GUIDELINE BRANZ
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Correction to *Guideline* August 2013 'Mortar for masonry veneer'

In the article on masonry veneer mortar, we stated that mortar was required to have a minimum compressive strength at 28 days of 12.5 MPa. However, this applies only to mortar for structural masonry – it does not apply to masonry veneer.

Paragraph 2.2.3.1.3 of NZS 4210:2001 *Masonry construction: Materials and workmanship* states: 'The minimum 28-day compressive strength of mortars used for veneer construction shall follow the requirements of the masonry supplier.'

Mortar for brick veneer must meet the mix requirements of NZS 4210 Table 2.1 for the environment it will be used in. Testing of tie performance within mortar is done in accordance with AS/NZS 2699.1:2000 *Built-in components for masonry construction – Wall ties*.

Rigid wall underlays

BRANZ has become aware of the use of thick (up to 25 mm) rigid wall underlays. When these are used, the results of structural wind face-load testing of any applied cladding are negated because of the thickness of the underlay and its effect on cladding fixing penetration into the framing. BRANZ is concerned as to the impact on proprietary cladding systems covered by BRANZ Appraisals. Also of concern is the durability of the sheathing material, as it must be at least as durable as the cladding, which, in many cases, is over 30 years.

Rigid wall underlays covered by E2/AS1 are fibre-cement (minimum thickness 6 mm) or H3-treated plywood (minimum 7 mm thickness) overlaid with a flexible wall underlay. Any other type of rigid wall underlay, including proprietary rigid air barriers, must be submitted for consent as an alternative method. Supporting information should demonstrate compliance with E2/AS1 Table 23, verification of the performance of the jointing system (if not overlaid with a flexible underlay) and evidence of the material's durability (for the life of the cladding) to meet the performance requirements of Building Code clause B2 *Durability*.

Ensuring buildings are dry enough

Timber framing that is at 20% moisture content (the maximum permitted moisture content at time of lining), common with new house construction, could still contain approximately 200 litres of moisture in the framing at closed-in stage. It is likely that kiln-dried timber framing will get wet during construction, particularly in winter, and the timber will take up some of that moisture. When this occurs, time must be allowed for the frames to lose the absorbed moisture – how quickly will depend on the stage the building is at and the weather conditions after the rain. Drying will be quicker if it is windy.

For buildings with 100 mm thick concrete floor slabs, there is approximately 170 litres that has to dry from the slab for every square metre of floor area when it is poured. One week after the pour, this will have reduced to around 110 litres/m^2. Under good drying conditions the drying of remaining moisture so that the floor is dry enough for tiles or vinyl to be laid will take at least 4 months.

The moisture that will be present, plus that added by rain wetting, will need to be managed primarily by allowing as much air flow as possible through the building – once the cladding is installed, windows and doors need to be kept open during the day. Using heaters and dehumidifiers may help dry the air within a building when windows and doors are closed and assist removal of moisture, but forced drying of materials tends to just drive the moisture away from the surface (which may temporarily lower a moisture content reading) and not actually remove it.

New timber treatment CQ

A new timber treatment called copper quaternary (CQ) has recently been released. The labelling on timber treated with this system will be CCA-CQ H3.2 with a preservative code of 90. (90 is also used for ACQ treatment, which CQ replaces in NZS 3640:2003 *Chemical preservation of round and sawn timber*.)

The treatment incorporates a new carrier that allows full penetration of the treatment chemicals into the timber, including heartwood. Amendments to NZS 3640 are under way to incorporate the CQ treatment, and ACQ will now be designated as CQ.

Fixings for the CQ-treated timber will be as required in NZS 3604:2011 *Timber-framed buildings* clause 4.4.4 for ACQ – typically stainless steel.

Key historical dates for timber treatment regimes

Wet boric or boron salts timber treatments were first introduced in 1952 – before that, native timber and some of the first radiata pine framing was used untreated. From 11 September 1995, NZS 3602:1995 *Timber and wood-based products for use in building* allowed the use of untreated timber for framing provided it was kiln-dried and that its in-service moisture content did not exceed 18%. The change in the standard was cited in Building Code compliance document B2/AS1 on 28 February 1998. (Any use of untreated kiln-dried timber before this would have to have been consented as an Alternative Solution.)

On 9 March 2003, the Building Industry Authority (BIA – the forerunner to both MBIE and DBH) issued BIA directive 23, which required that treated timber be used for all consents issued from 1 April 2004. Consents already issued that included use of untreated timber remained valid as long as the buildings were completed before 1 April 2005.

In April 2011, Amendment 7 to B2/AS1 further amended the treatment requirements of NZS 3602 to allow the use of H1.2 boron-treated radiata pine and Douglas fir framing within a closed space, except for cantilevered balcony floor joists and associated enclosed balcony wall framing where H3.2-treated timber was required. The amendment allowed the use of untreated Douglas fir in buildings with very low weathertightness risk.

Driven piles (using NZS 3604)

Section 6.6 of NZS 3604 states that driven timber piles may be used as:

- ordinary piles (as in section 6.5)
- cantilever piles (as in section 6.7)
- braced piles (as in section 6.8).

When used as braced piles a 450 mm deep concrete footing is not required, but the piles must be driven to a depth below cleared ground level of:

- 900 mm through gravel
- 1200 mm through other soil types.

The driving resistances given in NZS 3604 section 6.6.5 must be achieved.

Driven piles must be:

- installed as a pair when designated as braced piles
- driven with the smallest end diameter into the ground.

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Latest edition of *Build* magazine

View the YouTube clip for *Build* 138 (October/November 2013) with the features Weathertightness and Homes for Life. See www.branz.co.nz/welcome_to_build for articles.

BRANZ Seminars

***Your Business and the Auckland Plan* – Auckland only**

The Auckland Unitary Plan shows the zoning for housing and other buildings. Its aim is to encourage intensification of housing while still allowing some greenfield developments. However, designers and builders need to be aware that demand for multi-units will be greater that in the past. Are you ready for this? At the same time, the housing stock in Auckland is ageing and family types are changing. There is a need to maintain and adapt the existing stock.

This breakfast seminar by BRANZ Economics Manager Ian Page will discuss the Unitary Plan and its likely changes following public feedback. The plan forecasts are challenging, and just how realistic these are will be analysed. Trends in household types and work needed on the housing stock will be presented.

This Auckland-only seminar at Waipuna Hotel on Friday 11 October from 7.30–9.30am will cover:

- BRANZ forecasts of new housing numbers over the next 8 years
- housing types (detached, low-rise multi-unit, high-rise multi-unit)
- approximate locations by suburb, including dwelling price analysis
- traditional repairs, maintenance, alterations and additions work to housing.

There will be opportunity for attendees to present their views on the capability of the industry to meet the workload challenge.

Spaces are limited, so register online now.

Passive Design

The end-of-year BRANZ seminar (21 centres from 21 October–28 November) will cover the range of design criteria collectively described as passive design. A key aim of the seminar will be providing tools to enable designers and builders to incorporate passive design features into their buildings to make them warm, dry, well ventilated and comfortable, while reducing the need to purchase energy for space and water heating and cooling.

The seminar will be structured into sections designed to maximise the benefits of passive design covering, amongst other topics:

- subdivision layout to optimise passive design opportunities
- building siting and planning to enhance passive design features
- benefits of insulation
- providing sufficient thermal mass for effective winter heating while avoiding summer overheating
- use of building form and prevailing winds to enhance cooling and ventilation while reducing the need for mechanically assisted cooling
- using the sun to provide solar water heating and power
- greywater retention and use
- using rainwater and reducing stormwater run-off.

The seminar will be presented by resident BRANZ Architect Trevor Pringle and Greg Burn of Structure Ltd, a design consultancy.

Seminar dates:

21 October	Palmerston North
22 October	Wanganui
23 October	New Plymouth
24 October	Hamilton
29 October	Dunedin
30 October	Timaru
31 October	Christchurch
1 November	Blenheim
5 November	Whangarei
6 November	Auckland (North Harbour Stadium)
7 November	Auckland (Waipuna Hotel and Conference Centre)
11 November	Napier
12 November	Gisborne
13 November	Tauranga
14 November	Rotorua
18 November	Upper Hutt
19 November	Masterton
20 November	Wellington
25 November	Invercargill
26 November	Queenstown
27 November	Greymouth
28 November	Nelson

Registration should be available on the BRANZ website in the first week of October.