Builder's MATE

FREE TO ALL BUILDERS

BRANZ
BUILDING ON KNOWLEDGE

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Issue 19

The white stuff

There are those who think that all they need to know about concrete is that it is grey stuff that comes in trucks. But if you know what can be done with concrete without adversely affecting its strength, that's a nice string to your bow.

Concrete in some form has been used since the Roman days and consists of a binder of cement and a filler of aggregate (sand and broken rock). The concrete of today using Portland cement is a slightly more recent advancement, with the first reliable production of this cement beginning in 1824. Portland cement, which is the best all-round binder, is made up mostly of lime with a half portion of silica along with small amounts of alumina and traces of iron oxide and gypsum.

The strength of concrete depends on its weakest component, so strong concrete cannot be made from aggregate made by crushing weak rock. Cement is the most expensive component of concrete, so is used sparingly with aggregate as a bulk filler. Water is used to react with the cement to grow cement crystals (dendrites), that then fill the spaces between the aggregate grains locking them in place and giving the mass the strength of liquid stone.

A lot of water is used purely to make the concrete workable. This is why the concrete shrinks when water not needed in the reaction process dries away. Too much water can weaken the mix and too little can make it difficult to place.

There are additives (often called admixtures) that can be added to the mix to alter the performance of standard concrete. These are summarised below.

(Continued on p2)

Industry News

Apprentices shoot-out

The regional winners of the SkillEX competition for apprentices will be travelling to the Wellington Institute of Technology (WelTec) on 21–23 September for a final skills shoot-out to win the title of 'best of nation' within their field. Winners from the national finals may also be invited to enter the widely recognised WorldSkills Competition 2007 in Japan. The SkillEX competitions have been organised by Youth Skills New Zealand since 1986.

Building Research to further help industry

Building Research, the independent industry association owned and directed by the building and construction industry, has budgeted to invest $7 million in research and knowledge transfer over the next 12 months. Activities funded by Building Research range from seminars for builders to high-level scientific research on issues such as energy use and efficiency, fire protection, the performance of buildings after earthquakes and floods, and health and safety in houses.

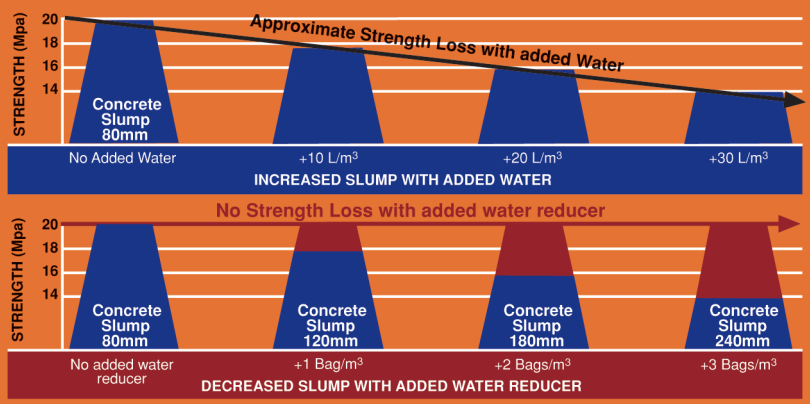
Inside: Win! the amazing Unibench Premiere worth over $799!

HAMMER 'N' NAILS

Type	Function
air entraining agents	improve durability, workability, reduce bleeding, reduce freezing/ thawing problems (e.g. special detergents)
super-plasticisers and high range water reducers	increase strength by decreasing water needed for workable concrete (e.g. special polymers)
retarders	delay setting time, more long-term strength, offsets adverse high temperature weather (seek advice from specialist admixture suppliers)
accelerators	speed setting time, more early strength, offsets adverse low temperature weather (e.g. calcium chloride)
mineral admixtures	improve workability, plasticity, strength (e.g. fly ash)
corrosion resistors	improve long-term corrosion resistance
pigments	add colour (e.g. metal oxides)

The effect of water on concrete strength

Water added to concrete causes strength loss. Adding water reducer to concrete raises the slump and increases the workability with no strength loss.



Next issue: Builder's Mate 20 out 1 October 2006. Don't miss it!

STEP-BY-STEP

Wrap around windows

Installing the wrap and tape properly at the start of putting a window into a cavity wall is an important step to weathertightness. This guide is part of an installation we've tested at BRANZ.

Place the wall wrap to the outside of the studs over the window opening. Don't cut it until the window is ready to be installed.

Make diagonal cuts to the wall wrap and turn into the window opening. Staple in place.

Install flexible flashing tape across the full width of the sill trimmer or structure to protect the flat horizontal surface from any moisture.

Use formable flashing tape at each corner to secure the wrap and reinforce the corners. This also protects the area of exposed framing from moisture.

building industry bombsites

Earlier this year the Department of Labour sent 14 inspectors out to more than 100 residential construction sites in Auckland. The city was targeted because it accounts for 40% of projects undertaken in New Zealand.

Inspectors said they found shocking and unsafe conditions, and many so-called 'builders' who did not speak English or who quickly disappeared when they saw inspection teams arrive. "Site housekeeping was, in general, dismal", said the Department's Chief Advisor Health and Safety, Mike Cosman. Thirty-five prohibition notices were issued requiring an immediate end to work until issues are remedied.

Inspectors' checklists covered issues like the condition of a building site, fencing, scaffolding safety, working conditions and facilities. On a slightly brighter note most sites had reasonably safe machinery, such as guards on saw benches.

Mr Cosman said the campaign detected a considerable amount of unsafe scaffolding. Roof edge protection, which is also required, was missing on many sites. Domestic ladders were used instead of those designed for the building industry.

The absence of toilet and washing facilities was also of concern, and workers on many sites were also not provided with earmuffs, safety glasses and steel-capped boots. "Access to toilets and to equipment which prevents or minimises industrial injuries are basic human rights for any worker".

Pieter Burghout, Chief Executive of the Registered Master Builders Federation, said: "We were disappointed by these findings. There is no excuse for not coming up to scratch. Builders shouldn't be cutting corners on health and safety, especially in such a potentially dangerous industry".

This Auckland building site looks like a tip – and it's putting both site workers and passers-by at risk. At least the site has appropriate roof edge protection.

Dribblings from the old geezer

Our lead builder is often opinionated. On-site you hear things like: "*!#*! weatherboards – we used them once, what a load of crap!", "#$%&!, bloody rubbish, leaks like a sieve".I wonder if that information ever goes anywhere useful. Does the builder moderate his language and tell the designer about his experience with the product and why he thinks it isn't all that good?

Talk is cheap. Sometimes it may have been an unfamiliarity with the product or system that has caused the problems. Sometimes the product may have required a skill level for installation that is beyond the person slagging it off. If the relationship with the specifier wasn't great, the builder may try to score points by venting his spleen to anyone who will listen … often only because his favourite product wasn't the one chosen.

We are usually aware that there might be a difference in performance between what the manufacturer claims and what is delivered. Similarly, blowhards are usually listened to with closed ears. This is a judgement call we make. But designers and manufacturers alike do need to hear valid feedback … even if it's not what they want to hear. So don't just mouth off, voice your concerns to the right people, not just the long-suffering junior woodchuck.

Des Molloy, BRANZ Ltd Presenter

Product Information

New waterproofing system

Protecto Wrap AFM®–WM Waterproofing Membrane is an external waterproofing membrance for decks and balconies. It is also an internal waterproofing membrane for all wet areas for use under ceramic or stone tiles. For more information phone Marshall Waterproofing NZ/AUS Ltd (07 543 0948).

win!

An amazing Unibench Premiere worth over $799!

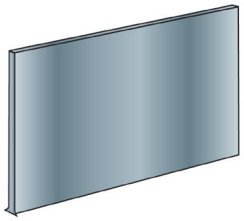
This new roller bench is light and compact, yet strong and adaptable, and will suit any mitre saw. Able to be set up or folded down within minutes, it's easily carried in the back of your ute or van or on a roof rack. Adjustable legs eliminate rocking and give great stability.

The prize 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) plus your name and address on the back of an envelope and post it (you don't need a stamp) to: Builder's Mate 19, 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 6 October 2006. 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 1 November 2006.

What is the name of this pictured tool and what is it used for?



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 6 October 2006. 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.

Builder's Mate winner!

The answers to BM 18 were great – serious and not like *Old Shrew Clamp used to close the mother-in-law's mouth from a safe distance.* The random draw winner is Dave Hall from Wanganui. He wins a DeWalt 12 volt cordless drill worth over $400.

Pictured: Winner of the BM 17 competition, Jim Harrington, receives his Pentax builder's level from Stephanie Poland of the new ToolShed in Dunedin. Jim tutors carpentry apprentices at Cromwell Polytech.

Blokes on the job

Gary Gilmore, building in Albany.

Favourite tool: Always make sure there is good coffee available.

Favourite tip: 22 oz Estwing hammer that he's had for 15 years. You need a good hammer every day on the job.

John Hutcheson, building in Hokitika.

Favourite tool: Always get your flashings right.

Favourite tip: Power nibbler for cutting iron.

Mike O'Malley, BRANZ's own builder just before he retired after 21 years.

Favourite tool: His Distan cross-cut saw that he bought in 1956.

Favourite tip: Don't under-estimate hand tools as they can be used anywhere, any time. Keep them sharp.

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

Editor: Des Molloy
desmolloy@branz.co.nz

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