



IN THIS ISSUE

• Message from the President	1	• CTV Building Update	9
• Around the Regions	2-3	• Damage Resistant Design Seminar	10
• Work Time Variation for Concrete Truck Drivers	4	• BCITO at a Glance	11
• Obituary: John O'Hagan	4	• Christchurch Police Station	
• 2012 NZ Concrete Conference - Register Now	5	• - Many Firsts for Concrete Community	12
• The Brian Hall Story (The Ready Mix Plant in Kaitia)	6	• Latimer Square - First On the Block	13
• Prenter's Ready Mixed Concrete	7	• The Most Important Stop of the Day	14
• New NZRMCA Website	7	• International Story - A Bespoke, Versatile Concrete Plant	15
• Photo Competition	8	• Key Dates	16
• New Innovation - Torojet	8	• Fun (Concrete) Fact	16

MESSAGE FROM THE PRESIDENT



Kia Ora Readymixers,

Welcome to the latest NZRMCA newsletter. While it has been some time since the last issue, I believe that the wait has been worthwhile.

The newsletter's revised format is complemented by an array of interesting articles. These include an update on the Royal Commission's CTV Building hearing and changes to the BCITO's qualifications structure - both topics of interest to the industry at the moment.

Along with the recurring regional updates, this issue also profiles several NZRMCA members, as well as looking at various Christchurch construction projects with an interesting ready mixed concrete aspect.

On behalf of the newsletter's editorial team I would like to thank those members who took the time to contribute to this issue. I also encourage other members to forward content if they have a ready mixed concrete story they would like to share. The participation of readers is key to this newsletter providing relevant information on industry developments.

I mentioned in my first President's column that the buzzword for my tenure would be "revitalisation", specifically as it relates to providing enhanced value for members. With you reading this revised newsletter, and the new NZRMCA website set to go live at the end

of October, I feel that from a members' communications perspective this is well on the way to being achieved.

The NZRMCA Council met last in late August to discuss a very full agenda. The NZTA approved work time variation for concrete truck drivers was a key point of discussion, particularly around clarification of the NZTA's criteria for granting the variation. See page 4 for further information.

The review of the Plant Audit Scheme was also covered. It was decided that CCANZ CEO Rob Gaimster will co-ordinate this project over the short term, with a particular emphasis on evaluating the scheme's efficiency and determining any potential gains that can be achieved through the adoption of online electronic systems.

With imported cement becoming more accessible the Council (in consultation with the NZRMCA Technical Committee) also sought to determine a position it can communicate to members for guidance in this area. Although yet to be finalised, this position will reiterate the compliance requirements of NZS 3104 and the need for a performance level that matches local cements as controlled by NZS 3122.

The Council also signed off the 2012-13 NZRMCA Business Plan, which outlines a range of activities (including supporting CCANZ) under the strategic themes of 'Training and Education', 'Membership Support', 'Quality' and 'Christchurch'.

Finally, the 2012 combined New Zealand Concrete Conference is being held at Claudelands Conference and Exhibition Centre in Hamilton from 11-13 October. As a member of the organising committee I can assure you that there is plenty on offer in terms of technical papers, networking opportunities and social functions for any ready mixers who attend.

The NZRMCA AGM will also take place at conference (Thursday, 11 October 5:00pm - 6:00pm). So, if I don't see you at a regional meeting over the next few months, I look forward to seeing you in Hamilton.

Jeff Burgess



AROUND THE REGIONS

NORTHERN REGION

By Maurie Hooper

The Northern region has held two meetings since last reporting. In late May the region's annual social get together with wives and partners was held at the very picturesque Duke of Marlborough Hotel in Russell. The meeting and dinner was well attended, with Adam Leach giving the CCANZ Report.

We also took the opportunity to make a presentation to an industry stalwart Brian Hall, who was involved in the construction of the very first ready mixed plant in Kaitia and still uses his testing skills today to assist a local company. See page 6 to learn more about Brian.

In August the Region met in Whangarei for its AGM. I was re-elected as Region Chair, with Cameron Greig of Peter Fell Ltd also re-elected as Secretary. The region is delighted to welcome Nick White of Firth Industries as Deputy Chair.

Despite poor weather the meeting was again well attended, with Adam Leach giving the CCANZ Report, Don McPike of Sika presenting a history of admixtures, and Cameron providing a background to coloured concrete.



The Duke of Marlborough was the scenic venue for the Northland Region's May 2012 meeting.

It was pleasing to see John Vuletich from Vuletich Construction Limited representing the Master Concrete Placers Association at both meetings.

General regional comments report slow sales and express concern that while there have been some recent projects that have helped, these are coming to an end, with very little known work ahead.

The Auckland Super City, led by its Mayor, has ambitious dreams, but the lower north (the old Rodney County) has received a very meagre roading budget based on population, not on need or asset value. Meanwhile the Kaipara District Council is seeking the assistance of a Government appointed caretaker as their debts are unable to be funded by ratepayers.

AUCKLAND REGION

By Scott Williams

The Auckland region's two most recent meetings have been held at what we are now calling our local meeting place. The Garrison Hotel in Sylvia Park is catering very nicely for us, and is proving a good location for most of our members to attend.

At the June meeting guest speaker Clive Pedersen from ASB bank spoke at length about the current market and financial state New Zealand, and the rest of the world, finds itself in. Clive's presentation was well received and a few members contacted him directly for copies and further resource material.

Jeff Burgess, NZRMCA President updated the meeting on issues before Council, while Adam Leach gave the CCANZ update. Dave Stewart from the Master Placers Association and Marty Black from the Concrete Pumping Association briefly addressed the meeting to summarise issues their sectors are faced with. Worthy of note is that the consultation period for the Good Practice Guide: Pumping Concrete has closed and the final document should be available soon.



Gez Johns, Communications Manager for the Waterview Tunnel Project, addressed the September 2012 Auckland Region meeting.

Attracting an attendance of around 30 the guest speaker at the September meeting was Gez Johns from the Well Connected Alliance, who gave a fascinating overview of the Waterview Tunnel project. Jeff and Adam once again presented an update on NZRMCA and CCANZ areas of activity respectively.

The meeting was also the region's AGM, with myself re-elected as Regional Chair and Don McPike continuing his role as Secretary.

Although the Waterview Tunnel Project has commenced, the Auckland Super City and Government have indicated that there will be no significant investment in new infrastructure over the coming 3-4 years. Residential house prices are being forced up due to the lack of supply. However, consent figures for new homes are trending upwards, and would seem to indicate that construction should increase dramatically in the not too distant future. Commercial and industrial sectors seem low to steady.

CENTRAL NORTH ISLAND REGION

By Jason Savage

The Central region met in late May at Hamilton's Kingsgate. Despite a modest attendance discussion around concrete pumping and bowl cleaning was lively. A direct outcome has been the addition of "safety" as a permanent agenda item for subsequent meetings.

Mike Eastwood gave a presentation on the Torojet bowl washing system, a product that has generated a healthy interest from ready mixers nationwide. See page 8 for a brief summary of the Torojet. Jeff Burgess, NZRMCA President, updated the meeting on issues before Council as well as CCANZ activities.



Neil Anderson (Chapman Tripp) and Jason Savage (Central North Island Chairman) at the August 2012 meeting held in Okoroire

AROUND THE REGIONS CONTINUED

CENTRAL NORTH ISLAND REGION CONTINUED

The August meeting was held in the idyllic rural setting of Okoroire (near Tirau) and was attended by close to 30 individuals. Neil Anderson of Chapman Tripp held everyone's attention as he summarised the Commerce Commission's policing of anti-competitive behaviour under the Commerce and Fair Trading Acts. Neil reminded everyone that the Commission sought to safe guard the interests of the consumer; and that operating in the construction industry and being involved with the NZRMCA came with a set of responsibilities around appropriate behaviour. For further information visit:

- Construction Industry Guidance
www.comcom.govt.nz/construction-sector
- Trade Associations Guidance
www.comcom.govt.nz/trade-associations

Adam Leach gave the CCANZ update, which included a short film on the ArchEng initiative, which is designed to foster collaboration between graduating architecture and engineering students.

There was general agreement that the prolonged period of wet weather was frustrating in terms of job deferment and also required extra vigilance from concrete truck drivers to combat the demanding driving conditions.

LOWER NORTH ISLAND REGION

By John Stewart

Two meetings have taken place in the Lower North Island region since the last newsletter; both in Palmerston North. In late June an excellent turn out of 27 individuals attended a meeting at the New Zealand Rugby Museum. Everyone enjoyed a guided tour of the exhibits which chronicled rugby's development on our shores since the late 1800s, and which brought back some fond and poignant memories from the 1960s, 70s and 80s.

The meeting was dominated by discussions around the issue of how ready mixed concrete companies should handle the issue of blow back from concrete pump operators. Concerns have been raised by ready mixers, particularly in the Wellington region, that the practice of accepting blow back from line and boom pumps poses a significant health and safety risk when pump operators climb the truck ladder while holding the pump line.

It was suggested NZRMCA produce a health and safety bulletin for industry-wide distribution.



The New Zealand Rugby Museum in Palmerston North was the venue for the June meeting of the Lower North Island region.

At the September meeting, held at the Chancellor Motor Lodge, Rob Gaimster gave the CCANZ update. An emphasis was placed on updating those in attendance on developments immediately following the conclusion of the Royal Commission's hearing into the CTV Building collapse. See page 9 for further information.

The meeting was the region's AGM, with myself re-elected as Regional Chair and Graeme Ransom re-elected as Secretary.

The Lower North Island region is still very much in recession mode, with the forward workload appearing light. The rural sector remains conservative in its spending, and continues to focus on debt reduction. However, a good season in terms of the weather and associated production may have a flow on effect for the local concrete industry. While the residential market has picked up a little, it is the wind farm market that is the notable standout. Mill Creek wind farm in Wellington has been given the green light, with work now underway on 29 turbine foundations.

SOUTH ISLAND REGION

By Brian Godfrey

The size of this region and the drive to ensure members are involved with the Association created an unusual situation this year. At successive, well attended meetings, held in Invercargill in March and Christchurch in July, there were no members present that had attended both meetings. Strategies are currently being examined to help overcome the geographical barriers that hinder regular attendance within the South Island region. One option canvassed thus far is a seminar or road show concept that would engage and unify the region on both a professional and fellowship level.

Jeff Burgess and Adam Leach attended both the Invercargill and Christchurch meetings, bringing attendees up-to-date with NZRMCA and CCANZ activities. Cliff Davis of Acrow Ltd briefed the Invercargill meeting on current developments in formwork.

The variation to driving hours negotiated by NZRMCA and CCANZ with the New Zealand Transport Agency (NZTA) has been embraced by the industry across the South Island, and was a topic of interest at both meetings. There has however, been several instances where applicants have been declined the variation, and the NZRMCA has approached the NZTA seeking clarification around its criteria.

Rex Williams, former Managing Director of Holcim (New Zealand) Ltd, was the guest speaker at the Christchurch meetings. In his role as a Government appointed Commissioner Rex briefed the meeting on the work of Environment Canterbury (ECAN) in the area of aggregate management and public transport proposals.

The Christchurch meeting was the region's AGM, and saw Harvey Tyler step down as Secretary to be replaced by Appie Boren of Sika. I would like to thank Harvey for all his hard work as Secretary, and wish him the very best in his future endeavours. I will continue in my role as Regional Chair.



Rex Williams (ECAN Commissioner) spoke at the July 18 Southern Region meeting in Christchurch



Image: Allied Concrete Ltd.

WORK TIME VARIATION FOR CONCRETE TRUCK DRIVERS

Working in consultation with the NZRMCA, the New Zealand Transport Agency (NZTA) has developed a generic work time variation for drivers of ready mixed concrete trucks (agitator trucks), undertaking time critical delivery of ready mixed concrete. The variation allows drivers who are approved by the NZTA to take more frequent but shorter rest breaks during a working day. It does not extend the number of hours available for work during a working day.

The variation applies to the drivers of agitator trucks used in a ready mixed concrete operation only. It does not apply to drivers of other vehicles that support the production or placement of ready mixed concrete, such as concrete pump trucks and trucks involved in the delivery of bulk cement or aggregate.

To summarise, under the variation, within any 'cumulative work day' a driver must be given the following rest breaks:

- After a maximum of 4 hours work – 15 minutes; and
- After a maximum 7 hours work and no more than 4 hours after the previous rest break – a further 15 minutes; and
- After a maximum of 10 hours work and no more than 4 hours after the previous rest break - a further 15 minutes; and
- After a maximum of 13 hours work – 10 hours

Rest breaks are not to be taken in a moving vehicle associated with work, and during a rest break the driver must not be involved in any loading/cleaning/unloading process or other activity related to the task.

The variation is based on research completed by TERNZ which suggests that the current work time requirement for drivers to have a 30 minute rest break after 5½ hours work is impeding the economic productivity of the industry. The ready mixed concrete industry has put a conservative annual cost on this of \$6 million. In addition, the research shows that short breaks, of 10 to 15 minutes, can be more beneficial for fatigue prevention than longer ones.

The variation is not available as of right; a written application has to be made to the NZTA. The NZTA will consider the application based on the information provided and other information it deems necessary to consider. This may include but is not limited to the driver's record (demerit points and disqualifications in a 5-year period), as well as the safety performance of the operator employing the drivers.

For more information, and an application form, visit the NZRMCA website – www.nzrmca.org.nz

OBITUARY: JOHN O'HAGAN



The Northern region has been saddened by the recent death of John O'Hagan, a long-serving and respected industry member.

John's involvement in the industry began when he worked for the Hamilton based company Ready Mix Concrete, which established a plant in Turangi during the mid-1960's.

John moved his family north in 1968 when Ready Mix Concrete opened a plant in Whangarei which he was asked to manage.

As the Northern region's inaugural president from 1978 until 1988 John was tireless, serving also as a National Council member during that period.

John's good humour, approachable manner and genuine passion for the ready mixed concrete industry will be greatly missed.



2012 NZ CONCRETE CONFERENCE - REGISTER NOW

This year's conference returns to its traditional three-day format (last year, a one-day conference was held in conjunction with the International HPC Symposium), with the format of plenary and parallel sessions of the Concrete Society and the NZRMCA.

Conference Organising Committee Chairman Carl Ashby says the conference allows all sectors of the industry to meet and discuss common issues, from the supply and placement of concrete at the building site through to the technical challenges of the design office and the requirements for code writing and University testing laboratories.

"It allows the NZ concrete industry to remain adaptable, motivated and responsive as an industry. I'm very excited by the conference programme.

"There's depth and balance of content across all sectors. More than 30 papers will be presented and they fall into several categories with considerable crossover - seismic performance, design, materials, construction projects, technology, and environmental standards."

The main keynote speaker, Chris Cable, will present a paper on "The Shard", a 310m tower being built in London which is set to become Europe's tallest building.

The NZRMCA AGM will be held 5.00pm – 6.00pm on Thursday 11 October.

The Conference offers two co-current NZRMCA sessions, containing a range of fascinating papers:

THURSDAY 11 OCTOBER - SESSION 2A

- Delayed Ettringite Formation in Cement Pastes Cured at Elevated Temperatures: Precast Concrete Implications (Daksh Baweja, Johnson Mak, Paul Thomas & Kirk Vessalas)
- 20 Rawene Avenue, Westmere, Auckland (Ross Bannan)
- Mix Design of Lightweight Self-Consolidating Concrete Using NZ Pumice (Jamal Almulla)
- Hydro Generation Schemes – Clear Water Hydro (Gary Willis)

FRIDAY 12 OCTOBER - SESSION 4A

- A Local Solution to a Local Problem: Beneficial Use of a Cementitious Byproduct (Harvey Tyler & Ajay Krishna)
- Greening the Concrete Construction Industry - More of a Marathon Than a Sprint Race (Chris Munn)
- Browns Road Overbridge: A Bigger Jigsaw Than Usual Solved Using SCC (Campbell Robertson & Alan Connolly)
- New Zealand Silo: Equipment and Industry Safety Standards (Laurie Porter, John McLachlan & Grant Honeycombe)

Once again the conference is being well supported by industry, with the following companies offering assistance. There will also be around 20 trade exhibitors.

Conference Patrons

- Golden Bay Cement
- Holcim (New Zealand) Ltd
- Pacific Steel Group
- Sika (NZ) Ltd

Conference Sponsors

- Building Chemical Supplies Ltd
- Firth Industries
- Gough Engineering
- Lesa Systems Ltd
- Opus International Consultants Ltd
- Technical Welding Services (1998) Ltd
- Winstone Aggregates

The conference is being held at one of the country's leading event facilities, the Claudelands Conference and Exhibition Centre in Hamilton from 11 to 13 October.

For more information and to register, visit www.theconcreteconference.co.nz



Brian Hall and Maurie Hooper at the recent Northern region meeting in Whangarei

A HISTORY – THE KAITAIA READY MIX PLANT

Written by Brian Hall

Ex-NZRMCA President and Northern Region Chairman

The Kaitaia Ready Mix concrete plant was built originally for Mr Joe Clough, who also had a concrete works in Jamieson Street at the time. There were four shareholders - Bob Shaw, Bellingham Quarries, Worth & Webber Builders and Joe Clough. The plant was constructed by existing staff, including myself, and was completed in 1965 at Dunn Street.

Staff also built two bulk cement silos, one 40 tonne, the other 12 tonne, along with two containers used to transport bulk cement from Whangarei.

At the time we started to produce ready mix, bulk cement was railed to Okaihau. There New Zealand Rail (NZR) supplied a compressor to blow the cement from their bulk containers. Kaitaia Ready Mix had purchased a new 9 tonne trailer. However, this proved too small as when we were busy we would run out before the truck would get back. We built bigger units and then later NZR ceased to oppose the 40 mile rail exemption application limits, and we were able to cart direct from Portland.

At a later date Stresscrete became involved, and a plant was built to produce bridge decks, piles, hollow core slabs, I beams, and Unispan floor slabs. Power Poles were also made, 30 and 40 footers.

I was asked to take on running the Ready Mix Plant and this involved attending a six week course at Masterton Ready Mix. The plant was owned by Tom Hallena, who was at the time manufacturing with hydraulically operated, truck mounted 3 and 4 cubic yard mixers. We had two of these and while they were quite good, we found it necessary to fit auxiliary motors as too much horse power was taken from the trucks.

Around 1980 several shareholders sold their shares to Shaw, Bellingham and Clough. By this time any concrete products were made with concrete from the Dunn Street rather than Jamieson Street plant. A machine to spin reinforced concrete pipes was built by company staff - a

real masterpiece, capable of making 6 inch to 36 inch piles. A machine to make 4 inch to 24 inch 'rota pack pipes' was also installed.

Around 1984 Joe Clough sold his shares to Busk Concrete Whangarei, and the old block machine was promptly pulled out. Chris Busk became involved in the overall affairs of the plant, although Bob Shaw was manager. Chris was a very clever man, and came up with some very good ideas to improve the ready mix plant.

We had decided that we should go for a plant grading, and with some assistance from John Ramsey in Whangarei this was achieved in 1986. In 1987 I was encouraged by Chris Busk to sit for my R.E.A and was successful in this. I also applied for membership as an associate to the Institute of Engineers.

In 1988 Bob Shaw and Don Bellingham purchased Busks' shares, and it was at this time Northern Pulp commenced building the Pulp Board Factory in Kaitaia. This was taken over by Juken Nisho, with Downers assuming the contract to carry on the build.

The ready mix plant, with only 3 trucks, did over 10,000 cubic metres over a number of years for this project. It was definitely a case of "where there is a will there is a way".

It was around 1990 that Firth purchased the business, including all the various operations, including precast. Bob Shaw carried on as manager for several years, while I stayed on to manage the ready mix operation for about another year.

The only product manufactured at the upgraded site now is the ready mix. The plant rebuild was badly needed, as while it had done a wonderful job, it had out lived its usefulness.

Note from Maurie Hooper: In June 1966 Brian attended, on behalf of Kaitaia Ready-mix Concrete, what probably was the first training course promoted by the NZRMCA. It was held in Hamilton and conducted by the late Martin Glew. There were 24 participants from all over the North Island.



Steve Prenter (left) with plant supervisor Peter Longstaff outside the new Prenter's plant which opened in July 2011



Prenter's plant on opening day in 1968
An Albion and International Leyland truck are featured

PRENTER'S READY MIXED CONCRETE

The distinctive red and yellow trucks of Prenter's Ready Mixed Concrete have been a feature of Dannevirke roads and the surrounding Tararua district since 1969. The trucks are hard to miss on the road, and Prenter's recently commissioned concrete plant is now also resplendent in the bright red and yellow colours. The efficient new plant which produces 45 cubic metres per hour; replaces the old plant built in 1969 by Prenter's engineering staff.

Prenter's Ready Mixed Concrete is a family business and is very much a part of the fabric of the Dannevirke community and that of the Tararua region it services. Co-owner and Manager Steve Prenter says Prenter's Ready Mixed Concrete has constructed so much of the region over so many years - from bridges, commercial operations, retail and residential builds. In fact, Prenter's was involved in the reconstruction of much of the town centre after the devastating 1993 Mother's Day earthquake which saw Dannevirke bear the brunt of a 6.3 earthquake. As they are a part of a rural community, Prenter's has always been heavily involved in the construction of farms, and of late many dairy conversions.

One of Prenter's largest ever jobs was the supply of concrete for the construction of the Oringi freezing works located south of Dannevirke. The project was managed by head contractors McMillan & Lockwood and Morris & Bailey, and was constructed in 1980/81. "They built large (meat works) in those days," says Steve, who also recalls that Prenter's supplied in the vicinity of 7,000 cubic yards of concrete to the job.

Prenter's Ready Mixed Concrete was started by Steve's father Harvey as part of a wider contracting and aggregates business in the area. The business today has nine staff, with many long serving, including Keith Benbow who has 36 years in the business. Prenter's also operates a quarry as a part of the business with six staff. In 2000, part of the Prenter's business was purchased by Higgins Group Holdings Limited.

Today, with a fleet of 8 concrete trucks, dedicated staff and a brand new concrete plant, Prenter's is ready and committed to another 40 years in the Tararua region.

NEW NZRMCA WEBSITE

In addition to looking slightly tired, the existing NZRMCA website is struggling to meet the needs of the Association's members across a range of criteria. The task of maintaining the website is also cumbersome, and a barrier to uploading current content.

To address these issues Orcas Technology, a Wellington based web development company, has been commissioned to update the website into a resource more aligned to the Association's objectives of growing and protecting the interests of the ready mixed concrete industry.

Specific enhancements will be an aesthetic that complements the

revised newsletter; a refined page structure, links to a wider range of content, and a content management module designed to streamline maintenance.

It is anticipated that the website will go live at the end of October 2012.





ARE THESE THE BEST PHOTOGRAPHS TAKEN OF A READY MIXED CONCRETE TRUCK IN NEW ZEALAND?

Image: Firth Industries Ltd

PHOTO COMPETITION

If you have a stunning image of a ready mixed concrete truck in action, and would like to share it with the readers, as well as be into win a \$50 New World voucher, send a high-resolution image to adam@ccanz.org.nz.

Terms & Conditions

Entry into this competition is deemed acceptance of the Terms and Conditions. Photographers retain the copyright to their photos. The competition is open to any sector of the ready mixed concrete industry. Photos must be the property of the Entrant. Entries close Friday 16 November 2012. The judging panel will be as independent as feasible. The winner will be notified by telephone or email. The winner consents to their name, company and photo being used for public relations purposes relating to this competition. The winner should allow 14 days from draw for prize delivery.

NEW INNOVATION – TOROJET

Introduced by Jason Savage, Central North Island Region Chair

Torojet is a new automated cleaning and inspection system for ready mix concrete truck agitators, developed in New Zealand.

It has been designed specifically to prevent concrete build-up, eliminate or minimise the risks to operators during inspection or corrective maintenance procedures, and significantly reduce general maintenance. Torojet can prevent injury, minimise environmental impact, save labour, reduce bowl wear and improve truck efficiency.

An electrically driven probe automatically enters the rotating truck bowl, spraying high pressure recycled wash water at areas where concrete is likely to accumulate.

Torojet also operates as a remote inspection system with a high definition camera attached to the probe to perform a quick, easy and thorough bowl inspection.

A two-pass cleaning cycle takes approximately ten minutes to complete. An inspection cycle takes about five minutes to set-up and each truck bowl inspection takes five minutes to complete. A trial of working



Torojet allows for automated bowl cleaning

trucks over 6 months showed that conventional washing was not able to prevent significant concrete accumulation. The trucks that used Torojet over the same period prevented concrete build-up to maintain a clean bowl. The Torojet serviced trucks have remained clean for over 16 months. The makers of Torojet claim that their product keeps a concrete truck bowl cleaner, for longer.

For more information go to: www.torojet.com

ROYAL COMMISSION – CTV BUILDING HEARING

The Canterbury Earthquakes Royal Commission recently completed its hearing into the collapse of the CTV Building during the February 2011 earthquake.

As summarised below, this hearing was of particular interest to the New Zealand ready mixed concrete industry as questions had been raised about the quality of concrete used to construct the building.

BACKGROUND

Located on the corner of Cashel and Madras Streets in Christchurch, the CTV building collapsed during the magnitude 6.3 earthquake that struck the Canterbury region at 12:51 pm on Tuesday, 22 February 2011. 115 people lost their lives, more than half of the earthquake's total fatalities.

DBH TECHNICAL INVESTIGATION

The Royal Commission instructed the Department of Building and Housing (DBH) to conduct a "technical investigation" into the four relatively modern multi-story buildings in the central business district that suffered serious structural failures – including the CTV Building.

The CTV Building specific results of this investigation were presented to the Royal Commission in February 2012, and consisted of the following reports:

- CTV Site Examination and Materials Tests Report by Hyland Fatigue + Earthquake Engineering
- CTV Building Collapse Investigation Report by Hyland Fatigue + Earthquake Engineering/StructureSmith

These reports identified three primary factors that contributed (or may have contributed) to the CTV Building collapse:

1. Higher than expected horizontal ground motions
2. Exceptionally high vertical ground motions
3. Lack of ductile detailing of reinforcing steel in all columns

Amongst a range of secondary factors that contributed (or may have contributed) to the CTV Building collapse the reports also identified:

4. Low concrete strengths in critical columns

CCANZ SUBMISSION

After close analysis CCANZ identified a range of shortcomings in the report's concrete core extraction, testing and interpretation procedures. In summary, CCANZ raised questions in relation to:

- Currency and relevance of testing Standards used
- Clarification of testing objectives
- Core number; ratio, location and strength
- Distressed and fire damaged concrete tested
- Incorrect application of concrete aging
- Schmidt Hammer tests – number / poor sample

CCANZ forwarded its concerns to the Royal Commission and requested an oral hearing. This was granted, and CCANZ CEO Rob Gaimster was scheduled to appear before the Royal Commission in mid-August as part of a two-day session dedicated to concrete.

PANEL DISCUSSION

The Royal Commission decided however, that a panel discussion was more appropriate than two-days of presentations. The panel was comprised of representatives of the DBH commissioned reports and the CTV building designer Alan Reay. The Royal Commission's independent peer reviewer was also be present, along Rob Gaimster.

The discussion was lively, but at 90 minutes, very short. The overall thrust of the discussion was to question the findings of the CTV Site Examination and Materials Tests report. The brevity of the panel discussion is perhaps an indication of the level of importance the Royal Commission is placing on the issue of concrete quality.

PRELIMINARY OUTCOMES

The concrete issue received virtually no coverage in the media, other than the occasional mention that the panel discussion took place.

The Royal Commission has recently released Part 1 of its Final Report – consisting of three volumes:

1. Summary and Recommendations in Volumes 1-3, Seismicity, Soils and the Seismic Design of Buildings
2. The Performance of Christchurch CBD Buildings
3. Low-Damage Building Technologies

There are no recommendations in these reports that directly relate to ready mixed concrete.

MOVING FORWARD

The Royal Commission will deliver Part 2 of its Final Report to the Governor-General on 12 November 2012, which will most likely be publicly released in early 2013.

CCANZ will continue to monitor developments, including media coverage, in relation to the CTV Building collapse and implement communications strategies as appropriate.





Alistair Cattanch, Rob Gaimster, Stefano Pampanin, Andrew Charleson and Des Bull

DAMAGE RESISTANT DESIGN SEMINAR TIMELY AND WELL ATTENDED

Along with Precast NZ and Sika, CCANZ recently sponsored a nationwide New Zealand Concrete Society seminar series on the topic of low damage design.

Under the heading Damage Resistant Design – Conceptual Design & Practical Implementation the half-day seminar, endorsed by the New Zealand Society of Earthquake Engineering (NZSEE) and the Society of Structural Engineers (SESOC), discussed motivations, issues and cost-effective engineering solutions to help design reinforced concrete buildings capable of sustaining low-levels of damage, and in turn limit business interruption after a moderate to severe seismic event.

The presentations (listed) were based on real New Zealand applications and extensive research/ development of such building technologies, and incorporated conceptual design and detailing, including constructability and architectural aspects.

- Stefano Pampanin (University of Canterbury) - Re-visiting Performance-Based Seismic Design: Issues and Solutions
- Des Bull (Holmes Consulting) - Practical Aspects in Designing and Building a Low-Damage Seismic Resisting System
- Alistair Cattanch (Dunning Thornton) - The Importance of Conceptual Design and Detailing: Three Completed Buildings

- Andrew Charleson (Victoria University of Wellington) - Architectural Implications and Control of Non-Structural Damage

CCANZ CEO Rob Gaimster believes concrete's role in the inevitable advent of damage resistant design will be key to rebuilding a resilient Christchurch. "As seismic structural design advances toward building survivability, low damage buildings will become increasingly common," he says.

"Quality ready mixed concrete, certified under the plant audit scheme and other approval systems, will play a significant role in helping to realise these new structures, and in turn provide peace-of-mind for Christchurch as it continues to re-establish community and business continuity."

Those professional engineers and architects who attended the seminars were presented with copies of the CCANZ Concrete Futures DVD which tours a number of New Zealand buildings to demonstrate the advantages of damage resistant design using concrete systems.

If you would like a copy of the Concrete Futures DVD contact CCANZ – admin@ccanz.org.nz

BCITO AT A GLANCE

When it comes to training in our industry, most people have heard about the BCITO and have a broad understanding of our role. Here we delve into a bit more detail around what the BCITO is, what we do, and how this fits into the world of concrete.

Central to our role is engaging the building industry in New Zealand to create, promote and administer relevant qualifications which aim to lift skills standards and increase productivity.

The BCITO is also leading a national skills strategy which aims to lift productivity in the wider construction sector by 20 per cent by 2020. Training obviously becomes very important when increased productivity is the goal.

All this is done through the BCITO's managed apprenticeship programmes, where training occurs on site and is supplemented by some theory learning too. The BCITO develops the training programmes in consultation with industry advisory groups, and also produces resource materials and manuals. Around eighty five Training Advisors visit building sites across the country to ensure all is going to plan, and to conduct the apprentice's assessment in consultation with their employer.

The BCITO also manages apprenticeships for carpentry, tiling, frame and truss manufacturing, interior systems, exterior plastering, brick and block laying and masonry. The BCITO is therefore the largest construction-related industry training organisation in New Zealand, with over 5,500 apprentices as at August 2012. Nearly 300 apprentices are currently working towards BCITO concrete qualifications.

All qualifications are designed for both people who are just starting in the industry, or for those already working in it.

NATIONAL CERTIFICATE IN CONCRETE CORE SKILLS (LEVEL 2)

This base level programme is designed to be relevant to all sectors of the concrete industry. It also enables entry into any of the specialised Level 3 and 4 concrete qualifications, and offers some elective choices. Broadly speaking, the qualification covers areas such as materials and proper handling, tools, testing, health and safety, forklift driving and handling construction equipment.

NATIONAL CERTIFICATE IN CONCRETE PRODUCTION (LEVEL 3)

This qualification covers the core skills and knowledge of batching including hazard identification and safety, first aid, industry practices, concrete materials, use and maintenance of equipment, handling of orders and production of ready-mixed concrete and concrete testing. It builds on the National Certificate in Concrete Core Skills, and shares common content with other concrete qualifications, allowing skills to be transferred.

The BCITO also offer the following concrete qualifications:

- National Certificate in Concrete Product Manufacture (Masonry Product, Level 3)
- National Certificates in Concrete Construction (Placing and Finishing, Level 3) & (Sawing and Drilling, Level 3)
- National Certificate in Precast Concrete (Level 3)
- National Certificate in Concrete Construction (Level 4)

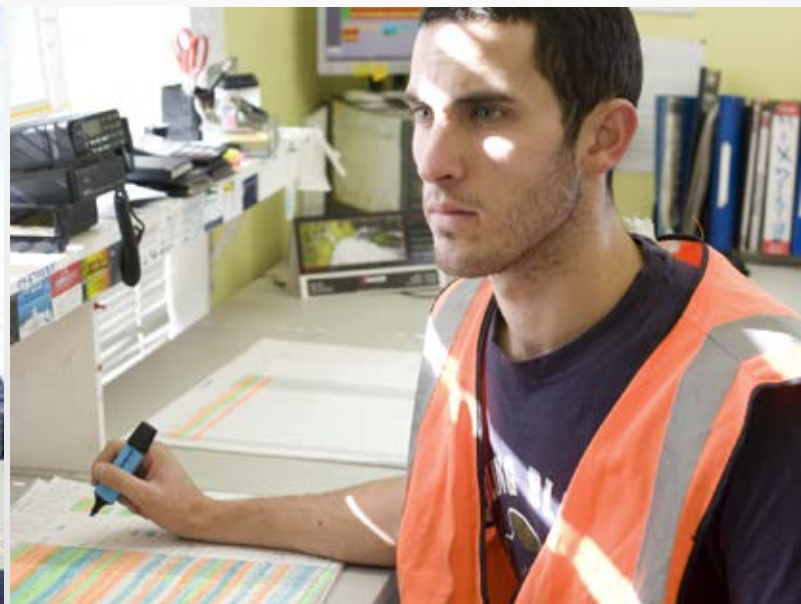
THE MANDATORY REVIEW OF QUALIFICATIONS

In 2009 the NZ Qualifications Authority (NZQA) decided that too many overlapping and possibly unnecessary qualifications and local courses had been developed and approved since the Qualifications Framework was established in 1991. NZQA ordered a complete overhaul entitled the Targeted Review of Qualifications (TRoQ).

As part of TRoQ a series of mandatory review processes has been directed. Along with all other trades the concrete qualifications are wrapped up in this review, which has been a heavy focus for the BCITO qualifications team over the past eighteen months. This has disrupted business as usual for the BCITO and has made it more difficult to implement upgrades to existing concrete qualifications.

Changes to the names and number of qualifications are likely as a result of the Government's review. However, the actual content will remain largely unchanged, and the apprenticeship training process is here to stay for the time being. Keep an ear to the ground as the BCITO will announce updates as required.

For any enquiries around BCITO qualifications, simply contact the BCITO on 0800 422 486. If necessary, a BCITO Training Advisor will meet with you to discuss your options.





MANY FIRSTS FOR CONCRETE COMMUNITY

A decision by Christchurch Police, in December 2011, to move out of their 40-year-old Hereford St building due to concerns another major earthquake would cut essential services, prompted work to begin on a temporary central police station at the corner of St Asaph and Antigua Streets.

The \$20 million project was to be completed by November 2012 but with potentially unstable/liquefiable land a concrete raft foundation floor was designed and required before construction of the new single level building could begin.

The 400mm-thick raft would be the primary ground stabilisation foundation for the new building meeting earthquake rating requirements. It would cover 8,300m² of the site and would be completed in two mammoth concrete pours.

"Due to the amount of concrete required for these pours it was decided by Apollo Projects Ltd, Project Managers for the build, that they would use the three main players in the concrete market in Christchurch to get this foundation poured over two pours – Firth, Allied Concrete and Christchurch Readymix," says Dominic Sutton, Chief Operating Officer (Southern) for Firth.

"With such a large footprint for this new temporary building and the tight programme of the project the pours were just too large for any one company to handle. So we approached the three main suppliers in Christchurch who were all happy to be involved," says Steve Hastie, Project Manager for Apollo Projects Ltd.

Both pours were major logistical exercises for all involved, with trucks from the three suppliers making multiple trips over several hours to deliver to the site. The first stage of the pour, about a third of the raft foundation, was for 1200m³ but it was the second pour at the end of June that was a "first" in many ways.

"Where else would you see rival companies standing side by side in a common cause – the rebuild of our city," adds Dominic. "As you can see by the photos it was an impressive sight and I am glad that Firth was a part of this historic day."

The second stage pour was believed to be the biggest single concrete pour on a conventional building site in the South Island and was completed over 10 hours. Starting at 1:40am a total of 348 truckloads of concrete carrying 2,096 m³ was delivered to the site.

"It was a remarkable couple of days and thanks to all involved it went exceptionally well," adds Steve.

The raft foundation is now destined to be buried, while the main concrete slab foundation for the building will be poured in September. Police staff are expected to be fully relocated to the new building by the end of the year.



Images: Stephen Dickens

THE LATIMER HOTEL – A CONCRETE SYMBOL OF RENEWAL

Emerging from the ground of Latimer Square in Christchurch is a building complex designed almost entirely around the benefits of concrete, from its foundations and frame through to its cladding.

Although the concrete elements of the old Latimer Hotel performed well during the earthquakes, damage to the lightweight structure and site subsidence meant the owners decided to demolish and rebuild.

Once complete the new Latimer Hotel will be comprised of 5 "Blocks", A through to E, arranged in such a way as to align with the urban design objectives of the Christchurch City Council's central city plan.

With a non-negotiable emphasis on creating a resilient building that offers safe shelter in the event of any future seismic events, it is the buildings' foundations that have attracted attention. A quick glance at the numbers indicates why.

Almost 4 months in construction, the foundations for Block B and Block C consumed around one third of the project's budget and 900m³ of concrete in total. 225 piles, 17.5m deep and 750mm in diameter; were drilled and filled with concrete before the steel reinforcing cages were inserted. On top of the piles sits a 1m deep raft slab.

The placing of the foundations' concrete was completed in three separate pours, including two pours that took about ten hours. Allied Concrete Ltd has been the ready mixed concrete supplier to date.

Another key design feature of the Hotel will be a 'seismic gap' between each structure. A contributing factor to the damage sustained by

the Hotel in the February 2011 quake was that during the event the buildings literally smashed up against once another. With predicated movement at the top of each tower potentially up to 20mm during an 8 magnitude quake, the 180mm 'gap' will act as a buffer.

Under the direction of recently appointed main contractor Lanyon & Le Compte Construction Ltd progress on the \$25 million rebuild has gained pace following a lull in activity since May when the foundations were completed.

"The structure of A Block, which houses the restaurant, bar and conference facilities, is now complete," say Shane Le Compte. "Although we still have three 5-storey towers and one 4-storey tower to build. With the exception of some steel framing at the front of Block B, all these will be concrete structures."

Along with further concrete foundation and structural work, a significant part of the remaining build will be the manufacture and installation of many precast panels.

"We have a precast yard in Bromley," says Shane "which will be extremely busy over the coming months making over 900 precast panels with an approximate average size of 20m²."

Targeting a completion date of early January 2013 for A Block and early December 2013 for the complex, an operational Latimer Hotel will symbolise the spirit of a City that is 'open for business'.



THE MOST IMPORTANT STOP OF THE DAY

A major rail safety campaign, launched recently, is aimed at reducing the number of near collisions between heavy vehicles and trains.

Rail safety charity the Chris Cairns Foundation has developed the campaign as part of International Level Crossing Awareness Day (ILCAD) being held at over 42 countries around the world. The New Zealand campaign will target thousands of truck and bus drivers throughout New Zealand – promoting safe driving behaviour and reminding them of the care required when driving over level crossings.

A collision with a heavy vehicle represents the greatest risk to human life from a road accident, according to rail safety campaigner Chris Cairns.

"Not only are heavy vehicle drivers at enormous risk themselves if they are involved in a collision with a train, but there is the potential for catastrophic harm to rail passengers if a truck were to collide with a passenger train."

There have been over 250 near collisions between heavy vehicles and trains since 2004 and in over half of these cases, there were flashing lights and bells operating at the time the incidents were reported by the train drivers. There have been 35 actual collisions.

"The most important stop of the day" is the message the campaign will deliver to truck and bus drivers, reminding them that if flashing lights and bells are activated at a crossing then they have a legal obligation to stop.

Chris Cairns' sister Louise was killed in a level crossing collision in 1993 when a truck drove through flashing lights and bells and into the side of a passenger train. Two other women also died. The laws relating to heavy vehicles are much the same as those that apply to standard motor vehicles. However some heavy vehicles have additional legal requirements at particular level crossings.

For example, large passenger buses and all school buses, regardless of their size, are legally required to stop at level crossings protected by Give Way signs, as well as those controlled by Stop signs. This rule also applies to heavy vehicles carrying certain dangerous goods.

The Foundation will be reaching drivers by collaborating with road industry organisations, including the Road Transport Forum, NZ Trucking Association, the Road Transport Association and National Road Carriers. "We are very grateful to have the crucial support of these organisations to help us get the message out there," says Chris Cairns.

Police are also supporting the campaign, and urge all motorists to take care at level crossings.

"We fully encourage New Zealand's commercial drivers to refresh themselves of the rules and obligations that are outlined in the driver's safety guide. The few seconds taken to check and double check can save a lifetime of pain," says Inspector Mark Stables of the New Zealand Police.

The campaign includes a poster, a drivers' safety guide and a roadside billboard campaign. The campaign is also supported by KiwiRail who sponsors the Chris Cairns Foundation.

All campaign information is available to download from the Foundation's rail safety website www.railsafety.co.nz





A BESPOKE, VERSATILE CONCRETE PLANT

Concrete equipment manufacturer Rapid International recently supplied a new bespoke batching plant to Skene Groupat Soutra, Midlothian. This plant, housing a 3m³ pan mixer, has been designed to operate in sub-zero temperatures with all pipes heated and lagged and with the main water storage underground.

Skene Group, an independent construction resource and supply company, had very exact specifications for the plant design to ensure maximum output of concrete during any adverse weather conditions.

AGGREGATE BINS

The 5 x 40-tonne aggregate bins are fed from a 12.6m³ dump hopper via a 13m x 600mm radial conveyor. Each of the bins on the plant is discharged using belt feeders; this prevents the malfunctioning of helmet doors in cold weather and enables the accurate measurement of moisture content using Hydronix probes. The main benefit of this feature is that it allows the batching plant to dispense the accurate required water without any need for visual slump checks and therefore significantly increases the output of the plant. The aggregate bins are complete with mild steel fabricated roof and single-skin cladding. The sand bins are lined at the cone to aid discharge and prevent wear.

The batching plant has the additional features of a moving hopper, which allows the plant to be flexible for the production of other concrete products in the future.

MOVING WET BATCH HOPPER

The batching plant has the additional features of a moving hopper, which allows the plant to be flexible for the production of other concrete products in the future. It also has a moving flume to facilitate the collection of concrete by smaller trucks and trailers. The hopper

was constructed using 8mm mild steel mounted on wheels and track. It is powered by a shaft-mounted geared motor to move in and out from underneath the discharge chutes as required.

CONCRETE PAN MIXER

At the heart of the plant is the R3000 Pan mixer, with an output of 3m³. Skene specified two hydraulically operated discharge doors on this mixer and this allows the next truck to already be in position so that the plant can work efficiently and continuously. Powered using an 110kW motor, the mixer is of heavy-duty high-quality construction, using chill-cast wear tiles with 16mm thickness on the floor and 12mm on the wall. The mixer is fed from a 4.5m³ holding hopper positioned above the mixer and constructed with 6mm mild steel.

A two-level fully clad mixer housing was constructed with walkways and stairwells to give full access around the plant. The housing was designed to allow fitting of a heating system.

CONTROLS

The batching plant itself is controlled using the PIL Dynamix System. This system is one of the most efficient and versatile systems on the market and allows Skene to access and monitor all of the production data. It also provides total back-up from a laptop computer. The plant also has three 100-tonne silos installed that provide additional cementitious options.

Article reproduced with kind permission from the UK Concrete Society.

KEY DATES

NZRMCA NATIONAL COUNCIL MEETINGS

MEETING	DATE	TIME	VENUE
AGM	Thursday, 11 October	5:00pm – 6:00pm	Claudlands, Hamilton
Council	Wednesday, 14 November	9:30am – 3:00pm	CCANZ, Wellington

NZRMCA REGIONAL MEETINGS (check local notices for precise times)

REGION	DATE	VENUE
Northern	Thursday, 22 November	Mangonui Hotel, Mangonui
Auckland	Wednesday, 5 December	Maxwell's Golf Retreat, Ramarama
Central North Island	Friday, 2 November	Tauranga Racecourse, Tauranga
Lower North Island	Thursday, 6 December	TBA
South Island	Friday, 23 November	TBA

FUN (CONCRETE) FACT

SMEATON'S TOWER – THE THIRD EDDYSTONE LIGHTHOUSE

Eddystone Lighthouse is located 14 km off the south western corner of the United Kingdom, on the notoriously treacherous Eddystone Rocks. The current lighthouse is the fourth in a series of structures that date back to the late 1600s.



Smeaton's Tower where it stands today at Plymouth Hoe.

It is however, the third lighthouse, known as Smeaton's Tower that through its ground breaking design and use of materials has enshrined this landmark into the history of civil engineering, and also the evolution of concrete.

WINSTANLEY LIGHTHOUSE

Construction of the first lighthouse on Eddystone Rocks began in 1696 under the direction Henry Winstanley, and was completed in 1698. This wooden structure underwent significant alterations after its first year of operation due to damage, emerging as a 12 sided structure with

stone cladding on a timber frame. The Great Storm of 1703 completely destroyed the lighthouse, and also claimed the life of Winstanley, who was carrying out maintenance at the time.

RUDYARD LIGHTHOUSE

The second lighthouse, designed by John Rudyard, was a conical wooden structure built around a core of brick and concrete. Completed in 1709 this structure survived almost 50 years, before the lantern caught fire in 1755 leading to its total destruction.

SMEATON'S TOWER

It was John Smeaton's use of 'hydraulic lime', enabling the concrete that bound the granite blocks to set under water; which saw his tower become a symbol of the British Empire's technological progress and capture the historical imagination.

Construction started in 1756, with the light being lit in October 1759. Smeaton's success lay in the pozzolan material he imported from Italy, which along with dovetail joints between the granite blocks, enabled the tower to survive for over 120 years.

At 18 m high, with a diameter at the base of 8 m and at the top of 5 m, the tower remained in use until 1877 when erosion forced authorities to consider a new build. The tower was dismantled and reassembled on Plymouth Hoe, in Plymouth, where it still stands today as a memorial (and tourist attraction) to its designer.

DOUGLASS LIGHTHOUSE

Further testament to Smeaton's engineering prowess, and the durability of concrete, is that the current lighthouse, completed in 1882 and automated in 1982, could not be built on the same spot as Smeaton's Tower. Although this was the original intention, the foundation of Smeaton's tower proved too strong to dismantle meaning that the new tower is located adjacent with the old foundations still visible.



Concrete: A Seven Thousand Year History by Reese Palley. Read about Smeaton's Lighthouse, and other iconic concrete structures in this fascinating book available from the CCANZ library. Email library@ccanz.org.nz to borrow.