



January 2022

GUIDELINE

Welcome to the BRANZ monthly technical update



Construction and COVID-19

Traffic light system in place

New Zealand is operating under the 'traffic lights' 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.

Construction pipeline report released

A quarter of a million new homes are coming

The 9th annual *National Construction Pipeline Report* has been released, forecasting building activity in coming years. The forecast is for 265,000 new dwellings to be consented over the next 6 years at an average of over 44,000 dwellings a year. It is estimated that detached dwellings will peak at about 26,500 consents in 2023, while multi-unit consents will peak this year at 21,300.

Construction activity is expected to grow steadily to about \$48.3b in 2024, driven largely by the continued strength of the residential sector. Residential buildings contributed 58% of total construction value in 2020.

Produced by BRANZ and Pacifecon (NZ) Ltd for MBIE, the report can be downloaded [here](#).

In this issue:

- Construction and COVID-19
- Construction pipeline report released
- A window on H1/AS1 5th edition
- Allowing for movement in wet area tiling
- Changes around energy efficiency of appliances
- The low-down on top battens
- Timber outriggers
- Thinking BIG - 140 mm wall framing
- News
- Looking ahead

A window on H1/AS1 5th edition

The window industry shifts gear

The big changes required in the minimum thermal performance of windows and doors under H1/AS1 5th edition published in November 2021 mean big changes for the window industry. By contrast, the requirements around walls were mostly unchanged, largely as a result of material supply problems and unresolved technical issues - for example, around thermal bridging and moisture in walls. MBIE is working to enable higher-performing walls and insulation in future Building Code updates.

The new H1/AS1 has a 1-year transition period ending on 2 November 2022. Until then, the

existing minimum construction R-value for windows and glazing nationwide is R0.26. From 3 November 2022, the minimum for windows and doors in the new climate zones 1 and 2, which includes Auckland, rises to R0.37, then from 2 November 2023, it rises a second time for those two zones to R0.46.

The biggest increase for windows is in the new climate zones 5 and 6, where the minimum construction R-value jumps from R0.26 to R0.50 in November this year.

Brett Francis, CEO of Window and Glass Association NZ, says the changes are bittersweet. His industry supports the energy efficiency improvements and appreciates MBIE listening to feedback and removing product types and focusing on performance levels. They appreciate the opportunity to

update the outdated schedule tables and get a sense of a roadmap.

But there are big challenges too. "These changes feel more like a racetrack as most of our industry orders machinery, retools and retrains to deliver new products. We will continue to work with MBIE and the government as we get a clearer sense of our ability to pivot in time. We're disappointed that we've had to put the release of our new thermally improved window installation details on hold until we understand better the timelines for the work now being undertaken by MBIE re wall construction where we are expecting significant change. We're concerned that they have yet to consider airtightness, ventilation, internal moisture or solar heat gain - all for a future date."



Allowing for movement in wet area tiling

Important for good performance

E3/AS1 changes implemented in November 2021 reduced the list of complying wet area floor finishes from six to three. The surviving finishes are waterproof sheet material (such as PVC), ceramic or stone tiles and sealed or polished concrete slab on grade.

The updated Acceptable Solution retains the requirements that the tiles have 6% maximum water absorption and waterproof grouted joints and be bedded with an adhesive specified by the tile manufacturer as being suitable for the tiles, substrate material and the environment of use.

But the latest E3/AS1 added two new requirements. Edges of the tiled area must be sealed or coved, and tiles must be laid on a continuous impervious substrate or a membrane specified by the manufacturer as being suitable for the tiles, substrate material and the environment of use.

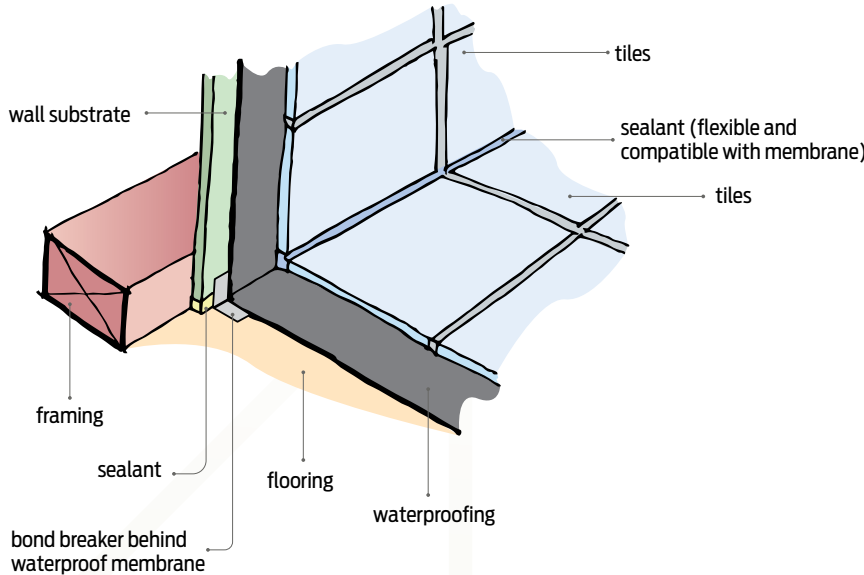


Figure 1. Installation allowing for movement in wet area tiling.

Although not mentioned, it is good practice for the edge sealant to be flexible to allow for movement:

- around the perimeter where the tiles abut a rigid element
- where there are movement control joints in the substrate
- within the body of the tiled area
- where two tiled surfaces meet such as an internal corner or a floor/wall junction (Figure 1). ▶

Changes around energy efficiency of appliances

Improving energy efficiency, new calculator

EECA is amending regulations to improve the energy efficiency of air conditioners above 65 kW, fridge/freezers, clothes dryers, clothes washers, dishwashers and three-phase electric motors. There will be changes to minimum energy performance standards (MEPS) and mandatory energy performance labelling (MEPL) requirements.

EECA has also replaced the Rightware tool on its GenLess website with an Efficient Appliance Calculator. For heat pumps/air conditioners, users can choose between 18 different climate zones. The star rating and comparative running cost shown will be appropriate for the zone selected. You can find the calculator [here](#). ▶

The low-down on top battens

Clarification on a horizontal batten in cavity walls

In the November 2021 issue of *Guideline*, we said that, with regard to ventilated cavity walls, a solid batten running continuously along the top was recommended in the past but not today. Our choice of wording was unfortunate - BRANZ has not issued a specific recommendation against the use of horizontal top battens. Here is some background explanation.

A solid horizontal batten along the top of the wall cavity is shown in Acceptable Solution E2/AS1 Figure 8(a), and the text of E2/AS1 states:

- “This Acceptable Solution is limited to systems where ... c) The drained cavity behind claddings, except in masonry veneer, is not vented at the top.” (9.1.8.1 c)

- “Where a drained cavity is required, it shall ... c) Restrict air movement between the drained cavity and: i) floor, wall and roof framing, ii) attic roof space ...” (9.1.8.2 c)

There are some strong views in the industry that top venting creates a much more reliable drying mechanism. BRANZ does not dispute the fact that top venting increases the amount of ventilation behind the cladding and provides more drying capability. However, BRANZ research suggests that just having vents at the bottom provides sufficient ventilation drying, and this is the solution shown in E2/AS1. The first bullet point above makes it clear that, if you opt to ventilate the top of the cavity, it must be consented as an Alternative Solution. ▶

Timber outriggers

Don't let them sail away

There have been many cases where gable eaves have been the weak spots in roofs, the starting point for a roof peeling off in strong winds. With NIWA forecasting increases in extreme wind speeds as a result of climate change, it's time to get things properly fixed down - in this case, timber outriggers.

Overhanging eaves are very commonly formed by outrigger framing (Figure 2). There must be blocking pieces of the same size as the outriggers fitted and fixed between the outriggers along the line of the end support.

NZS 3604:2011 *Timber-framed buildings* gives some guidance (in 10.2.1.15.3, Table 10.9 and Figure 10.16(B)), but it is not comprehensive

and there are a few typos. In Table 1 below, we have extracted some of the key points. For more information, see the article in [Build 142](#).

The fixings referred to in this table are:

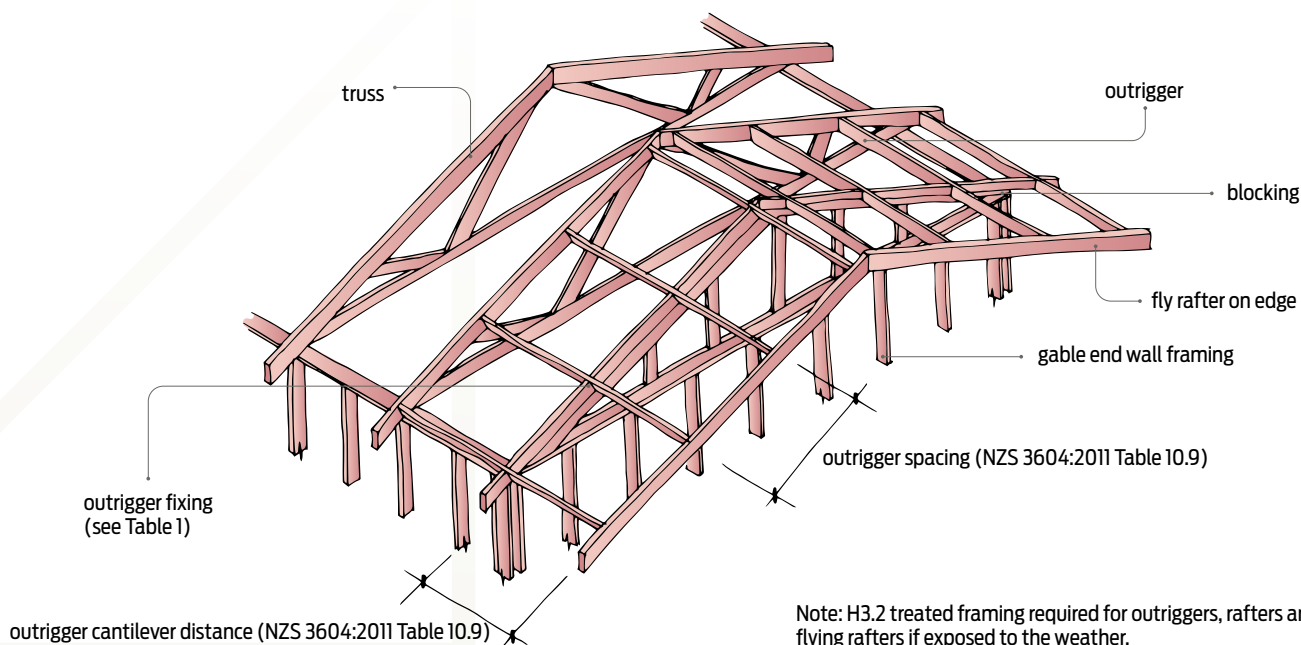
E - 2/90 x 3.15 mm skew nails and 2 wire dogs

F - 2/90 x 3.15 mm skew nails and strap fixing (see NZS 3604:2011 Figure 10.6)

T - 1/10g self-drilling screw, 80 mm long

U - 1/14g self-drilling Type 17 screw, 100 mm long.

NZS 3604:2011 is being updated at the moment - public consultation is anticipated in the second half of 2022. ▶



Note: H3.2 treated framing required for outriggers, rafters and flying rafters if exposed to the weather.

Figure 2: Eaves/soffit outrigger framing.

OUTRIGGER SIZE AND ORIENTATION (MM)	MAXIMUM OUTRIGGER SPACING AND FIXING FOR A CANTILEVER OF:				BOUNDARY/FLY RAFTER SIZE (MM)
	600 MM		750 MM		
	SPACING	FIXING	SPACING	FIXING	
70 x 45	900 mm	E	600 mm	E	70 x 45 (on edge)
90 x 45	1200 mm	F in EH wind zone, otherwise E	900 mm	F in EH wind zone, otherwise E	90 x 45 (on edge)
45 x 90	600 mm	U in VH and EH zones, otherwise T	400 mm	U in VH and EH zones, otherwise T	90 x 45 (on edge)

Note: These fixings also need to engage the top of the gable wall studs or gable truss verticals. If the outriggers are offset from the studs below, additional top plate to stud fixings of the same capacity are required.

Table 1. BRANZ adaptation of key NZS 3604:2011 requirements for timber outriggers.

Thinking BIG – 140 mm wall framing

A few things to bear in mind

The 5th edition of H1/AS1 that was announced in November scarcely lifted the minimum thermal performance requirements for walls in houses - as we noted above, that is yet to come. But there is nothing to stop designers and their clients from choosing to build better-performing walls. One option is to add a secondary cavity (see [Bulletin 660 Residential walls with high thermal performance](#) for examples). Another is moving from 90 mm to 140 mm wall framing timber so that the R2.8 insulation (usually the most that can be fitted in 90 mm framing) can be upgraded to R4.2 insulation.

There are slightly different rules around 140 mm wall framing in NZS 3604:2011 *Timber-framed buildings*:

- Stud heights can be increased at the same centres, compared to 90 mm framing.
- 140 mm studs can be installed at wider spaces. For example, with loadbearing walls in extra high wind zones, a 140 x 45 mm stud up to 3.0 m length (height) can be used at a maximum spacing of 600 mm - twice the stud spacing of a 90 x 70 mm stud (see NZS 3604:2011 Table 8.2).

Apart from allowing thicker insulation, 140 mm wall framing offers designers more flexibility around the size and position of plumbing and electrical services. The maximum size of a hole or notch is 38 mm

compared to 25 mm for 90 mm framing. (In each case, the measurement is 27% of the timber depth. The actual 38 mm figure doesn't appear in NZS 3604:2011 - it is derived from that.) ▶



News

Housing intensification law change passes

The Resource Management (Enabling Housing Supply and Other Matters) Amendment Bill [has become law](#). The key density standards can be found in Schedule 3A Part 2 of the law. A number of changes were made to the Bill as it was introduced.

Commerce Commission to focus on major building components

The study into competition around the supply of residential building materials will [focus on foundations, flooring, roof, walls and insulation](#). The Commission has indicated that other areas such as electrical and plumbing products will not be considered.

New product substitution guidance

MBIE has produced a new resource on [product substitution guidance for designers and builders](#).



First HRC report into housing

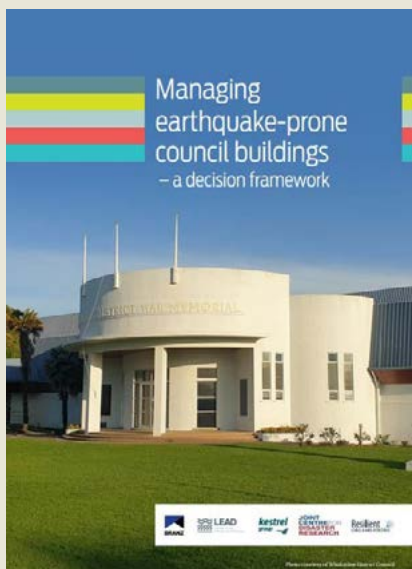
The [first report in the Human Rights Commission's inquiry](#) into the right to a decent home has called for new accountability measures to track whether the right is being realised for everyone in Aotearoa New Zealand.

Housing researchers win 2021 Rutherford Medal

University of Otago researchers, led by Distinguished Professor Philippa Howden-Chapman, have been awarded New Zealand's top research honour. The [Rutherford Medal](#), from the Royal Society Te Apārangi with government support, includes \$100,000 prize money. The researchers have studied housing and people's health and wellbeing.

Guidance around earthquake-prone council buildings

BRANZ has released a publication [Managing earthquake-prone council buildings - a decision framework](#). It can be downloaded for free. It provides a five-step approach to support consistent decisions about whether to continue using earthquake-prone council buildings or not.



Healthy homes standards changing

[Changes to the healthy homes standards](#) for rental homes around heating, ventilation and moisture ingress and drainage standards are expected to come into force in April this year.

Standards NZ revising NZS 3910:2013

Standards New Zealand has set up a web page to keep people up to date with progress on the revision of [NZS 3910:2013 Conditions of contract for building and civil engineering construction](#).

Standards operating protocols for construction

The Building Code system references around 350 standards. MBIE has adopted [a new tier framework](#) to support development and maintenance of them.

Wellington City Council wins appeal on heritage buildings

The High Court has found that Wellington City Council [can take possession of two earthquake-prone buildings](#), strengthen them and recover the costs from the owners.



Looking ahead

- **April 2022** - MBIE due to release for comment the proposed Building Code compliance changes for 2022.
- **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 due to be published.
- **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.

BRANZ Carbon Challenge seminar on the road

This [new BRANZ seminar](#) provides guidance for architects, designers, builders, building consent officers and other building practitioners on how to meet the carbon challenges for new residential buildings. It will be held around the country (21 centres) from 17 February to 30 March.

