

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. 

The risks of unapproved plasterboard substitution

Changes need to be carefully thought through



We are hearing of many building sites where specified products are not available and other products are being used in their place. It is acceptable where product substitution is carefully carried out and [follows the rules](#), and in some cases, there is no other option. The designer should be advised and a check made with the building consent authority in case an amendment to the building consent is required.

However, there is evidence that unapproved product substitution is widespread. In [the industry survey that Ipsos completed](#) for the Ministry of Business, Innovation and Employment (MBIE) last year, 22%

of respondents said they were aware of unapproved product substitutions being made.


The survey also found that supply problems (one of the reasons for product substitution) were worsened by product stockpiling in the industry - something reported by 41% of respondents.

Plasterboard is frequently mentioned as a product that is being stockpiled, and we are hearing of building sites where alternative plasterboard products are being used in place of the specified products. There are various risks in unapproved product substitutions that we have covered in earlier issues of

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Guideline, but there is one key risk that bears repeating - bracing with interior sheet linings.

Where a specific plasterboard product has been specified, the building consent application very often uses the manufacturer's proprietary bracing calculation system as evidence that it provides the required bracing. For locally manufactured product, those systems are tailored to New Zealand conditions and apply only to the manufacturer's products and recommended construction/installation practices. An unapproved substitution of an alternative plasterboard product may mean that the bracing calculations in the building consent application and accepted by the building consent authority no longer apply. In some cases, the bracing installation itself is unlikely to comply with the New Zealand Building Code. These factors present the builder, architect/designer and building owner with a serious problem if the proper process hasn't been followed. 

Don't expect too much from trickle ventilators

They can be useful but don't provide all the ventilation a house requires

Trickle ventilators are usually long and narrow controllable openings built along the top or bottom of a window frame. Positive air pressure on the windward side of a house pushes outside air in through the ventilators, while stale air is pushed out through vents on the leeward side. Where trickle vents are used, you can find requirements for them in Acceptable Solution G4/AS1.

BRANZ research has found that trickle vents can help maintain low moisture levels within a room, but they aren't designed to deal with larger quantities of moist air in bathrooms or bedrooms.

In one test, a north-facing room in a BRANZ test house was heated and the relative humidity was measured. The test found that

flush ventilation - opening the windows wide for just 10 minutes - significantly reduced the level of airborne moisture, while opening the windows by 5 mm (similar to a trickle vent) would take hours for the airborne moisture to reduce to the same level.

Be wary of companies that oversell the benefits of trickle ventilation. For a house to be passively ventilated, it needs to be designed specifically to achieve that. Just putting in trickle vents is not guaranteed to achieve the desired performance. We have found claims that suggest this form of passive ventilation is all that is required in a house, but this is not the case. Exhaust vents in kitchen and bathroom, vented to carry excess moisture outside, are an essential part of the ventilation system of a home. It is likely that ventilation requirements will be addressed in future changes to the New Zealand Building Code. ▶

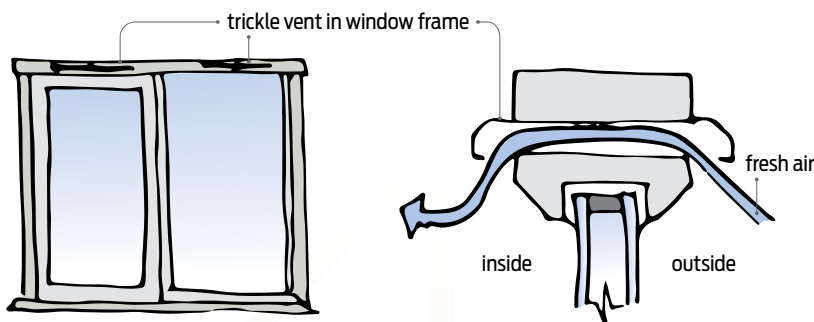


Figure 1. Schematic drawing of trickle vents in a window frame.

What shape are your joints in?

Not all mortar joints are the same

The mortar joint between two bricks or concrete blocks can be given different shapes by running tools along the mortar before it sets. The most common mortar joint types are grooved, weathered, V, raked, extruded or flush. Brick manufacturers often recommend a specific type of joint for each type of brick.

Grooved - also known as a rolled or concave joint. Master Brick & Blocklayers states: "This type of joint can be good for hiding small irregularities. Should be tooled to a maximum depth of 6 mm after initial stiffening has occurred. The delay of tooling is vital if a tight weatherproof joint is to

be produced in horizontal but particularly vertical joints. It is recommended that all slurry coated bricks should use a grooved joint." A brick manufacturer recommends: "The correct time to tool the joint is when it can hold a clear thumb print."

Weathered - the joint is recessed from bottom to top, giving a neat appearance. Again, it should be tooled after initial stiffening has occurred.

V - should be tooled after initial stiffening to a maximum 6 mm deep.

Raked - the mortar is raked out. Because this style creates a shelf where rainwater can

collect, it is important to ensure mortar is properly compacted. Depth should not be more than 6 mm. One brick manufacturer recommends this style only for interior walls.

Extruded - this joint is formed naturally as excessive mortar squeezes out between the bricks.

Flush - not recommended by Master Brick & Blocklayers and some manufacturers unless the joints are compacted. (Flush joints not compacted can lead to problems when various type of finishes are applied.)

Unless specified, untooled mortar joints are unacceptable. See the MBIE publication [Guide to tolerances, materials and workmanship in new residential construction 2015](#).

This guide requires that joints are "evenly coloured, clean, neatly finished (pointed), free of excess mortar and have a consistent appearance from the normal viewing position".

You should also consult [NZS 4210:2001 Masonry construction: Materials and workmanship](#), a sponsored standard freely downloadable from the Standards NZ website. ▶

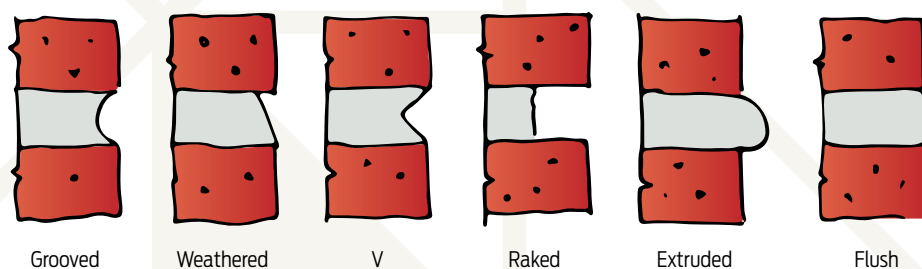
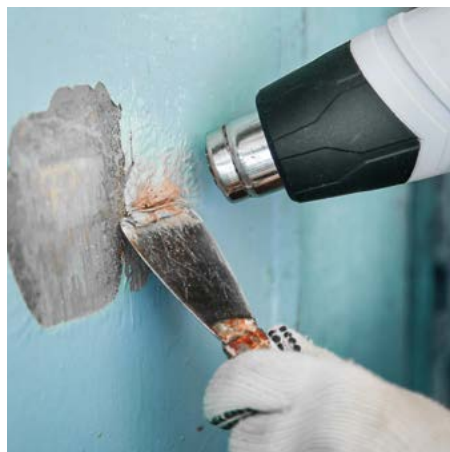


Figure 2. Mortar joints.

Removing old paint

Care required – don't set the house on fire!



The first line of a February news item said: "Fire investigators are looking at whether a fire that destroyed a Wellington family's home was started by contractors stripping paint inside." If that was what happened, it wouldn't be the first house to be destroyed as a result of paint removal using heat.

Blow torches are still used for removing old paint - they are referred to on the websites of various paint suppliers and hardware stores and mentioned in the Ministry of Health website page [Removing lead-based paint](#), updated in February this year.

They come with considerable risks. Fire is the obvious one, but there can also be health risks (such as breathing in lead fumes) when burning off old paint that contains lead. Blow torches or any other open flame devices should not be used where it is possible that the paint contains lead - this is possible on houses that are more than 40 years old where old paint layers are still in place.

Safer devices are electric hot air guns (where the level of heat can be varied) and infrared heat paint removers that generate a low-temperature (100-200°C) deep heat that breaks the bond between the wood and the bottom layer of paint or varnish and enables the removal of multiple layers at a time. Infrared heat does not damage the wood surface and makes cleaning up much easier. Wet scraping or sanding and dry power sanding with a HEPA vacuum attachment are other options.

For more, see the February 2019 [BRANZ Bulletin 633 Removing paint coatings](#). ▶

Planning for a tsunami

Be prepared

The volcanic eruption close to Tonga in February led to a visible tsunami across the Pacific, from Japan and New Zealand on one side to California and Peru on the other. It was a good reminder of the risk of tsunami our built environment faces.

New Zealand has seen at least 80 tsunamis since 1835, some of them substantial but not in areas that could cause enormous damage. An earthquake in Chile in 1960 led to a tsunami almost 4 metres high along parts of our eastern coast. A much closer earthquake, off Gisborne in 1947, caused a tsunami up to 10 metres high on a remote area of Eastland.

A growing number of local authorities are producing maps of areas at risk of



tsunamis - there are online maps available for [Wellington](#) and [Christchurch](#) regions, for example.

In 2020, NIWA completed the first national assessment of people and buildings at risk (where a threat to human safety from a tsunami would require people to leave). The assessment found 490,000 buildings in tsunami evacuation zones, most of them dwellings and most in Auckland and Hawke's Bay. ▶

Renovating heritage properties

Rich resources on offer

One of the results of the limitations on travel brought about by the pandemic has been an explosion of renovation work. Some is on very old buildings - New Zealand has a proud history of solidly built buildings using native timbers going back over a century and a half. Working on a very old building has a few different requirements to working on a more recent building, but there are great resources to help.

Some buildings, groups of buildings or streets are covered by heritage listings, heritage precincts, covenants, orders or zoning or some other form of protection that has its own special requirements. The local council can provide information.

More generally, if you are planning to fully demolish a building built before 1900 or undertake work where any surface

excavation could disturb material dating to before 1900 (for example, repiling an 1895 villa), you must first [get authority to do the work](#) from Heritage New Zealand Pouhere Taonga.

When it comes to finding help with design guides for heritage buildings, many local authorities have produced great resources. (Some even have limited funding to help with the work itself.) Here are a few examples of what is available:

- [Hastings CBD Architectural Heritage Design Guide](#)
- [Hamilton Heritage Design Guide](#)
- [Dunedin Heritage](#)

BRANZ has its own offering, the [Renovate website](#), with a guide to house styles from late Victorian times to the 1970s. ▶





Gold medal for architect Julie Stout

Julie Stout has received the highest individual architecture honour in Aotearoa New Zealand - the Te Kāhui Whaihanga New Zealand Institute of Architects 2021 Gold Medal.

Julie is the first woman to receive the Gold Medal, which has been awarded since 1999.

www.nzia.co.nz/awards/gold-medal/2021-gold-medal-julie-stout



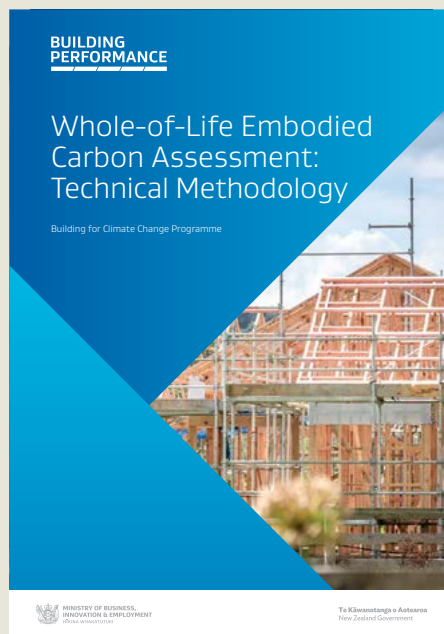
Timber Design Centre

The Timber Design Centre, a new advisory service, is being developed for building designers with the intention of increasing timber use, particularly in non-residential structures such as offices, hotels and multi-storey apartments. The Timber Design Centre is an initiative between Te Uru Rākau - New Zealand Forest Service, Scion, Wood Processors and Manufacturers Association, New Zealand Timber Design Society and BRANZ.

www.timberdesigncentre.co.nz

Links between urban planning and public health

[Recent New Zealand research](#) confirms the direct connection between well-planned neighbourhoods and good physical and mental wellbeing. The urban environment directly around people has an influence on their risk of things such as obesity, type 2 diabetes and depression.



Methodology released for assessing embodied carbon

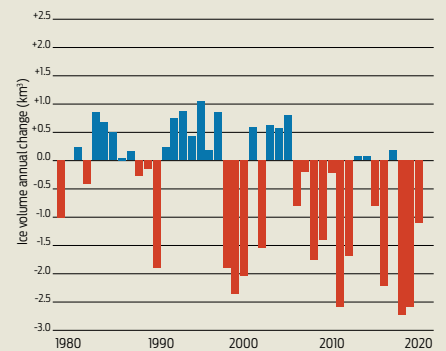
MBIE has [released a proposed methodology](#) for assessing the whole-of-life embodied carbon of a building. This is one more step towards the possible future introduction of mandatory reporting requirements and eventually caps for the whole-of-life embodied carbon and operational carbon of new buildings.

January fall in house consents

There were 2,833 new homes consented in January 2022, a fall of 6.3% from the 3,025 consents in January 2021, [Stats NZ figures](#) show. Despite the drop, the 2022 figure is still the second highest for a January month in records going back over 50 years.

No reduction in New Zealand emissions

New Zealand's greenhouse gas emissions in 2019 showed no sustained reductions compared to 2005 levels, [Stats NZ data](#) has shown. Our glaciers have lost over a third of their ice since 1978, with the highest losses in the last decade, indicating that we are losing our glaciers more rapidly.



New Zealand glacier ice volume annual change 1978–2020 (Stats NZ)



Healthy homes standards changes on track for April and May

[Changes to the healthy homes standards](#) are due to come into effect in April and May. The changes are to the heating standard and the ventilation standard and clarification of the moisture ingress and drainage standard.

In a [written response](#) to a question in Parliament, Associate Housing Minister Poto Williams said the government is not collecting data on how many rentals comply with healthy homes standards and there is no requirement for rental properties to be assessed by third parties to verify whether they meet the standards.

Infrastructure net-zero carbon webinars

From the end of March, the New Zealand Infrastructure Commission Te Waihanga will host a [series of webinars](#) focused on infrastructure needs to support a net-zero carbon 2050.



Proposed regulation of property managers

The government is seeking feedback on proposals for the [regulation of residential property managers](#). Submissions close 19 April 2022.

“Building Code quality” confusion continues

It is disappointing when the role of the New Zealand Building Code is misrepresented, and this happened again around the recent passing of the legislation to allow greater housing intensification in Tier 1 urban environments in many of our cities. Nothing in that law reduces or changes “quality standards contained in the Building Act or Building Code”, the housing spokesperson for one of the political parties was widely reported as saying. The Building Code sets out minimum requirements for construction - complying with the Code does not give a seal of quality to a building.

Amendment to the February Guideline

In our February item “The lowdown on low-E glass”, there was a drawing with a note about which glass surfaces the coating should be applied to. We regret that the note was not correct. It should have said: “A low-E coating on surface 2 is best for minimising solar overheating, while a low-E coating on surface 3 is best for maximising the retention of internal heat in winter.”

Looking ahead

- April 2022 - MBIE due to release to comment the proposed Building Code compliance changes for 2022.
- April/May 2022 - changes to the healthy homes standards for rental homes around heating, ventilation and moisture ingress and drainage are expected to come into force.
- May 2022 - the government will release its Emissions Reduction Plan.
- 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.
- August 2022 - New Zealand’s National Adaptation Plan (for climate change) is due to be published.
- 20 August 2022 - Tier 1 councils must publicly notify new rules and policies enabling medium density and intensification in their district plans.
- 2 November 2022 - end of the 1-year transition period for Building Code compliance changes announced 29 November 2021.
- December 2022 - the Commerce Commission is due to present its final report on residential building supplies.

Survey on material durability and zero-carbon buildings

BRANZ welcomes your views on:

- whether materials currently available are effective for reducing building carbon emissions within the next two to three decades
- the industry’s needs for new materials to meet this urgent and significant demand.

[Click here](#) to complete the survey.

The survey is anonymous. Closes 14 April 2022.

Your responses will help identify and explore the incremental or ‘low-hanging-fruit’ solutions while planning for more-transformative material solutions.



The Carbon Challenge - Science and solutions

Live webinar series during March



Webinar 4

Wednesday 30 March:
Design and build a
low-carbon building



It's not too late to join the conversation.

[Register now](#) for the upcoming Carbon Challenge webinar.