


concrete

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Standard Bridge Beams

Stage 1 of the new standard (highway) precast bridge beams project is now almost complete. The project, funded by Transfund and CCANZ, has involved research into the most appropriate precast concrete bridge beam shapes to be adopted as industry standards for the future.

The Research Team – Alex Gray (Beca), Geoff Brown (Opus), Ross Cato (PCNZ), Paul Sweetman (Smithbridge), Ian Billings (Beca), Phil Gaby (Beca) and Don Kirkcaldie (Opus) – has almost completed a detailed report, which may be submitted to Transfund as part of the funding request for Stage 2 of the project. The CCANZ board has approved a $62,000 grant for this next stage.

The bridge beam designs currently used in New Zealand were adopted as industry standards in the 1970s. In their time these Ministry of Works-designed twin hollow-core 'I' and 'U' precast concrete bridge beams and small span bridges brought cost efficiencies in design time and more competitive tenders for supply.

They are, however, nearly 30 years old now and out of date with respect to design codes, construction techniques and the higher strength materials now commonly used. In particular, changes to durability, width and side protection requirements have affected the current beam designs.

The review carried out by the Research Team indicated that a number of design and construction issues needed to be addressed in any future designs. These included enhanced edge protection standards, increased durability requirements, maintenance issues, and the economy of current designs for spans greater than 25 metres.

An extensive consultation process was a crucial part of their research, says Alex Gray from Beca, to ensure that all sectors of the bridge industry had the opportunity to raise and discuss issues.

As a result the Team has refined a number of specific options for new beam shapes and concluded that two existing shapes (hollow core and 'I' beam) be updated and one new shape (Super-T) be put forward for funding for standard bridge designs.

"A large number of issues and ideas were raised both for current and new shapes and distilled into key criteria for selecting new beam shapes.

"The poll of possible beam shapes showed a clear preference to retain the double hollow core shape as an existing shape with lesser numbers supporting the I-Section and single hollow core.

Super-T precast bridge beams are being used to construct the second Paremata Bridge (designed by Beca Carter Hollings and Ferner Ltd and built by Juno Civil Ltd for Transit New Zealand) on State Highway One near Wellington.

"The Super-T was the clear choice as the preferred new beam shape and is also cost-effective and aesthetically pleasing," says Alex Gray.

The Research Team recommends that detailed designs and drawings be produced for a 10.6 m wide 'standard' bridge for the following beam shapes:

- Hollow core deck units probably 1144 mm wide for spans up to 18 m, with either a double circular void or a single rectangular void to be determined during the detailed design stage
- Hollow core deck units for spans up to 25 m, with void shape to be determined during the detailed design stage
- Existing 'I' beams for spans up to 32 m, updated for changes to design standards
- Super-T beams for spans up to 30 m.

The team also recommends that the existing single core deck units and 'U' beams are not updated as new standard shapes. The 'U' beam will be replaced by the new Super-T beam and the single core deck unit by the new twin or single rectangular void hollow core shape.

A decision as to whether Transfund will fund Stage 2, which will incorporate the design and production of new standard precast bridge beam drawings and specifications, is expected by 30 June 2003. The Research Report for Stage 1 will be published by Transfund later this year.

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ccanz
Cement & Concrete Association of New Zealand

Upfront

Concrete Apprenticeships – BCITO

The cement and concrete industry is an integral part of the construction industry yet unlike the timber industry it has never had a system of formal industry training and qualifications. Until recently apprenticeships had not been part of our culture.

Now our approach to training and qualifications is changing. Four National Certificates in Cement and Concrete are now available through the BCITO (Building and Construction Industry Training Organisation) and I hope we are going to see significant uptake of these courses that allow people to earn and learn at the same time.

The leaky home syndrome has focused attention on the building industry. More and more people are demanding accountability for performance. They want quality construction that performs and lasts. While concrete hasn't been a particular focus of attention in regard to quality, we know that a high level of skill is required to get it right.

Concrete is a highly engineered product that needs to be professionally produced and placed. Demand for concrete is growing and in many commercial and residential situations, it is no longer simply a hidden part of the structure of a building but an exposed and essential part of the design. If it isn't perfectly placed and finished, flaws and cracks will be visible.

Of course, we already have many skilled people in our industry but what we are looking for now is a culture change that sees those skills recognised with formal qualifications. These qualifications target both young people entering the industry who will undertake an apprenticeship, and those highly skilled people who already have years of experience

The BCITO has developed a Recognition of Current Competency policy so that those who already have skills can be assessed and awarded qualifications that recognise their competency.

The four National Certificates cover Sitework, Precast Concrete, Ready-Mixed Concrete and Placing and Finishing. Each certificate takes around 24 months to complete and is made up of a number of compulsory and optional unit standards or learning modules.

As we haven't had particularly good uptake of these courses so far, we have negotiated a limited credit package with the BCITO. This means that people can just sign on for a unit or two that interests them, rather than committing to the full two-year course.

I think this is a great initiative because it allows people to try a small component of the course and see how they like it. All of these unit standards are national qualifications, recognised and registered under the New Zealand Qualifications Authority. So even if someone enrols for and completes a limited credit package they will get a recognised qualification credit.

People joining the cement and concrete industry are learning on the job – this programme allows people to get a formal qualification by completing an apprenticeship in our industry. That's got to be good. And it's good on several levels. It's good for the self-esteem of workers; it's good for workers looking to change jobs; it's good for employers who will know that people coming to them with qualifications have a high degree of knowledge and experience; and it's good for the cement and concrete industry as a whole, which will benefit from having a workforce with nationally recognised qualifications.

New Zealand wants assurance about the quality of construction in this country. Qualifications help provide that assurance.

I urge everyone to look at these courses. Let's see our industry open its mind to the benefits of formal qualifications.

If you want more information about these courses, phone 0800 4BCITO or contact your nearest BCITO office.

Savings Account

Research at Lincoln University into energy use in comparable high and low mass homes is providing hard facts to back claims concrete homes are more energy efficient than their timber equivalents.

The research, which is jointly funded by CCANZ and the Building Research Levy, shows a high mass house produces energy savings in excess of 15% on an annual basis over its low mass equivalent when both are insulated to the same level.

Following earlier trials, the neighbouring test houses – one constructed using exterior insulated concrete panels and the other timber framed – were modified with a larger north-facing window with a moveable shade that could be closed when ventilation alone could not stop overheating.

As a result, the amount of solar energy entering the buildings was increased, but was used more effectively only by the concrete home. In earlier trials overheating – which delayed and reduced the need for subsequent heating – gave a particular advantage to the timber building, which overheated more than its concrete counterpart.

Other data demonstrating concrete's ability to smooth out temperature swings and provide a comfortable environment included:

- Mean night-time winter temperature in the concrete building was 1°C warmer than in the timber building.
- On a cold morning (2.3°C) with no heating on, minimum temperatures were 15.6°C (concrete) and 12.8°C (timber).
- With ambient air temperature at 30°C , the temperature in the timber building was 30.9°C and in the concrete home 25.8°C.
- The concrete building never overheated, while the timber building exceeded 30°C for 10 hours over the test period.

"As is demonstrated by these findings, when designed to maximise passive solar gain high mass houses can be shown to be extremely energy efficient," says Chris Munn of CCANZ.

Concrete Design Standard Update

Progress is being made on the proposed revision of NZS 3101, the Concrete Design Standard, which is expected to be completed in December 2004.

In November Dene Cook made presentations to the Auckland, Canterbury and Wellington structural groups on the proposed revision. The presentation was an opportunity for interested parties to provide direction and comment on the re-write of this extremely important Standard, and over 40 submissions have been received. If you wish to provide comment on this Standard, either contact the chairman, Dene Cook, at dene@cca.org.nz, or contact Standards New Zealand for a copy of the questionnaire.

The NZS-3101 head committee, which will be responsible for the content of the proposed Concrete Design Standard, had its first meeting was scheduled for March 12 and 13. (A standard committee needs to represent a cross section of the industry that is affected by the document, and to achieve good representation Standards NZ approaches organisations for nominations. The committee may also co-opt people who have a considerable contribution to make.)

The committee for the NZS 3101 re-write (and their nominating organisations):
Dene Cook (Chairman) - Cement & Concrete Association
Derek Chisholm - BRANZ
Len McSaveney - NZ Concrete Society
Bob Park - Co-opted
Les Meggett - University of Auckland
Peter Attwood - NZ Contractors Federation
John Mander - University of Canterbury
Ashley Smith - Structural Engineering Society
Keith Towl - Business NZ
Don Kirkcaldie - IPENZ
Richard Fenwick - Co-opted

Top Level

The best concrete structures in the UK were honoured at the 34th annual Concrete Society Awards in London at the end of last year. The overall winner was the Royal College of Obstetricians and Gynaecologists Education Centre, built underground at its headquarters in Sussex Place, London, designed by Nicholas Hare Architects. The Civil Engineering Winner was Medway Viaduct, part of the Channel Tunnel Rail Link near Rochester, Kent (Rail Link Engineering Consortium); and the Building Winner, Millennium Galleries in Sheffield, designed by PRS Architects.

Millennium Galleries

Factors taken into account by the judges – Kathy Calverley, immediate past president of the Concrete Society, Dr John Newman, president of the Concrete Society, Paul Hyett, president of the Royal Institute of British Architects, Mark Whitby, president of the Institute of Civil Engineers, and Dr David Blockley, president of the Institution of Structural Engineers – included functional stability, appearance, relationship with surrounding environment, and value for money.


RCOG Education Centre

The judges made the following comments about the overall winner: "The subterranean construction provides a pleasing environment in which highly complex architectural, structural and service requirements have been fused. The


Medway Viaduct

end result is simple and highly successful. Precast and in-situ concrete is visible throughout the structure playing an aesthetic role. This is a delightful building, brilliantly executed and without pretension or fuss. It makes good use of the available space, and concrete was the natural choice of construction material."

Global View

Thanks to his Kiwi wife Carolyn, Scotsman Alan Kirby has grounded a globe-trotting career in New Zealand. A civil engineer who has worked on some of the world's largest construction projects in the Middle East, Asia, Europe, and the Pacific, Alan recently joined CCANZ as a Project Manager in the Wellington office.

Initially brought to New Zealand to work on the Clyde Dam, Alan's role in such projects focused on the quality and production of materials on site: choosing the right aggregate; making sure mixes were correct; checking all was well with supply and placement.

His career began in the laboratory, testing materials used for roads and bridges in the UK. This sparked an interest in engineering and in the material involved in most of these projects – concrete. Alan decided to specialise in this area, and went on to study engineering at Paisley University.

Practical experience made him a good job prospect, and immediately after graduation he found himself working on what was the biggest construction project in the world at the time. Jubail Industrial City was built from nothing in the middle of the desert – power plants, steel plants, petro-chemical plants and appurtenant infrastructure, "literally hundreds of multi-million dollar jobs going on simultaneously" – in a fascinating juxtaposition of the old and new Middle East. At the end of this stint, he joined German firm Zublin and was assigned to North Borneo on a petro-chemical/power plant project. As on the Jubail job, much of what was under construction was in concrete.

When Zublin won the contract to build the Clyde Dam in the 1980s, Central Otago became Alan's next stop. It was something of a lifestyle shock, he says, but nothing compared to what he encountered when he moved on again – five years later – to Taipei in Taiwan.

"As soon as you came out of the drive in Taipei there was a traffic light; in Central you had to drive to 2½ hours to Invercargill to find one. I used to drive 12 km in Taipei to get to work and it was gridlock all the way. After hardly seeing a car in Central, it was quite a contrast."

Planning for a section of a massive dam in China, while working from Zublin's office in Germany, was his next project. It was so big "there was more concrete in the intake structure than there was in the whole of the Clyde Dam."

By 1994 he and his wife returned to New Zealand, where they established an importing business. But Alan missed construction, and when the Second Manapouri Tail Race Tunnel project started a few years later, the family relocated to Te Anau.

Manapouri was, he says, "massive, extraordinary construction" – a 10 m diameter tunnel driven for 9.7 km through very hard rock in Fiordland National Park – with Alan's focus on the quality assurance of concrete, shotcrete and rock bolts.

The principles in his work were the same, he says, in Taiwan or Te Anau, but there were specific issues in each location.

In the Middle East, for example, aggregates are contaminated by sulphates and chlorides, which are detrimental to concrete. In Central Otago, some poor quality aggregates, which broke down during handling and processing, caused problems.

With the Tail Race project complete last year, the role at CCANZ appealed as a chance to consolidate in this country. His three children, aged six, 10 and 12, mean moving offshore is no longer such an attractive prospect. And, most importantly, Alan says, he "likes what CCANZ is doing."

His role as project manager will focus on the promotion of concrete, cement and cement-bound materials to the construction industry in New Zealand.

He is currently researching and developing strategies on concrete alternatives to structural steel in commercial and commercial high rise construction. This project, which is expected to run over the next year, will incorporate a study of what strategies have worked for the concrete industry in other countries.

Alan is also ready and willing to answer technical queries. His extensive experience with concrete includes sampling and testing, quality control/assurance, mix design, mass concrete, pavement quality concrete, wet and dry shotcrete, lean cement-bound materials for sub-bases and roadbases, no-fines concrete, precast and ready-mix concrete.

Alan can be contacted on alan@cca.org.nz or (04) 915-0387.

Cook's Clinic...

Joints in Slabs

In the last issue of *concrete* we answered common questions about saw cuts and promised to explore the subject further in the next issue. So this month we're again looking at joints in slabs, and, as before, will explore the subject through answers to a series of questions.

What is an isolation joint?

An isolation joint is a joint where no tensile or compressive force can be transferred across the joint. In other words, the joint is free to open and close. The joint may or may not be doweled to assist shear transfer across the joint (more on this later).

Do I need expansion joints?

Yes. It is important to recognise that concrete expands on heating, and this expansion needs to be accommodated. It is not, however, typical for on-ground slabs to have joints that can accommodate expansion from day one. All joints open as shrinkage occurs, allowing some expansion to be accommodated. The norm would be to provide saw cuts and construction joints, which after some shrinkage can accommodate expansion of the concrete.

Concrete roads are essentially on-ground slabs that are exposed to the elements. The design philosophy for jointed pavements is as described above, and excellent performance is achieved.

Expansion joints that allow expansion from an early age will be required when using expansive cements, or for elevated structures exposed to the elements such as bridges and upper floors of car parking buildings.

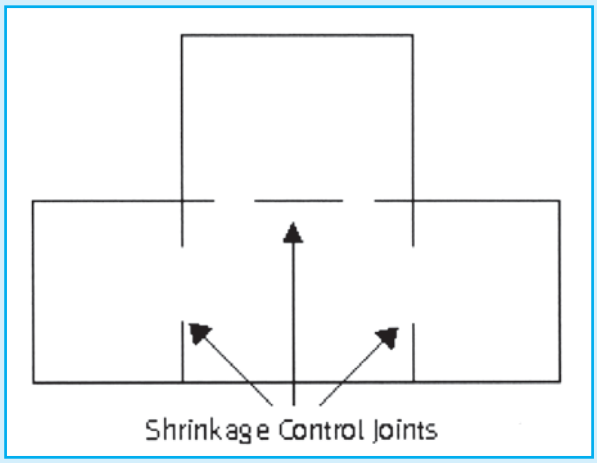

Figure 1: layout of saw cuts and re-entrant corners.

How should I lay out my joints?

Sensible layout of the joints will greatly reduce the chance of unwanted random cracking. Given its importance, the layout of joints should be shown on the drawings.

When planning the joint layout, first look for re-entrant corners. These represent stress raisers, and are the most common position for cracks to propagate from. It is almost possible to provide a guarantee that a crack will form at this location so ignore them at your peril. Figure 1 shows a sensible layout for a re-entrant corner.

Think carefully about penetrations and box-outs. If square, these can create sharp re-entrant corners that trigger cracks. I recently visited a project where approximately 1 m sq box-outs had been provided in the floor slab, which were subsequently filled with concrete that was shaped to form the bottom of a shower cubicle. At the corner of nearly every box-out a crack had formed and radiated out into the slab. The same can occur at box-outs around columns and penetration.

Should I dowel an isolation joint?

The benefits of an isolation joint are:

- You may be able to reduce the floor thickness as load is transferred across the joint.
- The risk of creating a step between adjacent slabs due to differential warping is eliminated.

For trafficked joints, particularly when forklifts are involved, it is highly desirable to dowel the isolation joints.

Should I armour the edge of the joint?

Tied joints, such as saw cuts, are not normally armoured along their edge. The reinforcement that ties the joint typically prevents it from opening up. Sufficient durability can normally be achieved by the use of concrete with an appropriate compressive strength.

At isolation joints, the joint will open up as the concrete shrinks. Where the joint is trafficked, particularly with solid-tyred forklifts, it is sensible to provide some armouring to the edge of the joint. This is typically achieved by using angles cast into the concrete or by using proprietary systems that incorporate steel plates.

Where can I get more information?

CCANZ has produced two floor design guides that are an excellent source of more detailed information.

Concrete Ground Floors and Pavements for Commercial and Industrial Use Part 1 provides detailed information on the location and spacing of joints. The companion document, *Part 2*, provides information on how to calculate the thickness of a floor slab incorporating dowels.

On the Road: NSW

In late February a team from New Zealand visited New South Wales to learn from the Australians' experience in constructing concrete roads. The New Zealand team comprised Dene Cook, Cement and Concrete Association; Brett Morris, Golden Bay Cement; Shane Coutts, Holcim Cement; Andrew Dallas, Allied Concrete; and Alan Ladlow, Works Infrastructure NZ.

There were approximately 35 people on the trip, including representatives from the RTA, Mainroads, contractors and cement companies.

The tour began in Coffs Harbour and travelled down to Sydney, looking at many projects of interest – both good and bad – on the way. The overall impression was, says Dene Cook, that – given an understanding of the important issues – it is possible to construct extremely low maintenance concrete roads. The Clybucca Stage 1 pavement, for example, is a continuously reinforced concrete pavement that was constructed in 1976. Its performance has been so good that not a single dollar has been spent on maintenance of the pavement since its construction.

The tour's 20 projects included the West Charlestown Bypass, which incorporated some beautiful precast noise panels. Motifs of birds and goanna on the panels give the impression they are moving when viewed at normal traffic speed.

Other highlights included viewing the successful exposed aggregate trial constructed by Abigroup, and inspection of the construction of an incrementally launched bridge at the Karuah bypass.

"From a New Zealand viewpoint", says Dene, "it was pleasing to know that real expertise and experience in the construction of concrete roads is available just across the Tasman."

Project Freeflow

A total of 10,000 m^3 of concrete is being supplied by Firth Certified for the first of the Auckland motorway upgrade projects known as Project Freeflow. Concrete-intensive aspects of the work, which involves the reconstruction of the Grafton Gully links to the Auckland motorway network, include the Grafton Road bridge, the replacement rail bridge at the bottom of Parnell Rise, a large stormwater tank, and concrete for piling and precasting.

There has also been a significant amount of site concrete and construction of traffic management structures.

A standard 30 MPa/19 mm structural mix has generally been used, with Microsilica 600 specified for extra strength on the Grafton Road bridge deck.

NZSEE Conference

The 7th Pacific Conference, an event organised by the NZ Society for Earthquake Engineering, was held in Christchurch in mid-February. This conference draws researchers, engineers and seismologists from around the world, and over 100 papers were presented during the three days. Many of the papers focused on reinforced concrete design, the properties of reinforced concrete, and structural design and analysis.

The Pacific Conference occurs every four years and is normally held at a Pacific Rim country. Many New Zealand engineers and researchers grabbed the opportunity to attend the Conference without the cost burden of overseas travel.

The keynote speakers included:

- Professor John Mander, University of Canterbury
- Chris Poland, EERI President
- Emeritus Professor Arthur Heidebrecht
- Associate Professor Mike Griffith
- Dr Graham Shorten.

The list of papers presented can be viewed at and ordered from www.civil.canterbury.ac.nz/pcee/proc .

In Memoriam

American concrete guru Dr Bryant Mather, described as "one of the true giants of concrete" by *Concrete Construction* magazine, died last December aged 85. Dr Mather resigned as Director of the Structures Laboratory of the US Army Corps of Engineers in 2000, but served as Director Emeritus until his death, continuing to participate in technical societies and writing technical papers.

One of the world's foremost experts on concrete, Mather was renowned for his probing questioning and "consistency in addressing all technical issues over the years", said ACI President Terry Holland.

He first worked as a geologist and later as an engineer, and throughout his career specialised in concrete research. His first assignment was with the Central Concrete Laboratory at the U.S. Military Academy at West Point, N.Y, and he remained an employee of the Engineers Corps throughout his career.

An honorary member and past president of both the American Concrete Institute and the American Society for Testing and Materials, he was also an emeritus member of the American Society of Civil Engineers ("for outstanding contributions to understanding of concrete durability and the use of mineral admixtures, and for worldwide leadership in concrete research and practice"), received numerous scientific and engineering awards and honours from professional organisations throughout his career, and authored or co-authored almost 800 technical reports and professional papers.

ICF Growth in US

The use of insulating concrete forms (ICFs) in the US residential market increased 21% in 2001, and accounted for 2.7% of all above-grade homes according to the National Association of Home Builders and the Portland Cement Association. This was the third year of significant growth in the use of insulating concrete forms (which accounted for 1.2% of the market in 1999 and 2.1% in 2000). The increase is attributed to the solid construction, energy efficient properties and low maintenance offered by ICF systems.

On Campus

Concrete Performance

Over the past few months a number of you will have met **James Mackechnie**, CCANZ Fellow at the School of Engineering at Canterbury University. James gave papers at both the Concrete Society Conference and the Ready Mix Conference demonstrating that structural concrete can be measured in terms of several performance parameters – not just strength. "The Concrete Society Conference paper dealt with drying shrinkage of concrete made with NZ aggregates. The second presentation to the Readymix Association dealt more with the general performance of concrete around the South Island," says James.

James is currently involved with several new research projects in the concrete material and technology field: looking at the fracture energy of NZ concrete, durability of concrete repairs, chloride resistance of concrete, and recycled wash water in concrete.

Paulay and Park Recognised

A symposium to celebrate the lifetime contributions of Tom Paulay and Bob Park, both Emeritus Professors in the Department of Civil Engineering at Canterbury University, is to be held in Christchurch on Friday 11 July 2003.

This year marks significant birthdays for these two internationally renowned earthquake engineers – Tom Paulay turns 80 and Bob Park will be 70 – and the symposium and gala dinner function are to be held in recognition of their achievements.

For many decades, they have been at the forefront of international developments in earthquake engineering and their team at the University of Canterbury, including Nigel Priestley and many others over the years, has led to major advances in the design of reinforced concrete structures around the world.

The event will comprise a one-day technical symposium on Seismic Design of Reinforced Concrete Structures, where presentations will be given by internationally recognized graduates from the University of Canterbury programme; a gala birthday dinner on the evening of 11 July; and an informal morning tea on Saturday 12 July followed by guided tours of the Civil Engineering laboratories at the University of Canterbury. Symposium speakers will include Michael Collins (University of Toronto), Max Irvine (Structural Mechanics and Dynamics, Sydney), Joe Maffei (Rutherford and Chekene, San Francisco), Len McSaveney (Golden Bay Cement) and Rob Jury (Beca Consultants, Wellington).

The Department of Civil Engineering at the University of Canterbury will host the event (visit www.civil.canterbury.ac.nz/events/pandp.html for a registration form and more information), with assistance from the New Zealand Society for Earthquake Engineering, SESOC, New Zealand Concrete Society and the Canterbury Structural Group. Sponsorship is being provided by Golden Bay Cement, Holcim Cement and EQC.

Registration for this not-to-be missed event closes on 31 May.

Above and below, student projects from the VUW School of Architecture.

Acceptable Solutions

CCANZ Fellow at Victoria University **Morten Gjerde** is delighted to report that the BIA wants to include details for concrete masonry in its Acceptable Solutions for Weathertightness Appendix to the Building Act. The details were developed by Gjerde during a research programme supported by the NZCMA.

Students visit Stresscrete.

Morten has several concrete-oriented field trips planned for his architecture students during the first term. First up, a trip to Stresscrete ("who are very generous with their time") at Otaki will be complemented by a site visit to the new Firth show home designed by Raumati architect Peter Davis. (Firth reports a strong interest in concrete construction on the Kapiti Coast; with the Masonry Villa show home still under construction, builders All Style Construction have already been commissioned to build a number of other similar homes in the area.)

And Morten will again be asking the concrete industry to provide materials for the students to use in projects. "The concrete industry has been very supportive of this initiative in the past," says Morten , "and we hope they will do so again."

NEWS from the ASSOCIATIONS

CONTACTS:

New Zealand Ready Mixed Concrete Association
Ph (04) 499 8820, Fax (04) 499 7760
Executive Officer: David Gray
President: Kevin Mischewski

New Zealand Concrete Masonry Association
Ph (04) 499 8820, Fax (04) 499 7760
President: Alan Steel
www.nzcma.co.nz

New Zealand Master Concrete Placers' Association
Ph (04) 499 8820, Fax (04) 499 7760
Executive Officer: Craig Muir

Precast NZ Inc.
Ph (09) 636 0657, Fax (09) 634 3485
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Email info@bluepacificevents.com
Secretary/Manager: Allan Bluett
President: Derek Chisholm

DIARY:

April
Tues 1st — NZCMA meeting.
TBC — NZCS Precast Hollowcore Floor Slab Seminar, Christchurch/ Wellington/Rotorua/Auckland, exact dates and venues tbc.

May
Tues 6th — CCANZ Board Meeting, Wellington.
Wed 7th — NZRMCA Council Meeting, Christchurch.

July
TBC — NZCS Tilt-up: Commercial/ Industrial and Residential Seminar, Christchurch/Wellington/Rotorua/ Auckland, exact dates and venues tbc.

August
Tues 5th — CCANZ Board Meeting, Auckland.
Wed 6th — NZRMCA Council Meeting, Auckland.

September
12 -14 — NZRMCA Annual Conference 2003, Napier.

October
3 - 5 — NZCS Conference, Wairakei.

November
Tues 4th — CCANZ Board Meeting Christchurch.
Wed 5th — NZRMCA Council Meeting Wellington.
TBC — NZCS Concrete Durability and Specification Seminar, Christchurch/Wellington/Rotorua/ Auckland, exact dates and venues tbc.

2004
September
16-19 — Combined Concrete Industry Conference, Queenstown.

New Publications — NZCMA

The *Best Practice Paving Laying Guide* is now available for all CMA members. *A Detailing and Veneer Guide*, part of the *Masonry Manual*, is about to go to print.

Fellowship Applications — NZCS

Applications are invited for the New Zealand Concrete Society Study Fellowships.

- The New Zealand Concrete Society Study Fellowship will be presented to a student from a tertiary institution for the duration of an agreed course of post-graduate study on an agreed topic of interest to the Society.
- The duration of the Fellowship will normally be for a maximum of up to three years, but must be applied for on an annual basis.
- Applications will normally be called in March/April. Applications close on 30 April and the successful applicant will be advised no later than 31 May.
- Initially the Society will pay $1,000 per annum in four equal instalments.
- Conditions of the Study Fellowship are to be established on a case by case basis.

Please contact concrete@bluepacificevents.com for an application form or more information.

Construction Contracts Bill — PCNZ

A series of explanatory roadshows conducted by Peter Degerholm and Andrew Hazelton and presented in conjunction with the NZ Building Subcontractors Federation, have been well received by the construction industry around New Zealand. The roadshow was aimed at preparing specifiers, contractors and sub-contractors about the implications of the Act, which came into force on April 1.

Hollow Core Seating Project (Jeff Matthews PhD Project) — PCNZ

Precast New Zealand, CCANZ, McDowell bearing strip (Wilton Joubert Ltd) and the hollowcore manufacturers Stresscrete, Stahlton and Pre-Cast Components combined to provide funding for a Stage 2 series of tests aimed at improving the seating arrangement for the popular suspended hollow core flooring system. All tests of new improved seating details have been successfully carried out and Canterprise, the professional services arm of Canterbury University, has recently submitted a draft report to Precast NZ.

NZCS Conference 2003 — NZCS

The overall theme of this year's event, to be held at Wairakei from 3 to 5 October, is the aesthetics of concrete, however all aspects of concrete construction and associated technologies will be covered. Papers are being sought on associated subjects such as design trends, environmental issues, life cycle/energy, sound barriers/art work, bridges, weatherproofing/weathering, residential design, marketing opportunities, recent developments, new methodologies, and new issues for cement and concrete. The finalised conference programme will be circulated to the industry in May. Enquiries for trade display space (to concrete@bluepacificevents.com) are welcome.

CONCRETE PRIZES — NZCS

Concrete Prizes, given to encourage good practical design and use of concrete, have been awarded to the following students for 2002:

Victoria University of Wellington - Architecture	Anna Windsor
University of Canterbury - Engineering	Kathryn Robertson
University of Auckland - Architecture	David Hillier
University of Auckland - Engineering	Nicholas Brooke

Each student, who is recommended for the award by the head of their university department, receives a cheque to the value of $300, a certificate signed by the President of the Society and a year's complimentary student membership of the New Zealand Concrete Society. The Awards are normally given to students in their penultimate year of study, so that the money assists the funding of their final year.

CIA RESOURCES — NZCS

Standards Australia & CIA publications are now available to New Zealand Concrete Society members at CIA member prices. An order form can be obtained by contacting the Concrete Society.

PRECAST TRAINEES — PCNZ

There are currently 57 precast trainees. Northern Region, 17; Waikato/BOP, 18; Central North Island, 9; Central South Island, 3; Southern, 10.

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