Builder's MATE

FREE TO ALL BUILDERS

BRANZ
BUILDING ON KNOWLEDGE

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Issue 9

Ready to go: the pre-pour check has been done and the mesh is supported on proprietary plastic chairs.

A drop of the hard stuff

When it comes to casting a concrete slab, a softly softly approach will work wonders

Everybody knows how to cast a concrete slab, don't they? Well, let's just refresh our knowledge.

Your slab will usually be supported on a prepared sub-base that your designer will have given you the details for. A simple vibrating plate compactor is usually sufficient to prepare most sub-bases. NZS 3604 Timber Framed Buildings only allows up to 600 mm of fill before specific design is needed. Getting the sub-base true at the correct level will save you money. If it is 25 mm too low, a slab will soon swallow a couple of hundred dollars-worth of concrete. Those dollars are much better in your pocket.

It is important to get items that are to be cast into the slab in the right place. Any pipes that are to be run in or pass through the slab need to be wrapped in a bond-breaker tape. In the case of cables, run them in a conduit, so they can move independently.

After the basecourse is finished to the required level and checked, a sand blinding is spread over the top to stop anything puncturing the concrete underlay or damp-proof membrane (DPM). Laying the DPM correctly is vital to the long-term success of the slab and overall performance of the building. Make sure you use ample mesh chairs and see that they don't puncture the DPM.

Once the bars and mesh are in place, keep everyone off: reinforcing mesh in slabs-on-ground needs to sit in the top half of the concrete, not sag into the bottom half.

Continued on p2

Inside: WIN a 12V cordless impact driver worth nearly $400!

Industry News

Hard act to follow

Nearly half of the category winners in the 2004 Registered Master Builders House of the Year & Commercial Awards used concrete. Of the 105 Gold Reserve House of the Year national finalists, nearly 50% used concrete for flooring, 10% used concrete for external walls and several showed a preference for using concrete roof tiles. Concrete bench tops were also to the fore. David Gray, CCANZ's chief executive, says the growth in concrete use is extremely pleasing. 'Over the past two years the per capita use of concrete in New Zealand has grown by 26%.' For more information about concrete and its usage, visit: www.cca.org.nz.

Name change

MBT New Zealand Ltd, the construction chemicals specialist, recently changed its name to Degussa Construction Chemicals New Zealand Ltd as a result of a merger by its parent company. Degussa is internationally recognised as a leader in construction chemicals and will continue to supply admixtures, underground construction, specialist grouts, waterproofing systems, performance flooring, concrete reinforcement, repair and protection. Degussa has offices in Auckland and Wellington.

HAMMER 'N' NAILS

The concrete is being spread: a laser level gives accurate levelling.

The slab edge thickening is being vibrated: take care, on the main area of the slab, to ensure the vibrator does not slip through the mesh and damage the DPM.

After the initial 'set', a rotary power float is used to give a high-quality finish.

From p1

Place the concrete gently and with care. Spread it as necessary and vibrate it thoroughly, paying particular care to the edge thickening. Don't use the vibrator to chase the concrete along from one area to another as you'll cause it to segregate and the vibrator may puncture the DPM.

Builders often have their own wooden floats that they've made up to a width that suits them. This is the first finishing tool to be used after the initial screeding and the bleed water has disappeared. Don't 'overwork' the concrete – the bigger stones will sink leaving the top surface with less strength.

A rotary power float will give a good finish to the surface. Use it a couple of hours after the concrete has been bull-floated and the initial set has taken place.

If the day is hot and windy the concrete will start drying too quickly, making it prone to surface cracking. Keep the surface from drying out by using a water mist spray or a proprietary 'anti-vap' spray to slow down the rate of evaporation.

In summer, the slab will need to be saw cut as soon as it can stand the process or have crack control systems installed.

Cast-in crack inducers reduce the risk of early-age cracking before the slab can be saw cut.

The rule of thumb is to space crack controls no more than 30 times the thickness of the slab. This will give 3 m squares for 100 mm thick slabs. NZS 3604 is more specific. Refer to it if the crack control spacings are not specified.

Mix it up

Admixtures are chemicals – usually liquids – that are added to the concrete mix to change its properties. There are common admixtures that do the following:

1 Inhibit corrosion
2 Increase workability (without increasing water content)
3 Assist in the pumping of concrete
4 Assist in obtaining specified strength earlier
5 Accelerate initial setting time
6 Retard initial setting time
7 Act as expansion agents to counter shrinkage in block fills
8 Assist waterproofing
9 Entrain air (again to assist in workability by reducing friction)
10 Control shrinkage
11 Reduce water requirements.

There are other chemicals that are not integral to the mix but are used independently to:

12 Reduce evaporation
13 Improve formwork release
14 Act as surface retarders (for exposed aggregate concretes).

For a specific application, seek advice from your concrete company representative.

Need a hand? If you've got a building problem that needs fixing, get on the blower to Eddie Bruce at BRANZ advisory helpline!

Builders call **0800 80 80 85** Homeowners call **0900 5 90 90**
(0900 calls cost $1.99 per minute plus GST)

Next issue Over the hill? Building on exposed sites.
Builder's Mate out March 1 – don't miss it.

Smooth operators

There's a different trowel for every job. Make sure you use the right one to get the required effect.

Wooden floats are usually the first to be used when working concrete and are often home-made.

A moulded resin float performs much like a wooden float but is lighter.

A magnesium float is often considered a compromise between wooden and steel and is used by many to both work and finish concrete. Don't use on highly workable concrete.

Steel floats are used to give a final finish to the surface but if used too early in the piece will cause water to come to the surface.

Mind the gap

The section of the Building Code that deals with weathertightness is clause E2. The Acceptable Solution to E2 is E2/AS1 and it describes ways that you can build securely and with confidence. It calls for cavities behind certain claddings, depending on the level of weathertightness risk, to prevent leaks damaging the structure of the building.

The cavity is to drain away any water that may get past the cladding. It is also vented to ensure there is a drying process after the water has drained away. Here's some BRANZ guidelines for building that cavity.

For weatherboards, corrugated steel and thin sheet claddings like ply, the cavity is formed by fixing 50 x 20 mm H3.1 battens vertically outside of the building wrap to each stud. Where the batten spacing exceeds 450 mm, stop the wrap bulging by installing vertical plastic tape, another batten (as shown in Figure 1) or wire mesh.

If you want some horizontal fixing for sheet edges you can use 100 mm batten pieces fixed to the dwangs, spaced 50 mm apart and sloped at least 5° to allow any water to drain off one end.

This detail is also used at the bottom of the walls where a vermin-proof closure must also be installed.

Nailing the battens

E2/AS1 requires nails to be 20 mm longer than those usually used for these claddings to penetrate through to the stud. A recent BRANZ test showed that if the battens are fixed securely enough you can use your usual cladding fixings. To fix the battens securely you can use 60 x 2.8 mm or 75 x 3.15 mm jolt-head galvanised hand-driven nails or 64 x 2.8 mm power-driven galvanised nails. The nailing must not exceed 300 mm centres down the batten with the nails staggered 12 mm either side of the centreline.

Separation

Uncoated galvanised steel or Zincalume must be separated from battens treated with chemicals containing copper to prevent premature corrosion (see Figure 2). Strips of DPC are suitable separators.

Joints and penetrations

As most leaks occur at joints, corners and penetrations such as windows, doors, fuse boxes etc, they must be detailed in the documents and constructed to include additional drainage mechanisms such as back-flashings or flexible gaskets.

There must be a drainage path to the outside above windows and doors. This means the head flashing must come from the framing side of the cavity to direct water to the outside of the cladding.

At a cladding joint or corner there should be a back-flashing (see Figure 3). The back-flashings may need separating from the treated battens just as in the case of uncoated galvanised or Zincalume-coated steel. It is important that treated timber is kept away from uncoated zinc or aluminium. Isolating tape may be an option, or a non-metal flashing.

Figure 1: Vertical cavity battens.

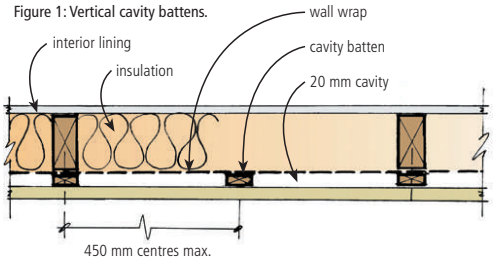


Figure 2: Profiled metal sheet cladding.

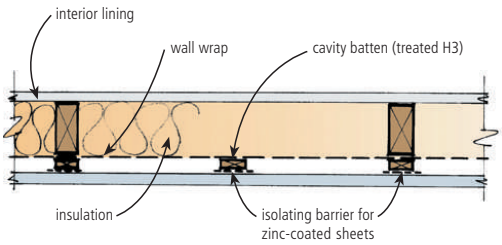
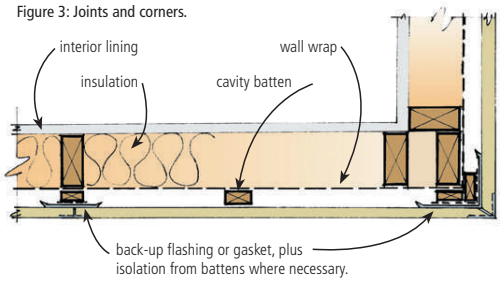


Figure 3: Joints and corners.



Dribblings from the old Geezer

Check it again, Sam

We all know versions of 'measure twice, cut once' stories, and deep down we know how important it is to check things before we embark on an action that can't be changed. This tale reminds us again that if you don't check, there can be tears before bedtime. A demo contractor got instructions to bowl a house and clear the section. Arriving on site, he and his workers found clothes and furniture in the house and a dog in the yard. 'Bloody squatters,' they were told, and the house quickly became matchwood. A big effort resulted in the site being cleared and cleaned up within the day ... just in time for the demo team to meet the owner as he returned from work! They had the right suburb, right number, right street name, but they were in the Crescent, not the Avenue. As they say, close ... but no cigar.

This makes going back to the merchant for another length of colonial architrave, because you'd mitred the first piece the wrong way, seem smallfry in comparison. 'Check twice, demolish once' may have a different ring to it, but the principle is the same. So please keep chanting your own little mantra and check it again, Sam.

Des Molloy, BRANZ technical writer

Product information

Saved from a watery grave

Water damage from a fire can often be worse than that caused by the fire itself. Now there's a fire suppression agent available that acts and looks like water but won't damage computers, electronics, books or artwork in the way water does. Sapphire puts out fires but doesn't damage goods in the process. Electronic items like computers and cell phones can even be immersed in it without harm. For more information, contact Clare Gibson on 09 367 7041.

win! A 12 v cordless impact driver worth nearly $4

Hitachi's 12 v cordless drill gives the operator complete control of the screw. It has 88 Nm of torque and comes with two one-hour charge batteries and a robust carry case.

We've got together with The Toolshed to offer one of these free to the person who can tell us the name of the mystery tool, pictured, and what it's used for.

Send your answer (don't for tell us where you picked up copy of Builder's Mate) on the of an envelope and post it (you don't need a stamp) to: Builder's Mate Issue 9, Mystery Tool competition, FREEPOST BRANZ, Private Bag 50908, Porirua City.

The winner's name will be the first correct entry drawn at 9am on Friday 11 February 2005. Details will be posted on BRANZ website (www.branz.co.nz) and in the next edition of Builder's Mate, due out March 1 2005 – don't miss it!

Terms and conditions: Entry is open to all New Zealand residents, except employees and immediate families of BRANZ Ltd., BRANZ Inc, BRANZ Pty and the product manufacturer. The competition will close at 9am on Friday, 11 February 2005. The prize is not transferable for cash. The judge's decision is final. No correspondence will be entered into. BRANZ may, from time to time, send you information about our products. You can contact us at any time if you do not wish to receive this information.

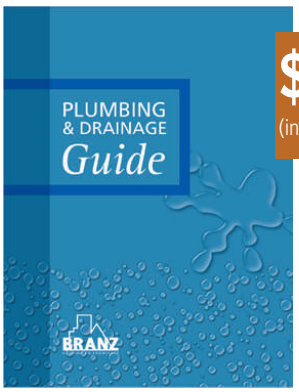
Selecting the winners

BM7 Selecting Timber prize winner is Rodney Archer, pictured left, of Hokitika. We snapped Rodney as he picked up his prize of a car stereo from John McGirr, BRANZ Accredited Adviser on the West Coast.

Winner of the mitre saw bench stand offered in BM8 is Alton Taylor of Hamilton. Alton correctly identified the mystery tool as a proprietary wire twister. Congratulations, Alton.

Two new books from BRANZ!

BRANZ Plumbing & Drainage Guide



$49.95 (incl gst, plus $8 p&p)

We've worked closely with the Aussies and are proud to bring you the fully updated version of this popular book, totally in keeping with the most recent changes to joint NZ/Australian Standards. A new cover, with the text in full colour, means this book is in a class of its own.

BRANZ House Building Guide

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Fully revised and hot-off-the-press, *BRANZ House Building Guide* is full of tables, diagrams and practical guidelines for building timber-framed houses. Follows house construction from setting out to lining the interior walls.

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To order, call 0800 80 80 85, press 2, or fax 04 237 1171

Blokes on the job

Trevor Bird, building in Upper Hutt.

Favourite tool: the nail puller he's using to fix poor pre-nailed frames.

Favourite tip: 'Flick chalk lines on the floors to give the whole house set-out. This will quickly highlight any frames that are wrong.'

David Clayton, building in Riverstone Terraces.

Favourite tool: the Paslode Bradder finishing gun because of what you can do with it.

Favourite tip: (from his builder dad): 'Always be enthusiastic.'

Jason Fletcher, building near Upper Hutt.

Favourite tool: the Tjima LC 65 knife because the blades are so strong and sharp.

Favourite tip: 'Keep your tools sharp.'

Know a bloke on the job? Send us his details together with a photograph and his favourite tip and you could win $50 worth of BRANZ books.

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