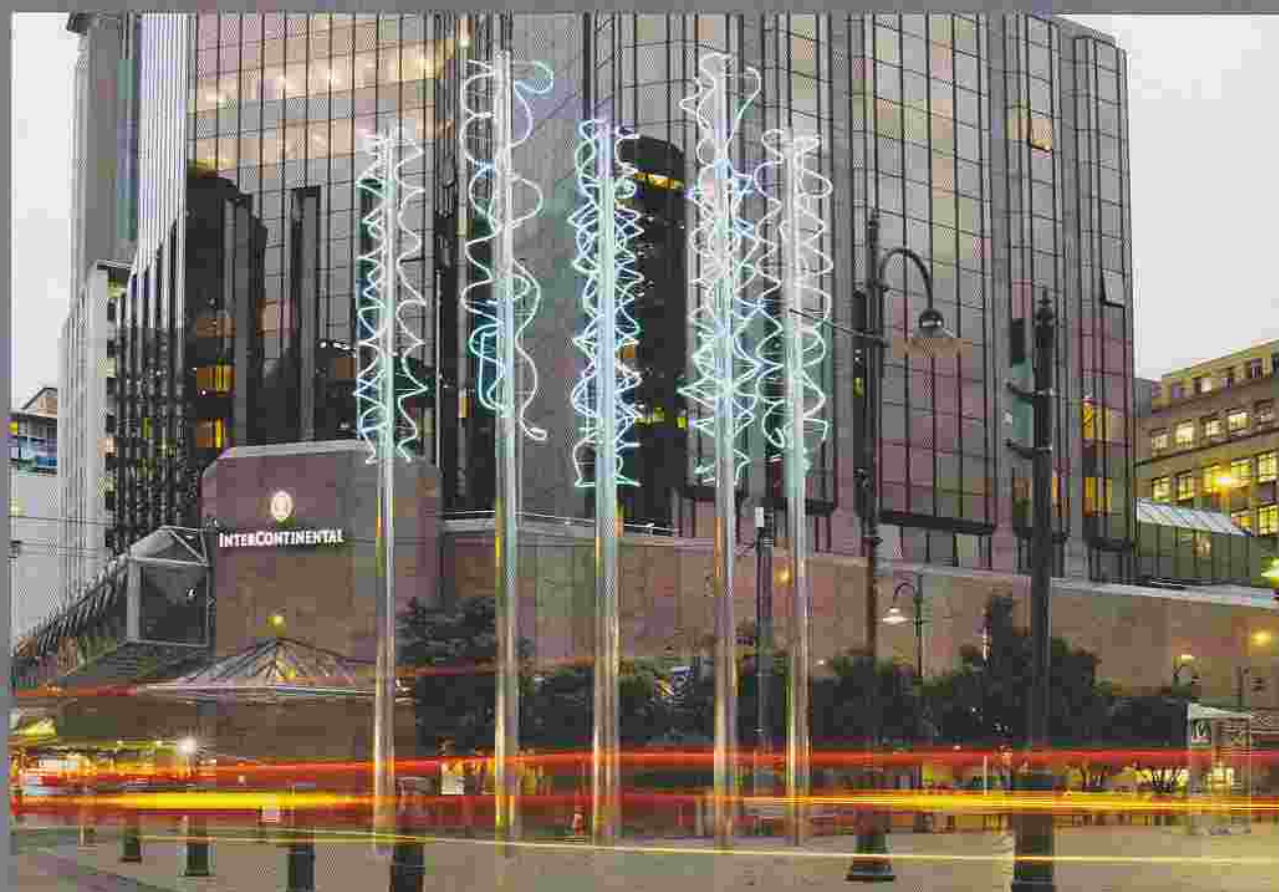


THE HEALTH ENGINEER

WINTER 2011

# THE HEALTH ENGINEER



New Zealand Institute  
of  
Healthcare Engineering

VOLUME 5, NUMBER 2

WINTER 2011

# NZIHE

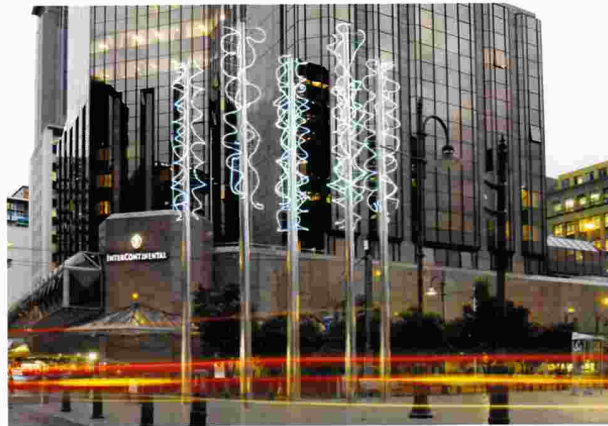
New Zealand Institute of Healthcare Engineering

**75th Anniversary Conference**  
**Hotel InterContinental, Wellington**  
**17 - 18 November 2011**

## **“CLOSING THE LOOP”**

### Our Mission:

“To enhance the quality of health care through the pursuit of excellence in health estate and engineering management”



This year we will celebrate the 75th anniversary of the Institute.

The 66th conference will be held at Wellington's Hotel InterContinental and TSB Bank Arena

Our plans to hold the 66th conference in Christchurch changed abruptly on February 22nd when the earthquake struck. Since then, we have managed to relocate the conference to Wellington.

The theme is Closing the Loop. One take on this involves four distinct information steps. These are giving, receiving, acting, and reporting. Each of these steps are important and each contain the seeds for misinterpretation. It is also known as “chasing your tail”

The conference will be held at the InterContinental Wellington, one of the top rated hotels in the Capital City. It is located adjacent to the harbour waterfront, within close walking distance to popular attractions. The Trade Show will take place in the TSB Bank Arena on Queens Wharf, just a short stroll from the hotel.

Included in the programme will be an extensive presentation on the ongoing effects on the health system of the Canterbury earthquake. Speakers from various areas of Canterbury DHB will make this a must see presentation.

All Enquiries to:  
Max Christensen  
Ph 027 2300831  
[max.christensen@huttvalleydhb.org.nz](mailto:max.christensen@huttvalleydhb.org.nz)

As part of the 75th anniversary celebrations, the annual dinner on Friday 18th will be free of charge to all delegates and their partners.

**For more information visit [www.nzihe.org.nz](http://www.nzihe.org.nz)**

# THE HEALTH ENGINEER

The Journal of the Institute of Healthcare Engineering

Volume 5 No 2 Winter 2011

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The Venue of this years conference.

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## PRESIDENT'S REPORT JUNE 2011

At our Annual Conference in November 2010 we thought Christchurch had seen the worst of their earthquake woes with the magnitude 7.1 shake on September 4. However the 6.3 shake on 22 February 2011 was at a depth of only 5km, 10km SE of Christchurch CBD and caused significantly more damage as well as the tragic loss of life.

Much has been reported about the devastation as well as the amazing courage and fortitude of those affected by this shocking tragedy. In typical Kiwi fashion New Zealanders rallied around in offering whatever support they possibly could. There were also offers of help and assistance to the Facilities & Engineering Department at Canterbury District Health Board from a variety of sources including the Institute and its members, other colleagues from within and outside of the health sector together with the Australian IHEA membership.

John Black from Counties Manakau DHB and Russell Dickson from Nelson Marlborough DHB took over interim control from Alan Bavis and Nigel Wing to provide some much needed relief for a few days. In Allan's words "... it was great having someone experienced here we could trust." This type of help together with other ancillary assistance and support from a variety of sources (including the supply of plant and equipment) demonstrate the benefits of our health sector networks and fraternity as a whole.

We look forward to hearing much more on this subject at our 2011 Annual Conference in Wellington on 17-18 November. Best book your place NOW.

It continues to be an eventful time in New Zealand District Health Boards which is probably one of the reasons we enjoy it so much – there is always something new happening and absolutely no chance of getting bored.

Probably the latest and most pressing for us is the Shared Services initiative being looked at by the new Government entity, Health Benefits Ltd (HBL). DHB's are being asked to provide HBL with benchmarking type information on a range of supporting services currently being provided within each DHB. Those services being considered include engineering maintenance and grounds, biomedical engineering, capital projects, cleaning & orderly services, laundry, food and kitchens, vehicle fleets, security, etc.

The intent seems to be to explore potential synergies and cost savings of collective and/or sharing of these types of services regionally and/or nationally. I would strongly encourage active participation and support for this process to ensure the data and information supplied is an accurate reflection of roles and responsibilities in your particular work area.

None of us like change for the sake of change and I sincerely hope this will not happen. The better approach is to seize the opportunity and try to influence the changes to improve the way we work and the benefits to our respective DHB's. We look forward to an update on progress from HBL at our conference in November – another good reason to register!

66th Annual NZIHE Conference, 17-18 November 2011 in Wellington.

As a consequence of the 22 February Christchurch earthquake it has been necessary to relocate this year's conference to Wellington. Max Christensen from Capital & Coast DHB has kindly stepped up and taken over organising this event.

David Meates CEO of Canterbury DHB will open and present at the Conference.

Conference Registration information, etc are contained within this edition of NZIHE Journal. You can also obtain information online at <http://www.nzihe.org.nz/news/conference-2010.html>

Included in the programme will be an extensive presentation on the ongoing effects on the health system of the Canterbury earthquake. Speakers from various areas of Canterbury DHB will make this a must see presentation.

It is also the 75th year of the NZIHE and time to celebrate another milestone.

I look forward to catching up with you there.

Kind Regards  
Tony McKee,  
President NZIHE

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## NZIHE – OUR 75TH ANNIVERSARY

To commemorate the Institute achieving its 75th anniversary since its inception as the “Public Hospital’s Engineers Association” in 1936 through to its present form as the “New Zealand Institute of Healthcare Engineering Inc.” in 2011 we hope to produce a special edition including a limited history, highlighting significant developments, name changes, past presidents, a few old photos of past conferences and coming up to date our transition from being a union for hospital engineers to a learned society for the same group, outlining development of the web site, the widening of the membership criteria, development of this magazine, our ties with our Australian counterparts and the International Federation of Hospital Engineers.

To achieve all this I will need some **help** and **quickly** too.

If you can assist with supplying information, photos etc please contact Jim Logan.

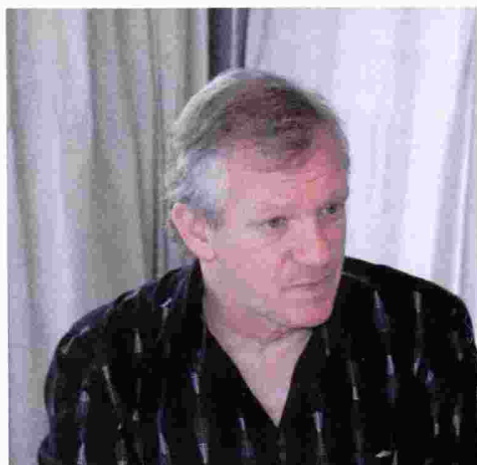
Thanks  
Jim



*The Institute Executive has decided that “members at large” should be able to get to know Your Exec Team. Bill’s life story is the first, others will follow.*

## BILL MACDOUGALL – IMMEDIATE PAST PRESIDENT

After working for 9 years as an electronics technician in the Greater Glasgow Health Service in Scotland, Bill MacDougall left in 1981 to take up a technical supervisor post for a turn key project in the King Khalid National Guard Hospital in Jeddah, Saudi Arabia.



From there he immigrated to New Zealand in 1986 to work in the Medical Physics & Clinical Engineering Dept. of the then Auckland Area Health Board.

He has worked in the biomed / clinical engineering field through various iterations of Auckland Healthcare Services, Central Auckland Health District, Auckland Crown Health Enterprise and now Auckland District Health Board and under the management of numerous GM's, business managers, commercial managers, accountants, HR managers – they come and go.

He was heavily involved in the building project which saw the redevelopment, not only of the new City Hospital, but also the refining of clinical flow and process around the technology introduced.

Bill joined the Institute in 1997 and served as Secretary / Treasurer from 2002 – 2006 and then President for 2 years. He currently holds the executive post of Immediate Past President.

During the Institute's initiative to expand its member base, he and his wife Lyn organised the first joint Biomed / Facilities Conference in 2002. Quote “a nerve racking initiation best enjoyed after the event”.

Bill has been actively involved in the joint New Zealand / Australian Standards process for many, many years now and, along with Tony Blackler, has assisted in introducing a TAFE distance based Introductory Biomed Qualification in Australasia and a NZ Electrical Service Technician refresher course with more specific and relevant content to the biomed community.

Bill lives on the North Shore and provides a healthy income for orthopaedic and knee joint specialists by continuing to play football long past his “Use By” date and can be frequently found hobbling around the workshop on a Monday morning muttering “never again” – till the next time.

## DOUG MOLLER - EXECUTIVE OFFICER

Born & bred in Dunedin . Married to Tric with 2 adult children at university.

Graduated from dentistry in 1980 and took over his father's practice in 1981. Trained and set-up a technical hobby business supporting dental equipment. Strongly supported by dental companies & the Area health board at the time this business grew to a point where Doug took on staff and sold his practices in dentistry to go full time into biomedical servicing of both dental & medical equipment in 1997.

Since that time the business has grown to 10 staff and works an area from Timaru to the Bluff. With specialist repairing of equipment nationwide .

Doug has also travelled widely to training provided by a number of suppliers at their factories overseas.

Doug holds licences for the repair and compliance testing of radiation equipment.



Doug's business Dental & Medical Equipment Ltd now provides biomedical services to 3 DHB's, 90% of medical, dental & veterinary practices, private hospitals and the University of Otago in Otago, Southland & South Canterbury area.

Doug is involved as a consultant to the DHB's for the Oral Health development program for fixed & mobile clinics and the University of Otago dental school upgrades.

Doug is also managing director of a transport company involved in the transport of biohazard substances.

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24 Langley Ave  
Palmerston North

6 May 2011

The Secretary NZIHE  
6 Edmund Storr Road  
Halswell  
Christchurch 8025

Dear Nigel

Study Grant

I would like to thank the Institute for the support of my study toward my degree, it will take some of the financial pressure off the fees and travel for my research. I will be happy to present at a conference at some stage as my research develops.

I have just been presented with my Post Grad Diploma that was also in part been supported by the institute. I have attached a A4 copy to for institute records in support of my application.

Kind Regards

Warren Crawley.



*The following article was provided by Terry Walker of Canterbury District Health Board*

## NEW BOILERS FOR CHRISTCHURCH HOSPITAL

Since 1966 these three Anderson Steam boilers have been providing the lifeblood of Christchurch Hospital. They are coal fired, rated at 4.5MW and are capable of generating approximately 6.5 tonnes of steam per hour at an operating pressure of 8 bar. They are induced draught, two pass fire tube boilers each fitted with two low ram stokers and are manned 24/7.



However, the ever increasing steam demand from the hospital, the age of the boilers and their relative inefficiency, coupled with their inability to meet the new Discharge to Air Resource Consent criteria meant that they needed to be replaced. As long ago as July 2005 the process to find their successors began with the search for Consultants to carry out a feasibility study.

There were many factors to consider such as security of steam supply, capital cost, whole of life cost, space constraints and environmental considerations making it a reasonably complicated process.

The main loads on the boilers are Space Heating and Domestic Hot Water which don't require steam so would it be better to use a centralised low pressure hot water system? Would it be better to de-centralise? Should we put in a cogeneration plant to make our own electricity? Should we burn coal or LPG or even wood chips and would we be allowed to.

To cut a long story short, we engaged MWH to carry out phase II of the feasibility study and they recommended that we retain a centralised steam reticulation system and purchase two 7.5 MW coal boilers and one 7.5MW diesel fired back-up boiler. Lyttelton Engineering was the successful tenderer and supplying two Maxitherm Water tube coal boilers and a Scotts Engineering fire tube diesel fired boiler, all built in Christchurch.

The first Anderson coal boiler was removed in September 20.



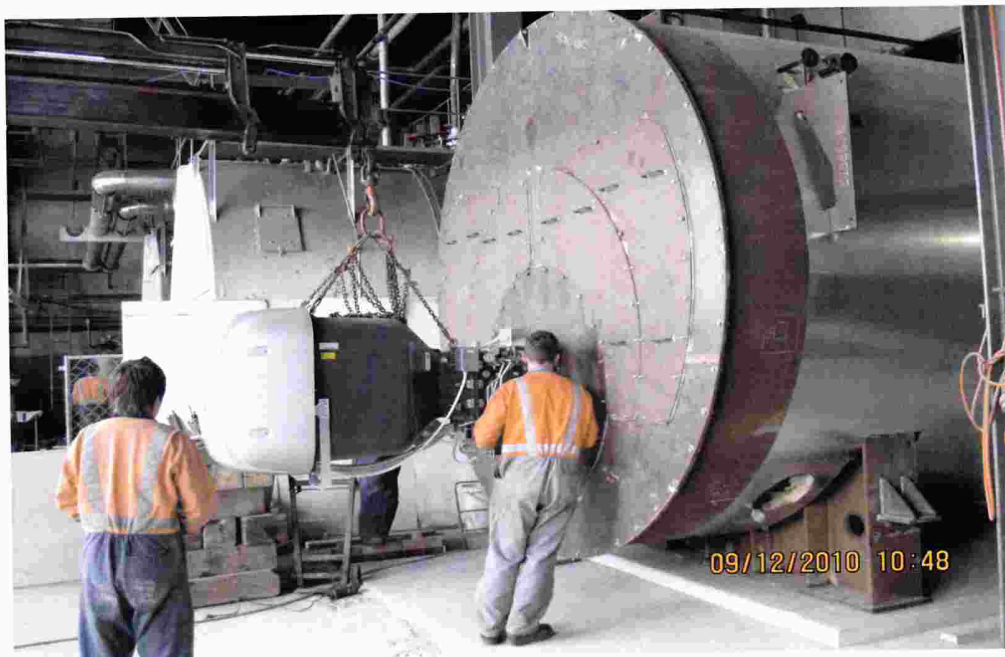


All three of the old coal boilers had their exhausts routed through a 55m chimney stack also constructed in 1966 with a concrete outer and a brick liner. Because of the critical nature of steam supply in the hospital, the brick liner had never been allowed to cool enough for inspection. As it was going to be operational for at least another 35 years we needed to have a look. So the 25m steel flue that the diesel boiler was going to exhaust through was fitted early and two coal boilers extinguished while the third was temporarily routed through it. The inspection was carried out in March 2010 while it was still warm enough for one coal boiler to take the hospital load. At the same time as the inspection a steel nozzle was fixed to the top of the stack to increase exhaust velocity and disperse further any emissions.



When the engineer was finally lowered all the way through the chimney in his tiny cradle he was able to confirm that it was in reasonably good shape. However it got a bit shaken on 4th Sep 2010 with structural damage where the flue joins the stack and cracks visible in the concrete at different levels. A second inspection was carried out on 16th Feb this year and the same engineer found significant damage to the brick liner. About two thirds of the way up, where it transitions from two bricks to one brick thick, the liner has slumped out against the concrete with long vertical 25mm cracks splitting bricks in half. Structural test No. 2 happened 6 days later and while there was very little change externally, we have not been able to check again because of the colder weather.

The Scotts Engineering diesel boiler was delivered in December 2010 and fitted and commissioned in time to take the full steam load of the hospital for the Feb 16 th inspection described above. This was the first time in 45 years that all the coal boilers had been extinguished and we found that the stack cooled within 24 hours.



The Maxitherm 7.5 MW coal boilers being supplied by Lyttelton Engineering were quite a lot taller and heavier than the originals and a seismic upgrading of the boilerhouse building was required. The building was originally built on concrete piles and the solution was to tie these piles together into a raft using concrete beams. The photograph below gives you some idea of the scope of this work especially as this is only one third of the floor area of the boilerhouse and it needed 14 tonnes of steel reinforcing.



On 7th February 2011 the first coal boiler arrived. The boiler itself weighed 40 tonnes and after being positioned on the slab, it was jacked 3m into the air using vertical steel beams and the grate and frame were then pushed into place underneath. The whole thing weighed 90 tonnes and was welded unto the footplates four days before the February quake.