



Guideline

February 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.

In this issue: [Safety glass and renovations](#) • [Curved profiled metal roofs](#) • [Dragon ties](#) • [Building maintenance](#) • [Vent dryers to the outside](#) • [Altering existing dwellings where one wall is close to the boundary](#) • [Using ALF on house renovations](#) • [New BRANZ bulletins](#) • [Complying with the Building Code](#) • [Recent news](#) • [BRANZ seminars](#)

Safety glass and renovations

A question about Building Code compliance

Our item in the January *Guideline* about safety glass in bathrooms prompted a reader to ask whether window glass needs to be upgraded to safety glass when an old bathroom is being renovated.

The answer is that NZS 4223.3:2016 *Glazing in buildings – Part 3: Human impact safety requirements* applies just as much to renovations as new building work. There are two important issues to keep in mind with renovations and both must be satisfied, so even if safety glass is not needed to satisfy one, it may still be needed to satisfy the other.

The first issue is that the New Zealand Building Code and its supporting standards are applied to the specific items of building work being undertaken but not to the rest of the building, so any new or altered glass fitting in a bathroom renovation typically triggers the requirement for safety glass. If you aren't making any changes at all to a window or glass fitting, the existing glazing doesn't need to be touched unless the second issue applies.

The second issue is that, when the renovation work is complete, no aspect of the bathroom can comply any less than it did before the renovation. Often this means that there is no requirement to provide new safety glass to a window or glass fitting that is completely untouched by the renovation. However, if some aspect of the renovation would result in a decrease in the level of protection from being injured by the non-compliant existing glass, safety glass will need to be installed. Examples of this issue might be where the renovations include a change in position of a vanity that was previously in front of a window or a change in floor level that means that people slipping over are more likely to fall against a high-level window. In such cases, the glass would need to be replaced with compliant safety glass.

Of course, installing safety glass in all bathrooms in a house is strongly recommended.

Curved profiled metal roofs

Excluded from E2/AS1

A designer asked for help when his local council refused to accept a proposed draped roof design using profiled metal, referring to E2/AS1 but not giving details. A closer look at the Acceptable Solution shows what they meant. Under 8.4.1 *Limitations*, curved profiled metal sheets are specifically excluded. A comment explains that the radius of the curve may affect durability, hence specific design is required. Designers should look to guidance from manufacturers and the New Zealand Metal Roof and Wall Cladding Code of Practice.

Dragon ties

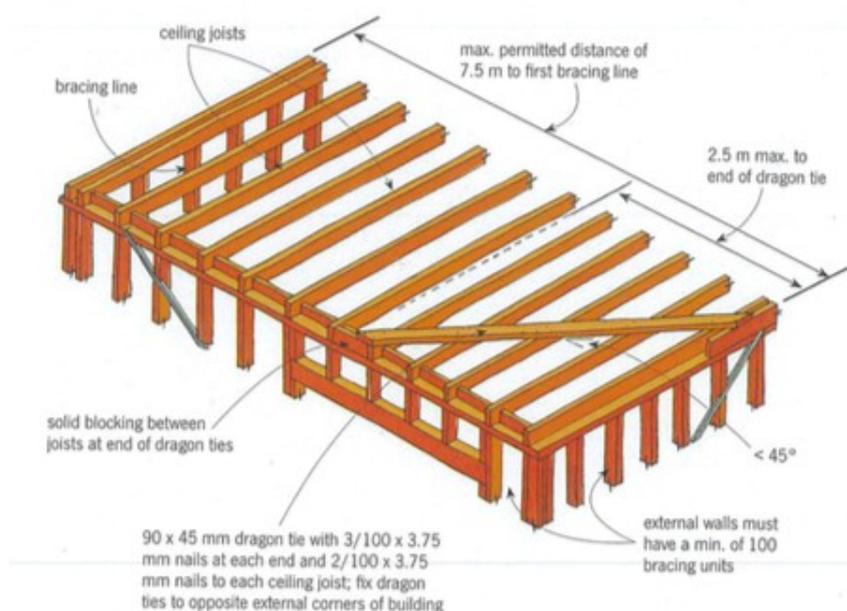
Constructing larger open spaces

Dragon ties can be very useful in designing larger rooms, but recent conversations we have had with builders show not everyone is up to speed on them. Dragon ties are continuous members fixed diagonally across the top plates of braced external walls that are at right angles to one another (see figure below). They help prevent walls from spreading, provide lateral support against wind loads and help brace the ceiling. They can only be located at external corners and are used in pairs.

Installing dragon ties allows the room size to be increased to up to 7.5×7.5 m without the need for a ceiling diaphragm. Section 8.3.3 in NZS 3604:2011 *Timber-framed buildings* sets out the requirements, and Table 13.3 shows the nailing schedule.

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Dragon ties allow for larger rooms without ceiling diaphragms

Ceiling diaphragms are another option for creating large open spaces. A ceiling diaphragm is a rigid horizontal panel that retains its shape during horizontal or lateral loading, transferring these loads to the braced walls. To comply with NZS 3604:2011 (and in particular section 13.5 *Structural ceiling diaphragms*), diaphragms must be:

- directly supported by walls containing bracing along each edge of the diaphragm
- constructed with materials with density and thickness limits defined by the standard
- constructed as shown in Figure 13.4 in the standard.

Building maintenance

Dealing with premature failure requires building consent

General maintenance, repair and replacement work often doesn't require a building consent (under Part 1, Schedule 1 of the Building Act 2004). Replacements will generally be like for like. A profiled metal roof should be replaced with a similar lightweight roofing, for example – it can't be replaced with heavyweight roofing such as clay tiles.

There is an exception to this exemption to consent requirements, however, and it is to do with premature failure of a building element or material. Where something hasn't met its required durability under the Building Code, then replacement – even if it is like for like – requires a building consent. The requirements are set out in clause B2 *Durability*. If there has been a failure in any of the following requirements, a building consent is required:

- The life of the building (but not less than 50 years) for:
 - structural elements like floors, walls, bracing or structural fixings
 - items difficult to access or replace
 - building elements where failure would go undetected during normal maintenance of the building.
- Not less than 15 years for:
 - moderately difficult to replace or access building elements, including the wall and roof claddings, exposed plumbing in subfloors and inbuilt chimneys and flues
 - building elements where failure would go undetected during normal use but would be detected during normal maintenance, like wall claddings, exterior doors/windows.
- Not less than 5 years for:
 - easy to replace building elements, including services and linings and renewable protective coatings
 - building elements where failure would be easily detected during normal use, like exterior gutters and surface-mounted plumbing fixtures (taps).

Vent dryers to the outside

Condensing dryers are the exception

Calls to the BRANZ helpline show that excess moisture is a continuing problem in homes. One culprit is the unvented clothes dryer, which can release up to 5 kg of moisture per load into the air. The 2015/16 House Condition Survey found that half of the households surveyed said they regularly used a clothes dryer but only 24% of dryers were vented to the outside. Where dryers are installed, BRANZ recommends that they should be vented to the outside. The exception is condensing dryers, which incorporate a heat exchanger that extracts the moisture from the warm air.

Best practice is to keep individual extract ducts separate rather than combining them. This is because of the risk of backflow – even use of dampers does not always eliminate the problem, especially with a light airflow.

It may pay to tell homeowners that clothes drying racks will also produce large amounts of moisture and should not be used inside if possible.

Altering existing dwellings where one wall is close to the boundary

New windows must be fire rated

It is not uncommon for older New Zealand houses to be built less than 1 metre to side boundaries of the property. Alterations to these require care around compliance with fire ratings, especially with regards to windows. Existing non-compliance is no precedent – in this situation, you cannot replace like with like.

New Zealand Building Code Acceptable Solution C/AS1 requires external walls within 1 m of and at angles less than 90° to a property boundary to have a minimum 30-minute fire resistance rating (except where buildings are protected by a sprinkler system).

Where a client wants to replace an old non fire-rated window on a wall that is within 1 metre of the boundary, the new window must provide adequate protection to the boundary. This could take the form of a fire-rated window or a non-fire-rated window that is suitably protected. On its Building Performance website, MBIE gives the example of a window protected by a drencher system.

Double-glazed fire-rated windows are readily available, as are frames of steel or specific types of hardwood.

Other windows in the wall that are not being replaced can remain as is, even though they may not be fire rated. That is because the house still complies with the Building Code to the same extent as it did before the work was carried out.

Using ALF on house renovations

Getting the most bang for the client's buck

The free BRANZ tool ALF 4.0 (<https://alf.branz.co.nz/>) is commonly used on new house designs. ALF calculates the building performance index (BPI) of a house design to demonstrate compliance with Building Code clause H1 *Energy efficiency*. The lower the BPI, the better performing the building is.

ALF can also be useful in assessing potential thermal improvements with planned renovations of existing houses. The key to renovations is to show that the building is no worse after the renovation. This is equivalent to saying that the BPI is no more than what it was before.

When a renovation includes adding a large area of glazing, which will generally give lower performance than insulated walls, getting a building to perform not worse than before can be a challenge. ALF can be used in such situations to examine the window areas, the insulation level of the windows and the insulation levels of the additional walls to see which combination achieves the required outcome. Some adjustments are required using the calculator for older homes – these are explained in the online manual.

Codewords Issue 32 (Oct 2008) sets out when a change is small enough that it is reasonable to not consider the small change in energy performance.

New BRANZ bulletins

Two new bulletins have just been published

- [BU646](#) *Floor levelling compounds* replaces BU360 of the same name.
- [BU647](#) *Recessed downlights (luminaires)* replaces BU539 *Recessed downlights*.

Complying with the Building Code

A more specific Building Act reference

The requirement that building work complies with the Building Code appears at several points in the Building Act 2004. In the January *Guideline*, we pointed to one of these references in our item about work that did not require a consent. A more appropriate reference would have been to section 42(a), which applies specifically to work exempted from consent under Schedule 1 of the Act.

Recent news

Building Code updates open for consultation

Proposed changes to the Building Code are [open for consultation](#). Areas covered include fire safety, surface water drainage and providing a new Acceptable Solution for waterproofing in bathrooms, kitchens and laundries. The latter is achieved by referencing the Waterproofing Membrane Association Code of Practice for Internal Wet-area Membrane System. Submissions close 27 March 2020.

Wiring rules amended

Standards New Zealand published [Amendment 1](#) to AS/NZS 3000:2018 *Electrical installations – Known as the Australian/New Zealand Wiring Rules* on 31 January 2020.

Unlicensed builder sentenced under the Crimes Act

A Christchurch man was sentenced to 7 months' home detention and 150 hours' community work following charges brought by MBIE. It was the [first sentence under the Crimes Act](#) 1961 since the LBP Scheme was introduced.

BRANZ SEMINARS

Performance-plus design and construction

Minimum acceptable standards of construction provided by standards and the Building Code are often interpreted as a target instead of what they are – an accepted legal minimum.

This seminar series provides an overview of the benefits of designing and constructing beyond the minimum and identifies opportunities for achieving performance-plus at little or no extra cost. The series will cover the advantages of performance-plus design in terms of improved liveability, accessibility, durability, longevity, reduced building running costs, improved indoor environments and greater energy efficiency. Reducing carbon emissions to reduce climate change will also be covered.

The seminar will provide a special focus on volume housing where performance-plus design and construction can be applied to choices that add to the value proposition with manageable or minimal cost increases.

Audience

The target audience is architects, designers, builders, group home builders, building officials, building surveyors, apprentices, students

Presenters

Greg Burn – NZCD (Arch), Dip Bus (Marketing) – Structure Ltd

Des Molloy – Building Consultant

Dates

Date	Location	Venue
Wed 26 Feb	New Plymouth	Devon Hotel
Thu 27 Feb	Whangarei	Forum North
Fri 28 Feb	Auckland 1	North Harbour Stadium
Wed 04 Mar	Christchurch 1	Chateau on the Park, A DoubleTree by Hilton
Thu 05 Mar	Hokitika	Beachfront Hotel Hokitika
Fri 06 Mar	Nelson	Rutherford Hotel Nelson
Wed 11 Mar	Timaru	Landing Service Conference Centre
Thu 12 Mar	Christchurch 2	Addington Events Centre
Fri 13 Mar	Blenheim	Marlborough Convention Centre
Mon 16 Mar	Upper Hutt	Silverstream Retreat
Tue 17 Mar	Napier	Napier Conference Centre
Wed 18 Mar	Auckland 2	Crowne Plaza Auckland
Mon 23 Mar	Wellington	InterContinental Wellington
Tue 24 Mar	Palmerston North	Distinction Palmerston North Hotel & Conference Centre
Wed 25 Mar	Auckland 3	Ellerslie Event Centre

All seminars are 3 hours long and run from 1.00–4.00pm. Register online at www.branz.co.nz.

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