Guideline

December 2020

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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From everyone at BRANZ, we wish you a relaxing, happy and safe break after a difficult year. We hope you return next year refreshed and re-energised.

Pilot Housing Survey

Bigger than Ben Hur

If you haven't heard of the Pilot Housing Survey yet, you soon will. A BRANZ and Stats NZ partnership with co-funding from the Ministry of Business, Innovation and Employment, this survey of 832 houses across New Zealand is the biggest of its type since 1937.

Building on data collected in earlier BRANZ House Condition Surveys (HCS) and the 2018 Census, it gives a unique picture of the condition and energy efficiency of New Zealand's housing stock. BRANZ will be publishing a lot of details in a study report and other publications, but here are just a few interesting facts that came out of it:

- The percentage of houses entirely double glazed is growing – in the 2015 BRANZ HCS, it was 10% of houses, but in the PHS (carried out in 2018/19), it had grown to 16%.
- A lot more heat pumps are going into rental homes – in the 2015/16 BRANZ HCS, 27% of rentals had heat pumps, but in the PHS this had gone up to 39%.
- Mould is a significant problem, especially in rental houses. Almost half of rental homes had bedrooms with levels of mould rated moderate or worse.
- 49% of houses need more ceiling insulation to meet the recommended 120 mm thickness for bulk insulation.
- 49% of houses do not have mechanical extract ventilation ducted to the outside in their bathroom(s).
- 45% of houses do not have mechanical extract ventilation ducted to the outside in their kitchen.
- 22% of houses have no fixed heating in the main living area.

Popping plasterboard

An old problem hasn't gone away

The BRANZ helpline has taken quite a few calls in recent times about the problem of screws popping in plasterboard. This is where the fastener heads become visible through the finished surface of the lining.

Looking into what might be behind the problem in recent calls, we found two mistakes. Screws had been fixed too close to blobs of adhesive behind the lining, and adhesive had been used in wall bracing situations where it should not be. Popping of fixings in these situations occurs as the adhesive dries and pulls the lining onto the framing.

There are several steps builders can follow to reduce the risk of popping:

- Do not fix screws close to adhesive – lining manufacturers say there should be a minimum 200 mm distance between screw fastenings and adhesive.
- Do not used adhesive where it should not be used.
- Ensure timber framing is sufficiently dry. Lining manufacturers typically require a moisture content of 18% or less when the lining is installed or 12% where heat pumps/central heating/air conditioning systems will be installed.
- Make sure the back of the lining sits flush and tight against the face of the framing.
- Fix the linings with screws rather than nails.

What should you do if popping appears, probably as a result of the either the glue or the timber drying and shrinking? First, wait until after the shrinkage is likely to have finished. For example, with timber, this will be at the end of a heating season. With popped nails, a nail punch can drive them below the surface, followed by redecorating. With screws, a new screw can be fixed 50 mm from the popped screw (which should be driven below the surface), again followed by redecorating.

Unlicensed asbestos removal
Not to be taken lightly

In November, we saw the latest court fine for someone removing asbestos without a licence. In this case, a man operating a building repair and maintenance business organised the removal of ceiling tiles that contained friable asbestos, which is asbestos that can be crumbled or crushed by hand. This put his workers at risk.

The courts take this very seriously – fines of over $100,000 have been imposed in some cases – and with good reason. Exposure to asbestos is the single-biggest cause of work-related death in New Zealand, accounting for an estimated 170 deaths each year. As symptoms often do not appear until 15–20 years after exposure, the danger is easily underestimated. You can find more information on the BRANZ Level website.

A heads up on flashings

Good installation is key

BRANZ research has found that problems with head flashings on houses under construction are not uncommon. We've also found ways of making them even more leak resistant.

On site, we've seen head flashings too short to cover the window frame at the ends, with no stop-ends or with upturns that are too small, inadequate slopes to flashing surfaces and inadequate gaps between flashing and cladding.

A metal head flashing with a minimum 15° slope should be installed against the wall underlay and over the window frame to provide 10 mm cover to the face of the window frame (Figure 1). The flashing should be in a single piece that reaches beyond both ends of the frame. Stop-ends must be formed at each end to prevent water running behind the cladding. A 5 mm minimum gap between the top of the sloped flashing and the bottom of the cladding above it lets air in to provide drying.

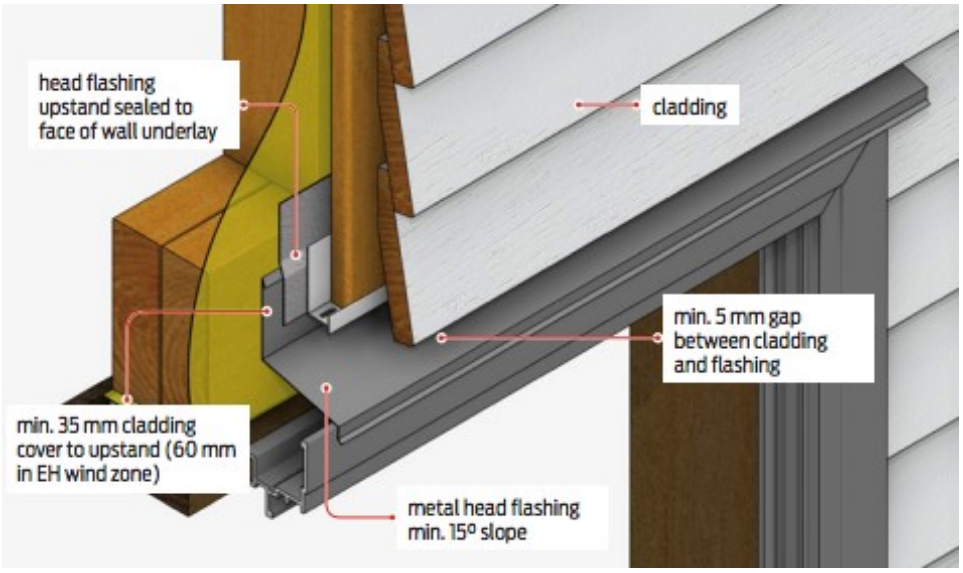

Figure 1. Key points for a head flashing on weatherboards over a cavity.

The head flashing upstand must be sealed to the face of the wall underlay with flexible flashing tape, or an extra layer of wall underlay must be dropped from above. The total upstand must be 40 mm minimum. The lap under the cladding must be a minimum 35 mm, or 60 mm in the extra high wind zone.

The key requirements for head flashings are given in Acceptable Solution E2/AS1. The Acceptable Solution gives two options. In the first, the head flashing fits firmly over the top window flange. BRANZ regards this as the better solution because it is less likely to have wind pressure lifting the flashing and causing noisy vibration. In the second option, the downturn is projected forward.

BRANZ research has found that head flashings are more leak resistant when the upstand is fitted tightly against the cavity closure. Window head flashings handle run-off better where there is a greater clearance between cladding and flashing.

All washered up

Size matters

They might be humble little things, but washers play a crucial role in the strength and durability of our buildings. Using washers of the right size is crucial, but from time to time, we see cases where it would seem that whatever was on hand was used instead. The photograph is a good example – for bottom plates, a 50 x 50 x 3 mm square washer, bigger than the washer in this example, is called for. Stainless steel will be required in some circumstances – NZS 3604:2011 *Timber-framed buildings* section 4.4 covers the durability of steel fixings and fastenings used with timber framing.

Hot as the sun
A caucus of calculators

There is no shortage of online tools to help with decisions around installing a photovoltaic system, but they're not all the same. Here's a quick overview of what each one does:

- **Gen Less solar tool** – helps assess estimated financial return including payback period (the number of years until energy savings exceed installation cost).
- **BRANZ Photovoltaic generation calculator** – determines the potential average electricity generation capability in kWh per year.
- **SEANZ Solar optimiser** – estimates savings in the first year, years to pay off and likely total system cost. It has a slider to see how the proportion of electricity used during the day affects the results (higher daytime consumption, higher returns).
- **NIWA Solarview** – estimates the monthly and yearly solar energy that can be collected by a solar capture device (solar panel) at a given address, panel direction and roof slope, allowing for geographic shading. The output includes a sun path diagram and data on kWh/m^2.
- **PVWatts –** (not New Zealand based) estimates the monthly/yearly energy production and earnings from grid-connected PV energy systems throughout the world. It can be tailored for both expert users or beginners. Well regarded for its accuracy, precision and useful data output.

Looking ahead to the new year
A few significant dates in 2021

- **6 April** – MBIE will begin its annual consultation on proposed Building Code changes. It has already indicated that changes to H1 are likely as part of its *Building for climate change* programme.
- **1 July** – the healthy homes standards (HHS) come into force for privately owned rental properties and boarding houses. Owners must ensure that their properties comply with the HHS within 90 days of any new tenancy.
- **4 November** – Building Code changes that were subject to consultation earlier in the year will be published.
- **4 November** – changes to Acceptable Solutions and Verification Methods published in November 2020 will come into force.
- **28 November** – B1/AS1 requirements for building on liquefaction-prone soil will come into force nationwide.

- **31 December** – last day to lodge a claim under the Weathertight Homes Resolution Services Act 2006. (Buildings need to have been built less than 10 years ago and before 1 January 2012.)

News

- In November, Environment Minister David Parker referred three more projects for fast-track consenting. One is a mixed use commercial and residential development in Auckland that includes about 117 dwellings.

- Over 46,000 installations of thermal insulation/energy-efficient fixed heaters have been completed under EECA's Warmer Kiwi Homes programme for low-income homeowners since the programme launched in 2018.

- Digging into building consent figures for April to September, Infometrics has found very wide variations between regions and building types. Consents for townhouses have broken records in Auckland, while apartment consents are down in Auckland and many other parts of the country.

- Standards New Zealand has made changes to a number of standards that fall under AS/NZS 60335 *Household and similar electrical appliances – Safety*.

- Standards New Zealand has released a draft for comment, DZ 5210:2020 – *High-temperature heat pumps*. One aim is to support the adoption of energy-efficient heat pump systems to deliver hot water in commercial space heating applications such as schools or hospitals. Closing date for comments is 23 December 2020.

- Standards New Zealand has a specification open for comment, DZ 5311:2020 *Biomass boiler systems for small and medium heat loads*. These systems have the potential to replace coal boilers for hot water in institutional buildings. Comments close on 11 January 2021.

- The rating tool Homestar v5 is in development and launch is planned for April 2021. The current version, Homestar v4, was released in 2017.

- The government announced a requirement that the public sector achieve carbon neutrality by 2025. Coal boilers heating water and buildings will be phased out, and there will be minimum energy requirements for new leases and new builds.

- Dwelling consent numbers for the year to October 2020 (37,981) are the highest annual figures since 1974 (when there were 40,025). Annual growth in townhouse, flat and unit consents was 35.6%. Stand-alone house consents fell by 0.5% while consents for apartments fell 22.5% and for retirement village units fell 24.5%.

- A wealth of statistics and information around New Zealand houses appear in the newly published *Housing in Aotearoa: 2020*.

- Climate change means that some coastal homes in Wellington and Christchurch will find it difficult or impossible to get house insurance from 2030, with homes in similarly exposed locations in Auckland and Dunedin following only a few years later. In these four cities, at least 10,000 properties may be uninsurable by 2050.

Upcoming seminars and webinars in 2021

BRANZ seminars and webinars enable building industry practitioners to gain industry knowledge informed by the latest BRANZ research.

Webinar

Engineered wood products

January 2021

Research and resources on the usage and uptake of engineered wood products currently available in New Zealand.

Seminar

BRANZ Answers

February/March 2021

Learn about new ways of building, new ways of designing for better performance, new products and systems and upcoming changes to regulations.

Webinar

Fire series

March 2021

Introduction to fire safety: principles, concepts, terminology, design, regulations and compliance.

Email us at education@branz.co.nz if you would like to receive more information.