensure that the as-built plumbing and drainage does not compromise the structure of the building.

The BCA's building officers must also confirm that the as-built plumbing and drainage complies with the approved building consent documents, which must be present on site. If as-built work deviates from the stamped BCA plan set, there should be an amendment requested and only issued if there are no other consequences that compromise the building.

Searching for good ground

Where do you find the rules?

The definition of "good ground" was introduced in NZS 3604:1990. Its effect has been changed by Building Code clause B1 *Structure* several times since the Canterbury earthquakes of 2010 and 2011, with the most recent change coming into force in November last year. It's an important issue - building on good ground can be easier and potentially less expensive because the foundations will then fall within the scope of Acceptable Solution B1/AS1 and NZS 3604:2011 and therefore don't require specific engineering design.

The definition of good ground is found in B1/AS1 and B1/VM1. It covers soil or rock capable of permanently withstanding an ultimate bearing pressure of 300 kPa but excludes:

- soil that is easily compressed such as topsoil or clay you can mould with your fingers or uncompacted gravel
- expansive soils that swell and shrink with the seasons as they get wet and dry out - technically, expansive soils have a liquid limit of more than 50% and a linear shrinkage of more than 15%
- ground that could move 25 mm or more from things like land instability, ground subsidence, liquefaction, lateral spreading, a changing groundwater level, erosion or the effects of tree roots.

NZS 3604:2011 shows how to determine soil bearing capacity in section 3.1.3, and section 3.3 sets out the method for testing this with a Scala penetrometer. This is a calibrated rod driven into the ground with a sliding weight or hammer. The number of blows required to achieve a particular depth establishes the soil's bearing capacity. The standard requires testing depths of 2 m minimum for strip or pile foundations and 600 mm minimum below the depth of short driven timber piles.

Where testing shows the ground does not meet the bearing capacity required, the foundation of the proposed building will need specific engineering design.

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Flooding, sea-level rise and section 72

Notices likely to become more common

Building consent authorities across New Zealand are busy drawing up or revising natural hazard maps covering flooding, sea-level rise and similar hazards.

There are thousands of very attractive (and valuable!) building sites close to a seashore or waterway that fall within one of these defined hazard zones and where building consent for a house will only be issued subject to a section 72 notice. As flooding and sea-level rise become more problematic, this situation is likely to become more common. So what is a section 72 notice?

Sections 71-74 of the Building Act deal with buildings on land subject to certain natural hazards. BCAs can issue building consent under certain conditions set out in the law (and must issue them in some cases if the applications comply). Where consent is given for building on land subject to natural hazard, a note will be added to the certificate of title that a building consent was granted under section 72 and identify the hazard. This has significant implications. Where a land title has this note on it:

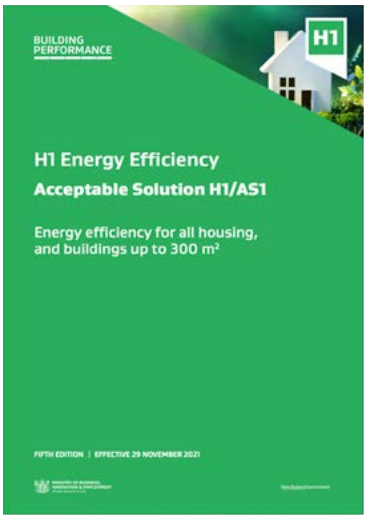
- the BCA is exempted from liability for damage arising from the natural hazard
- the Earthquake Commission (EQC) can legally decline to provide cover, depending on the nature of the hazard
- insurance companies may decline to offer cover or may exclude cover for the relevant hazard.

Let's eat grandpa!

Commas can be crucial

There's a big difference between the phrases "Let's eat grandpa!" and "Let's eat, grandpa!" and it rests on a tiny comma. We're hearing comments from industry that suggest some people don't understand the significant meaning of the comma in the scope of the new Building Code documents for H1.

H1/AS1 and H1/VM1 5th edition apply to "Energy efficiency for all housing, and buildings up to 300 m²". That comma is crucial because it means that these documents apply to *all housing*, including stand-alone houses over 300 m², medium-density housing, apartment buildings, wharenui and so on. If a building will be home to someone, regardless of its size, H1/AS1 and H1/VM1 5th edition will apply.



Peeling off strippable protection

Don't do it too soon – or too late

Many different types of building materials arrive on site with a removable protective film. It's not just to keep the surface in pristine condition during transport and delivery but to keep it clean on site too.

- For most products/elements that are delivered to site with a plastic strippable film (other than glass), leave the film in place at least until just before the item is installed or fixed in place. It is often impossible to get rid of all the film once screws and overlaps have been applied (specifically for metal sheet type products).
- Try to avoid using solvents or chemicals to remove residues (if there are any) for materials other than glass - ask the manufacturer what they recommend. A common issue is that people try to remove residues with solvents such as acetone or ethyl acetate (commonly in nail polish removers) but those can damage paint coatings.
- For metal roof or wall claddings, the New Zealand Metal Roofing Manufacturers Association says that "strippable film must be removed before prolonged exposure to sunlight, as that may make it extremely difficult to remove. Prolonged exposure and wet conditions can also cause the film adhesive to whiten and breakdown, leaving residue on the painted surface when the film is removed."
- Protective film on glass or windows should be left on until after construction is complete (assuming this is within a few months of the windows being installed). However, like metal claddings, strippable films should not be left on glass for very extended periods, particularly with exposure to sunlight and/or heat. Sticky production labels can be removed from glass immediately.

Bear in mind that, in most cases, strippable films are only designed to protect a product from simple damage such as scratches and not to protect against all hazards such as rain, high humidity or corrosion. Materials with these films still need to be stored properly after they are delivered to site - follow the manufacturer's guidance.

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Parallel imported plasterboard

Check numbers to see if Appraisals apply

As the scarcity of plasterboard continues to bite, BRANZ has become aware of plasterboard being parallel imported to cover market shortages. A parallel import is a non-counterfeit product imported from another country and sold by someone other than the appointed local agent. Designers, specifiers, builders and council officials need to be aware that product imported from different plants from the same manufacturer may not necessarily be manufactured to the same specification or standards.

In the case of USG Boral (BRANZ Appraisal Nos. 898, 899 and 955), only product bearing the plant code 201, 301 or 497 is covered by these Appraisals. This plant code is printed on the board on both board edges (see photograph), the rear and front faces and in the tapered recess. The plant code can be found after the manufacturer, product name, time and date of manufacture. The example in the photograph is for USG Boral (now owned by Knauf Australia) - the plant code is 201.

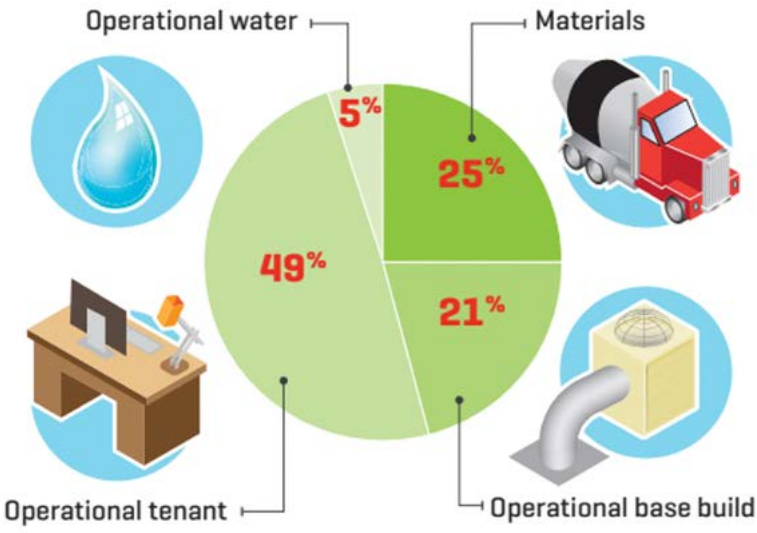
Due to requirements of the ACCC (the Australian version of our Commerce Commission), from 1 May 2022, USG Boral plasterboard will start to be rebranded as Knauf Plasterboard (Australia). Only these Australian-made Knauf products will continue to be covered by the relevant BRANZ Appraisals and will still have the plant codes noted above.

Case studies of carbon footprinting

We're on the case!

The recent BRANZ webinars/workshops The Carbon Challenge prompted a lot of comments and questions. If you're interested to see how life cycle assessment/carbon footprints have been calculated for some New Zealand building refurbishments, BRANZ has three short and simple case studies on our website:

- The Mason Brothers building was originally a 1920s warehouse. It was redeveloped as a 5,700m² three-level workplace in Auckland's Wynyard Quarter Innovation Precinct. Among the achievements of the redevelopment were an estimated 3,200 tonne CO_2-e reduction relative to a reference building across the building life cycle, a 6-star Green Star As-Built rating and a 5.5-star NABERSNZ base building rating.
- Press Hall, Wellington, was the refurbishment of an existing 6-storey commercial office building originally constructed in 1923 into an A-grade mixed-use commercial/retail building. Refurbishing the building saved approximately 3,100 tonnes of CO_2-e emissions, assuming a new building for the site would have resembled the reference building used in the case study.



Calculations for the Press Hall case study using LCAQuick.

- Waikoukou also involved the refurbishment of a Wellington building. Much of the original building's structure and foundations were retained, but the original two separate structures, were connected and a further 3 storeys added. New reinforced concrete shear walls, structural steel framing and a curtain wall façade system were added.

The life cycle assessment calculations were carried out with the BRANZ carbon tool LCAQuick. You can find this and other carbon tools on the BRANZ website.

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News

Building Code compliance changes 2022

The proposed changes to the Building Code in the 2022 update were released on 2 May 2022. The consultation runs until 1 July 2022.

The proposed changes include:

- increasing the scope of the protection from fire compliance pathway to include more types of low-rise multi-unit homes
- providing new requirements for fire safety systems, means of escape and control of fire and smoke spread in homes
- removing a deemed-to-comply solution for the support of hollow-core floors from Verification Method B1/VM1
- reducing lead in plumbing products
- reducing hot water delivery temperatures to reduce the risk of scalding
- citing AS/NZS 3500:2021 Parts 1, 2, 3 and 4 as means of complying with E1 *Surface water*, G12 *Water supplies* and G13 *Foul water*
- improving backflow prevention provisions to protect drinking water from backflow contamination
- water supply system component updates in G12/AS1
- citing updated plumbing and drainage system materials standards under E1 *Surface water*, G12 *Water supplies* and G13 *Foul water*.

NZ sea-level rise tool launched

A new online tool allows New Zealanders to see projections for sea-level rise in their neighbourhood up to the year 2300. The tool could help local authorities, homeowners and businesses better assess evolving risks from flooding and erosion. The tool provides projections using the new IPCC AR6 data and takes account of vertical land movements for the entire coastline at 2 km spacing. An update to the Coastal Hazards Guidance for Local Government on how to use the new projections for planning has been co-produced with the Ministry for the Environment.

More Housing Acceleration Funding for Auckland

On 28 April, Housing Minister Dr Megan Woods announced that around 400 urban renewal projects in Mt Roskill, Māngere, Tāmaki, Oranga and Northcote will receive funding from the Government's $3.8 billion Housing Acceleration Fund. The work includes the replacement of around 4,000 Kāinga Ora homes and 2,000 additional Kāinga Ora homes as well as 10,000 additional affordable and market homes to be built and available for purchase.

Steel-framed building elearning modules

This series of three 20-minute modules provides a practical and comprehensive introduction to the design and construction of lightweight steel-framed buildings. Developed in collaboration with the National Association of Steel Framed Housing (NASH), the modules are aimed at designers and builders seeking to gain and refresh their skills and knowledge on this topic. Licenced building practioners can earn CPD hours for successfully completing the modules. Available from www.branz.co.nz/pubs/elearning/steel-framed-buildings.

Draft climate change adaptation plan out

The Government has released as a consultation document a draft of New Zealand's first national adaptation plan. "Homes, buildings and places" is one of the sections in the plan. The potential scale of impact is vast - about 675,000 (one in seven) New Zealanders live in areas prone to flooding (nearly $100 billion worth of residential buildings). A further 72,065 people live in areas that are projected to be subject to extreme sea-level rise. The numbers will increase as the climate changes. Consultation will close on 3 June. The final national adaptation plan will be published in August 2022.

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Looking ahead

- 1 July 2022 – in high-risk areas such as Wellington, earthquake-prone buildings (other than priority buildings) must be assessed.
- 1 July 2022 – in medium-risk areas such as Hamilton or Nelson, earthquake-prone buildings in the priority category must be assessed.
- 1 July 2022 – waste levy of $20 per tonne to be introduced for construction and demolition fill (Class 2).
- August 2022 – New Zealand's national adaptation plan (for climate change) is due to be published.
- August 2022 – district plans for Tier 1 councils must include density standards (or standards that enable greater development).
- 1 October 2022 – monetary cap on EQC cover for residential building rises from $150,000 to $300,000 per dwelling (both excluding GST) (see story above).
- 2 November 2022 – due date for the end of the 1-year transition period for Building Code compliance changes announced 29 November 2021.
- 6 December 2022 – the Commerce Commission is due to present its final report on residential building supplies.
- Late 2022 – MBIE to consult on adding whole-of-life embodied carbon requirements and new requirements for operational efficiency to the Building Code.

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