Guideline

February 2017

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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Stair landings

Will it fit in and be compliant?

In many parts of the country, the building sites are getting smaller, and houses have living and sleeping spaces over two or more floors. Stairs are therefore a necessity.

Added to this is the requirement (in Acceptable Solution D1/AS1) for a landing in the following situations:

- At the top and bottom of stairs, except where the total rise of the stair is 600 mm or less and the door opens away from the stair.
- Where a door opens into a stair.
- At a change of direction or offsets within a stairway. Curved stairs or spiral stairs (Figure 17 in D1/AS1) and winders (Figure 18) are permitted as long as they meet the requirements of clauses 4.4 (curved and spiral stairways) and 4.5 (winders).
- Where the maximum stair rise exceeds 4.0 m for a private or service stair and 2.5 m for a common or accessible stair.

To comply with D1/AS1, a landing must:

- be at least 900 mm long
- have the same width as the stair
- have 400 mm clearance between the top nosing and any door opening onto the landing (Figure 15 in D1/AS1)
- be clear of obstructions
- for landings more than 8.0 m apart:
  - be 1800 mm long, or
  - have the line of sight between landings broken by an offset of adjacent flights or a change in direction by at least 30°.

Non-invasive moisture meters

Calibrate first

When using non-invasive moisture meters, first take a reading of an internal area where it is very unlikely to have moisture issues. This reading is then used as a benchmark for all other readings taken. If there is an area of elevated moisture, it will be identified, but a specific moisture content of framing will not be given.

Examples of non-invasive meters:

- Capacitance meters, which are designed for use on uncovered timber. They normally have a search depth of 16–25 mm, but some dielectric constant types can search to depths of 100 mm or more. They are inexpensive but may miss areas of high moisture that are found subsequently by other methods. They can be used on almost all types of materials except metals.
- Microwave-type unit signals, which can penetrate to depths of up to 300 mm and even claim to profile moisture levels at various depths.

Using moisture meters on materials other than exposed timber is not a reliable indication of the amount of moisture below the surface. The information gained can only be useful in comparative terms, not in absolute terms. When readings in known dry areas are low but are higher in a suspect location of similar construction within the same building, there may be elevated moisture levels.

Capacitance signals lose strength rapidly as penetrative depth increases. Therefore, the readings tend to provide more information about the lining than the underlying framing.

They are also affected by density changes in the material, such as knots in timber. Other issues that need to be considered when using these meters include the following:

- A low level of penetrative depth gives an increased likelihood of false negatives, missing moisture.
- Nails, metal strapping and hold-down bolts (such as metal components grouped at lower corners of large wall openings) can give false positives.
- Units being held incorrectly – check instructions.
- Inherent material conductivity – lightweight concrete componentry, including aluminium compounds, causes some non-destructive (NDT) meters to give exceptionally high readings. Glues, preservatives and other compounds may similarly affect readings. Anecdotal observations suggest some surface preservative salt deposits may be quite conductive and possibly hygroscopic, giving false high readings.

More information is given in MBIE's Guide to the Diagnosis of Leaky Buildings.

BRANZ H1 Calculation Method Tool

Update coming

The BRANZ Calculation Method Tool to show compliance with Building Code clause H1 *Energy efficiency* is to be updated and rereleased. The changes will reflect the increase in the permitted glazing area from 40% to 50% and the changes to the door parameters.

Bottom plate anchors

Hold it down

For bracing systems within a building, the capacity and spacing of the bottom plate anchors will be specified by the supplier for the specific bracing systems.

Anchors of bottom plates to a concrete slab that are not part of a bracing system can be cast-in M12 bolts or proprietary post-fixed anchors. They must have been tested and show compliance with the load requirements given in NZS 3604:2011 *Timber-framed buildings*, namely:

- for external walls:
  - horizontal loads in the plane of the wall – 2 kN
  - horizontal loads out of plane – 3 kN
  - vertical loads in axial tension – 7 kN
- for internal walls:

- horizontal loads in the plane of the wall – 2 kN
- horizontal loads out of plane – 2 kN.

Cast in situ anchors for plates that are not part of a bracing system (NZS 3604:2011 Figure 7.21) must:

- for internal walls and external walls where slab edge is in situ concrete – be embedded 90 mm into the slab with 50 mm minimum edge distance
- for external walls where slab edge is blockwork – be embedded 120 mm into the slab with 50 mm minimum edge distance
- be located not more than 150 mm from the wall end and at 1200 mm centres maximum – all cast-in bolts must incorporate a crank to assist anchorage into the concrete.

Proprietary post-fixed anchors to walls where there is no bracing capacity provided must be within 150 mm of each end of the plate and be at:

- 900 mm centres maximum where slab edge is in situ concrete
- 600 mm centres maximum where slab edge is blockwork.

BRANZ book sale ends 28 February

February Frenzy

Save up to 50% on selected BRANZ building and construction books (excludes ebooks). See www.branz.co.nz/booksale or call our bookstore (0800 80 80 85, press 2).

BRANZ seminars

Ventilation

Ventilation can be the difference between a building that is dry and healthy and one that is not. For what appears to be a seemingly simple process, there are a number of intricacies that lead to many buildings being constructed with inadequate ventilation. This not only degrades the thermal performance of the building but also adversely affects the health of the occupants.

In this seminar, we will provide our best guidance on roof and living space ventilation based on BRANZ research. In each case, we'll talk about the possible moisture issues faced through inadequate ventilation and the science behind the solutions for addressing them.

The topics covered include:

- Living space ventilation
  - Building Code clause G4 in action
  - Ventilation options
  - Pros and cons
  - Drying out damp houses
  - Effective duct and fan selection
- Roof space ventilation
  - When is roof space ventilation required?
  - Examples of roof space ventilation calculations
  - Risk factors leading to condensation
  - Good ventilation practice.

The seminar will be presented by two of the following BRANZ presenters in any one location:
Greg Overton – Building Performance Engineer
Stephen McNeil – Building Physicist
Manfred Plagmann – Senior Physicist
Stephan Rupp – Building Physicist

Dates and venues

Date	Location	Venue
Mon 27 Feb	Dunedin	Dunedin Centre
Tue 28 Feb	Queenstown	Crowne Plaza Queenstown
Wed 1 Mar	Christchurch	Addington Events Centre
Thu 2 Mar	Auckland – North Shore	QBE Stadium
Mon 6 Mar	Hamilton	FMG Stadium
Tue 7 Mar	Tauranga	Trinity Wharf
Wed 8 Mar	Auckland – Central	Crowne Plaza Auckland
Fri 10 Mar	Wellington	Amora Hotel

All seminars run from **1.00–4.00pm**.

Online registration is available now.

BRANZ Answers: Bracing

Timber-framed buildings are required to be braced to resist horizontal loads from wind and earthquake. This seminar takes a back-to-basics approach to bracing, taking you through the steps that need to be addressed using examples to calculate the bracing required for framed walls. We will start by looking in more detail at why we need bracing and what information is needed to begin the process of calculating wall bracing. Topics will include:

- how bracing capacity is determined
- the specific loads bracing will be subjected to and how those loads act on a building
- the steps to work out bracing demand such as the effect of location, building height, wind and earthquake zones and cladding weight
- the role of proprietary systems.

Once we have set the scene, the aim is to outline the steps you need to take to meet that demand by explaining the principles of:

- bracing lines
- distribution of bracing
- meeting bracing demand
- connections of bracing to the floor
- diaphragms
- effect of wall height.

These principles will then be applied to a couple of simple design examples.

Presenters will be:
Roger Shelton – BRANZ Senior Structural Engineer
Trevor Pringle – ANZIA – BRANZ Principal Writer

Dates and venues

Date	Location	Venue
Mon 13 Mar	Dunedin	Dunedin Centre
Tue 14 Mar	Christchurch	Addington Events Centre
Wed 15 Mar	Auckland – Central	Heritage Auckland
Thu 16 Mar	Wellington	InterContinental Wellington
Mon 20 Mar	Hamilton	Claudelands
Tue 21 Mar	Tauranga	Trinity Wharf
Wed 22 Mar	Auckland – North Shore	QBE Stadium

All seminars run from **1.00–4.00pm**.

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BRANZ seminars – webstreaming

BRANZ presents two major seminars at 21 locations around New Zealand twice a year. In addition, BRANZ also presents two or three seminars a year that are typically limited to main centres.

All BRANZ seminars are recorded, and a webstream of each seminar will be available approximately 3 months after the seminar series is completed. At present, there is a backlog of seminars awaiting release as a webstream. However, these should be available shortly.

These webstreamed videos can be used for CPD points (questions to be answered are provided at the end of the video).