

Builder's MATE



FREE TO ALL BUILDERS



Industry News

The NOW house

An ordinary-looking house which will have much lower than average power bills has just been built in New Lynn, Waitakere City. The three-bedroom home was constructed for just \$180,000, but to a highly energy efficient design.

The result is that the house has no in-built heating – it is designed to have indoor temperatures between 18°C and 25°C for all but 10 days of the year. For details, visit www.nowhome.co.nz

Trend to professional firms

Hamilton-based company, Generation Developments, says changes brought in through the Building Act 2004 have led to more people using professional building firms rather than organising their own construction.

The changes beef-up the requirement for detailed information on design and construction methods to obtain a building consent, strictly enforced paperwork and record-keeping and more stringent building inspections

Concrete slabs and control joints

Concrete shrinks for at least a year after pouring. Free joints and shrinkage control joints are used to reduce the risk of cracking. If the slab is over 24 m in any direction, the area must be broken up by free joints.

A free joint is a cut or gap in the concrete where the faces of the cut don't touch and the reinforcing stops at each side of the joint and is not exposed.

A shrinkage control joint is a cut which doesn't go down the full depth of the slab. This cut provides a location (under the cut) for the concrete to crack when

it shrinks. Typically, the cut is 25 mm deep and 5 mm wide and with reinforcing passing beneath the cut.

NZS 3604 (Clause 7.5.8.6) gives the maximum spacing for shrinkage control joints. It also gives the limits for the length-to-width ratio of the bays between control joints, free joints and the edge of the floor (see Table 1). The designer should show the location of shrinkage control joints on the floor plan.

This is especially important where floor finishes which are affected by concrete floor shrinkage – such as ceramic tiles – are to be used.

Continued on p2



Inside: Win! an Izzy 1200 watt inverter worth over \$500!



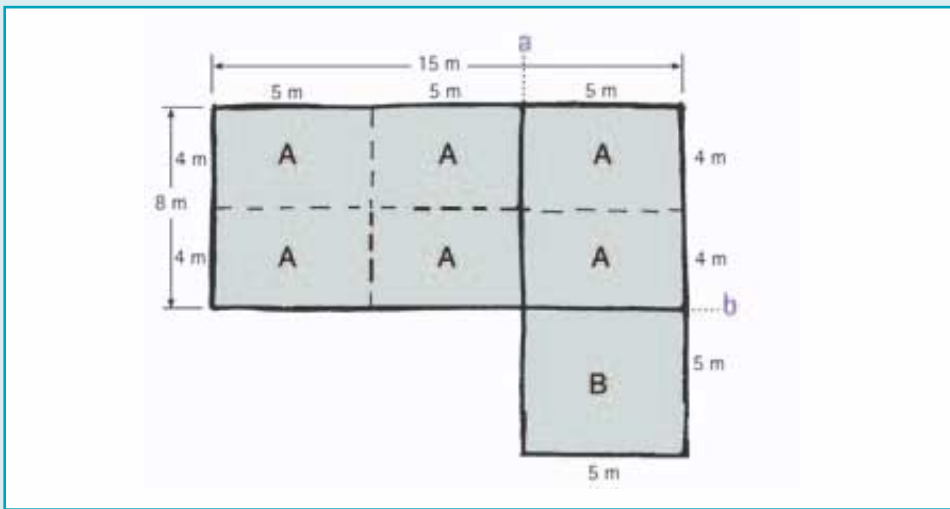
Table 1: Maximum slab and bay sizes for different types of reinforcing.

Reinforcing type	Max slab size	Max control joint spacing	Max length-to-width ratio of bay	Max length × min width
665 mesh	24 × 24 m	6 m	2:1	6 × 3 m
668 mesh	12 × 12 m	5 m ⁽¹⁾	1.75:1 ⁽¹⁾	5 × 2.85 m
Fibre	24 × 24 m	4 m	1.5:1	4 × 2.7 m
Unreinforced	24 × 24 m	3 m ⁽²⁾	1.3:1	3 × 2.3 m

(1) BRANZ recommendation (not included in NZS 3604).

Example: Reinforced slab-on-ground

For a slab floor reinforced with 668 mesh, the maximum permitted slab area is 12 x 12 m. With bigger areas, you must introduce free joints at lines 'a' and 'b'. No reinforcing is to pass through these lines.



This is how you can work out if the bay sizes you want to use in a 668 mesh reinforced slab-on-ground are suitable:

- (1) From Table 1 above, using 668 mesh, the maximum recommended bay size is 5 m and the maximum recommended length-to-width ratio of the bay is 1.75:1
- (2) Apply the formula:

$$\text{Maximum bay size} \div \text{length-to-width ratio} = \text{minimum width of bay}$$
 So $5 \div 1.75 = 2.85 \text{ m}$
- (3) The table gives a maximum recommended bay width of 5 m and the formula gives a minimum of 2.85m. The proposed bay size of A in the drawing above, at 5 m by 4 m, fits within these limits and is therefore suitable.

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**. Home owners call **0900 5 90 90**

(0900 calls cost \$1.99 per minute, plus GST)

Next issue Verandahs – coping with uplift.

Builder's Mate 15 out January 16. Don't miss it!

Scribing skirtings and scotias

The secret to a good finish on internal corners in moulded skirtings and scotias is scribing.



Cut the moulding across the broad face with the saw at 45° angled outwards so the profile is exposed.



Use a carpenter's pencil on the flat to mark the edge of the front face where it intersects with the cut face.



Use a coping saw to accurately follow the marked line. Except for the top edge of the skirting being scribed (bottom edge on a scotia), make this an undercut so a sharp edge will be against the unscribed member. Some tradespeople like to use their coping saw with the blade reversed so it cuts on the pull stroke.



Use a selection of metal files to clean up the cut face.



Trial fit. Adjust where needed to make it a good fit to the profile of the skirting or scotia.



A good base for concrete slabs

Slab-on-ground foundations need a solid base under them to perform as designed and not sag or settle. How can you achieve this?

1. Find good ground

First, find out about the soil. You can check out the site itself (through site observations or council PIMs), look at the performance of nearby buildings, or test the ground with a scala penetrometer (see BRANZ Bulletin 438). If it isn't "good ground", then it will need to be either removed or re-worked to improve its ability to carry the slab. (See definition of "good ground" in NZS 3604.)

The level of good ground will be below the underside of the slab (see Figure 1). Get rid of rubbish, noxious and organic matter.

2. Choose the right fill

NZS 3604 allows the use of rounded gravel, crushed rock or scoria, or material approved by the local Territorial Authority. It must be well graded with

varying size particles. Transit NZ fill specification AP20 is ideal for use in thin layers of up to 100 mm thick and AP40 in 100 mm to 150 mm layers. Don't use fill where all particles are the same size.

3. Compact in layers

The hardfill material must be compacted in layers no more than 150 mm thick. The finished thickness must be between 75 mm and 600 mm. The compaction should bind the material so tightly that you can't easily press your heel into it. Vibrating plate compactors are the best way of achieving this.

4. Protect the DPM

Make sure the damp-proof membrane (DPM) under the slab won't be punctured by the fill. If you've used crushed rock or scoria, blind the top surface with a 25 mm layer of sand to protect the DPM.



Dribblings from the old geezer

I've been watching a job that is typical of our industry at present: an architect provided the drawings but was not required to supervise or administer it. The construction was awarded to a main contractor who put a gang on site who did the work up to the finished slab stage. Another gang took over and did the framing and roof construction, but all the while there was nominal supervision by a "project manager" only and almost nil involvement of the main contractor.

Due to the heavy work load of all builders at present, often the construction team would disappear for significant periods. Sometimes while they were away sub-contractors would appear and do their work, unsupervised of course. Yet another gang was brought in to carry on with the cladding and lining. Each new gang grudgingly accepted the work of the team before it.

Possibly all the workers involved were quite adequate, but with negligible supervision the progress has been slow with poor quality work being accepted. The job being delivered to the client will also be overdue and nowhere near the standard that we'd like to see our industry providing. Sad eh!

Des Molloy, BRANZ technical writer

Product Information

No fog on the job

Ever been frustrated by anti-fog safety goggles which steam up and scratch easily? Wairarapa man Phil Hall was, so he developed Safe Eyes, a goggle constructed of fine stainless steel mesh set within a moulded plastic frame.

Hall's own background is in the forestry industry, but he says the goggles could be of use to people using virtually any power tool.

Contact: Phil Hall, Safe Eyes, Tel 06 377 3378.

Website: www.kiwi-ideas.co.nz

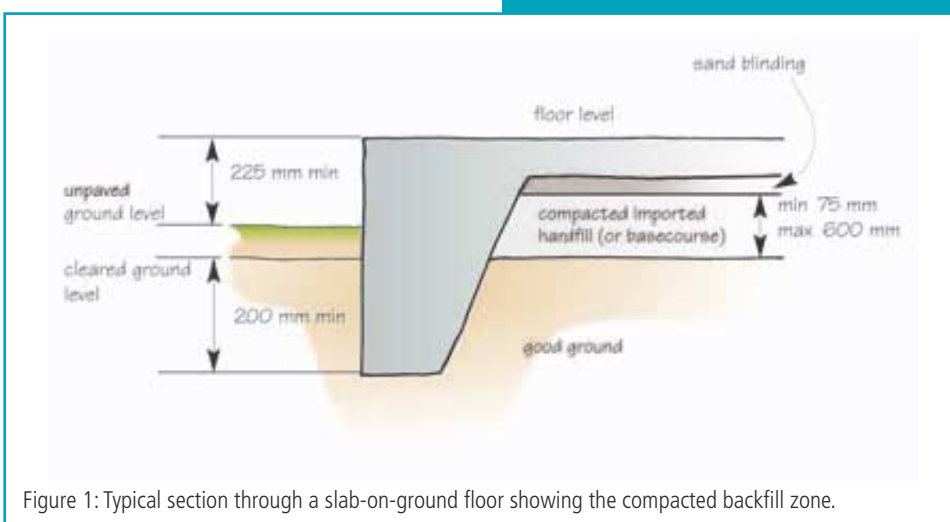


Figure 1: Typical section through a slab-on-ground floor showing the compacted backfill zone.



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Published every two months, BUILD is THE industry magazine for building-related issues. Subscriptions cost \$54.

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win!
An Izzy

1200 watt inverter worth over \$500!

Here's a useful prize: an inverter which transforms 12 V DC (car battery) power to 230 V. It provides up to 1200 W, enough to run most hand-held power tools. It's also ideal to take camping or boating!

The Izzy 1200 W inverter is provided courtesy of The Tool Shed.

All you need to win is tell us the name of the mystery tool and what it's used for.

Send us your answer (one entry per entrant please) on the back of an envelope and post it (you don't

need a stamp) to: Builder's Mate 14, Mystery Tool Competition, FREEPOST BRANZ, Private Bag 50908, Porirua City.

Don't forget to tell us where you picked up your copy of *Builder's Mate*! The winner will be the first correct entry drawn at 9 am on Friday 9 December 2005. Details will be posted on the BRANZ Ltd website www.branz.co.nz and in the next edition of *Builder's Mate*, due out on 16 January 2006.

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 Tool Shed shops. The competition will close on Friday 9 December 2005. The prize is not transferable for cash. The judge's decision is final. No correspondence will be entered into. BRANZ Ltd 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.



What are these called and what are they used for?

Blockes on the job



Api Angeli, building a steel-framed building in Three Kings, Auckland.

Favourite tool: his cordless DeWalt battery drill which he uses nearly all day with steel framing.



Braden Cameron, building in Johnsonville.

Favourite tip: to avoid hammer bruise during finishing work, cut a thin timber block and make a slot in it to hold the nail as it's driven home.

Favourite tool: cordless DeWalt drill that also has a hammer facility.



Laurie Ross, in the rain in Whitby.

Favourite tip: if it looks right, it is right.

Favourite tool: a 160 mm Makita skill saw because it's so light and easy to use.

Builder's Mate winners!

The winner of the BM 13 competition is Grant Burney of Hastings, who correctly identified the tool as a crocodile wrench. He wins a portable concrete mixer. Inadvertently we didn't tell you the BM 11 and BM 12 competition tools. BM 11 was a granny's tooth plane for cutting grooves and rebates, and BM 12 a draw-blade for roughing out work before using a plane or spoke-shave.



Winner of the BM 11 competition, Ross Windle of Raumati Beach (in the centre), receives his Bosch GSR 12vE cordless drill from Bob Daisley at The Tool Shed, Wellington. The Old Geezer, Des Molloy is on the left.



BM12 winner John Briggs takes delivery of his Hitachi sabre saw. Handing it over is Angus Nuku from the Tool Shed Stratford.



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Standards referred to can be purchased from Standards New Zealand.
Tel: 04 498 5991 or www.standards.co.nz.

Know a bloke on the job? Send us details of his or her favourite tip and tool and you could win \$50-worth of BRANZ books.