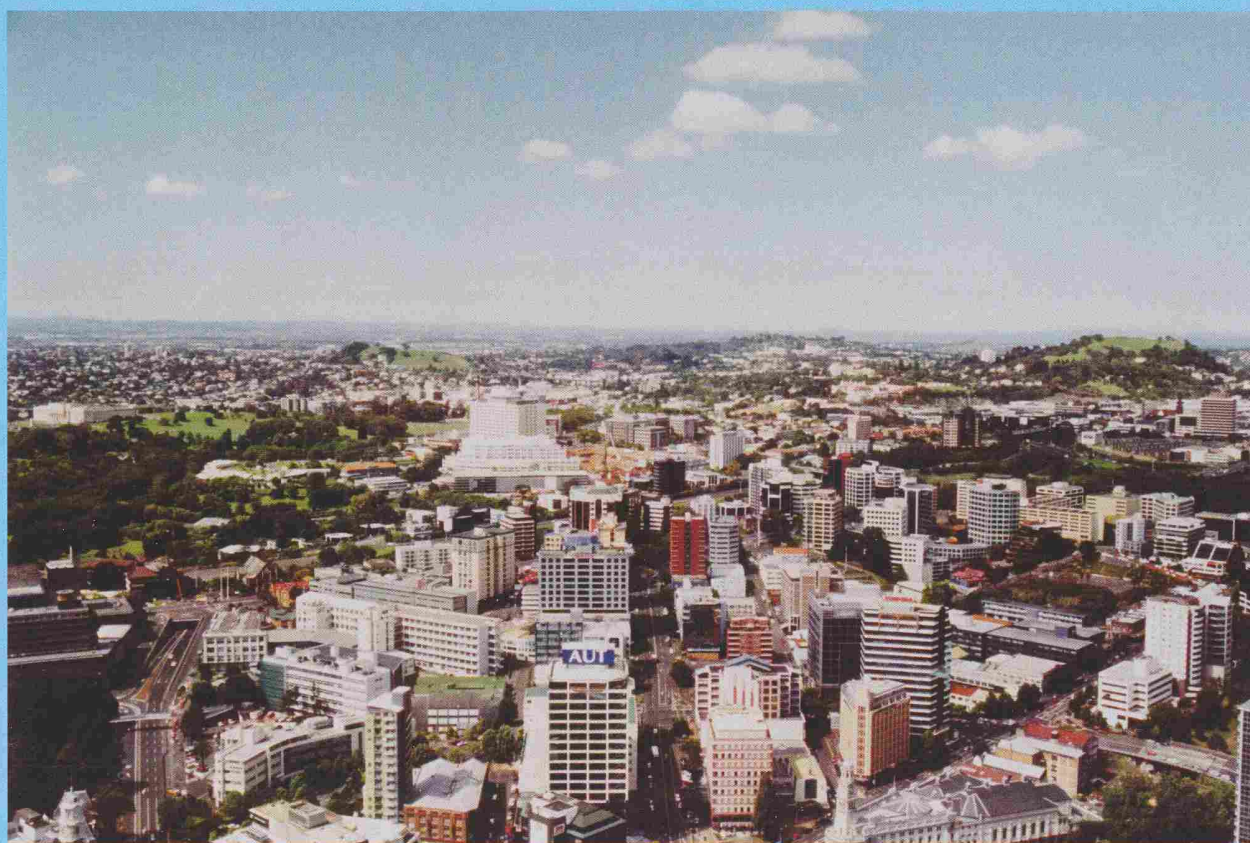


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# THE HEALTH ENGINEER



THE JOURNAL OF  
N.Z. INSTITUTE OF HEALTH ESTATE AND  
ENGINEERING MANAGEMENT

## **THE HEALTH ENGINEER**

The Journal of the NZ Institute  
Of  
Health Estate and Engineering Management

Volume 3 No 10 Spring 2006

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Inner back cover - Some current building work. (Photos)

Cover Photo - Auckland city from the Sky Tower.

The health and viability of any organization depends on good communications. Our objective is to produce a good quality health engineering magazine. The magazine should inform readers, it should provide a forum for discussion, encourage interest in all aspects of the technical side of health facility management in its widest sense.

# Dunedin Hospital cures energy waste



DUNEDIN HOSPITAL BUILDING SERVICES TEAM LEADER RITCHIE FIELDWICK EXPLAINS THE BENEFITS OUTLINED IN HONEYWELL'S PROPOSAL FOR AN **ENERGY PERFORMANCE CONTRACT**

- saving \$122,200 a year in energy
- savings guaranteed in an energy performance contract
- borrowed capital \$510,000
- improved building services performance
- more savings ideas still being found

Emprove is a service provided by the Energy Efficiency and Conservation Authority (EECA).

To find out how your business can save energy, visit [www.emprove.org.nz](http://www.emprove.org.nz) or ph 0800 358 676.

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**Highlights -**



#### Dunedin Hospital basics –

- 400 beds
- 110,000 bed days a year
- 80,000m<sup>2</sup> of net floor area
- Includes a medical school
- Energy bill \$1.37million a year
- Uses a range of Honeywell controls
- Steam is purchased in place of coal or gas
- Some controls date back to the 1960s

Otago District Health Board is taking an innovative approach to improving the building services equipment at Dunedin Hospital. It's contracted an external company, Honeywell, to make the improvements.

Honeywell guarantees energy savings of \$122,200 a year that will pay for the capital expenditure within five years.

The project is being financed not from the health board's own funds but by a \$510,000 Crown Energy Efficiency Loan.

#### Refurbishment due

Before Honeywell became involved, Dunedin Hospital's building services team leader Ritchie Fieldwick and his three person team knew there should be energy saving opportunities.

Plant control systems were getting old and inefficient.

More time was being spent on maintenance and the energy bills were rising.

Service staff members were being paged regularly to deal with alarms from the building services system.

For example, control dampers in the air conditioning and heating ducts were getting 'sticky' and their settings had too much play.

Dunedin Hospital had implemented some energy efficiency measures, such as taking ambient air temperature into account when chilling water for air conditioning.

Honeywell proposed a win-win option by upgrading equipment and guaranteeing energy savings without requiring the health board to outlay capital.

This suited the health board, which was faced with the problem of how to pay for replacing an outdated building management system (BMS).

Honeywell was familiar with the hospital - it had installed HVAC plant and had provided services for the previous 40 years.

#### Energy trends

For the year to June 2003, the hospital spent \$1,367,000 a year on energy. This included \$680,000 for electricity and \$687,000 for 41,000 tonne of steam.

The hospital has a 15-year contract With Meridian Energy-owned business Energy for Industry to purchase a minimum 35,000 tonnes of steam a year.

In 2003 the price of steam was scheduled to increase by 25%. The hospital's electricity contract was also due for updating and was likely to cost more.

*Energy for Industry operates an energy centre in Dunedin that pipes steam directly to the hospital and others in the neighbourhood, including the University of Otago, Cadbury's confectionery factory and the New Zealand Towel Supplies laundry.*

This arrangement suits the hospital because it does not have to manage the costs and resource consent considerations of operating a boiler.

#### Better systems

The hospital's energy management was ad hoc. Although it had completed energy efficiency improvement projects such as upgrading low pressure hot water heat exchangers and chilled water controls, it had no formal energy policy, plan or responsibilities. There was no ongoing and active staff awareness programme to save energy.

Honeywell approached the hospital with an offer that would achieve energy cost savings in spite of the hospital's passive approach to energy management.

Honeywell completed an energy audit of the hospital's HVAC system and outlined the potential energy savings.

## Savings achieved

Although more energy was used in 2005 than in the base year, energy efficiency had improved. 2005 was cooler than the base year, so more heating was needed.

Energy use in 2005 was 45,845 MWh while in the base year (July 2002 to June 2003) it was 43,864 MWh.

After adjusting for differences in ambient air temperature the baseline energy use was 49,205 MWh, which is the amount of energy that would have been used in 2005 without energy efficiency improvements.

In the first year, the health board reduced energy costs by \$110,000, after adjusting for ambient air temperature differences and energy price changes. It reduced consumption by 510 MWh a year of electricity, 2,850 tonnes of steam and 10,250 GJ of coal. This is equivalent to reducing carbon dioxide emissions by 1,250 tonnes a year.

These savings are based on energy use in the first nine months after all practical completions were achieved (**Table 4**).

It is likely the 770 MWh/yr projected electricity savings will be achieved after 12 months. Proposed heat recovery options will help achieve the projected coal savings.

**Figure 1** shows the differences accumulating for each month during the year.

## Practical issues

Initially, the new EBI front-end building management system ran too slowly at times for its hospital staff operators. The graphics package was then modified and reloaded, which fixed the problem.

## Heating and cooling control

The EBI's Direct Digital Control (DDC) enables the operators to program sophisticated schedules, temperature conditions and alarm management.

It allows areas that don't need to operate 24 hours a day on public holidays to be programmed for energy savings, 12 months in advance. On days when those areas are occupied, scheduled times are pre-programmed to maintain the required temperatures without starting cooling or heating earlier than needed, or stopping it later than needed.

DDC transducers with analog signals allow each valve to be controlled individually and more accurately compared with the previously installed pneumatic controls.

The air conditioning controllers have been upgraded with energy management strategies programmed into them.

For example, some chillers are now switched off in winter when previously they were running when not needed.

At least some cooling is required in some parts of the hospital all year and is not shut down completely in winter.

However, when cooling is required in cooler months, the increased use of 'free cooling' means chillers are used less often than previously.

Free cooling uses fresh air instead of using chillers to cool recycled air.

When heating is required in cooler months, some heat is recovered from air that is being expelled from the buildings, and then used to pre-heat incoming air.

Controls for radiator heaters were also upgraded so they respond to changes in the ambient air temperature.

## THE TECHNICAL SOLUTIONS

When Honeywell upgraded equipment it gave highest priority to the areas where the improvements were most cost-effective, such as the Ward Block and Clinical Services Block.

In January 2005 the existing BMS front-end controller, a Honeywell Excel Building Supervisor Delta 1000 (XBS-1) was replaced with Honeywell's Excel Building Integrator (EBI).

This PC-based building management system can show on a computer screen diagrams of what is going on in the hospital's energy systems.

EBI's enhanced features make it easier for building services staff to manage, read and control HVAC set-points.

The 1980s-vintage Delta 1000, which was central to HVAC controls, did not have energy saving features and was becoming less reliable. The EBI is the front-end that communicates with the hospital's various plant rooms, each of which has its own stand-alone controller. If anything puts the centralised EBI out of action, the stand-alone controllers can still be programmed independently.

## Variable speed drives

Variable-speed drives (VSDs) were installed on water pumps for the air conditioning system and for the chiller condenser loops.

These included VSDs on three 22 kW condenser loop pumps and motors. Each chiller is a Carrier model with thermal cooling capacity of 1 MW.

VSDs were also installed on four water pumps and motors: 12 kW, two 15 kW and an 18.5 kW for the air conditioning system. Instead of being either fully on or off, the pumps operate accurately using the

VSDs and according to how much water is needed for air conditioning.

Humidity controls in the wards have been improved so they are more accurate.

Relative humidity targets are between 40% and 50% in the rooms. Relative humidity is measured in the air supply ducting and is continuously regulated.

All energy efficiency improvements have been managed to ensure conditions remain comfortable within the hospital.

## Domestic hot water

Other improvements included installing DDC temperature sensors on domestic hot water storage tanks. The sensors that detect the water temperature are more accurate. This saves energy because water temperatures in the storage tanks are not kept unnecessarily high.

The hospital's building and property services staff members have also been trained in operating the new BMS, bringing their skills up to date.

Because of the complexity of the system, a number of software parameters needed adjusting even more than six months after installation, to improve efficiency.

This was carried out as part of the maintenance services contract with Honeywell.

The free cooling system will now be controlled by sensing the ambient air temperature.

The free cooling will occur when the outside temperature is between 7°C and 12°C.

**Table 3: Energy cost for Dunedin Hospital for base-year July 2002–June 2003**

July 2002–June 2003	Annual energy consumption, kWh	Annual energy cost	Average price, c/kWh
Electricity	13,114,089	\$679,443	5.2
Steam	30,750,000	\$687,634	2.2
TOTAL	43,864,090	\$1,367,077	3.1

**Table 4: Savings in the first year of the energy performance contract**

	Projected	After first nine months
Electricity, MWh	3,845 (770 per year)	510
Steam, tonnes	29,800 (5960 per year)	2850
Coal, GJ	87,000 (17,400 per year)	10,250
CO2 emissions, tonnes	10,300 (2060 per year)	1250
Electricity peak demand, MW	1.48	0

Staff still complain it is "too hot" or "too cold", although this happens no more frequently than before. Fieldwick says it is an ongoing challenge to meet the temperature needs of all staff.

## Other benefits

The energy savings activities have inspired the building services team to keep looking for other savings ideas.

Staff members now plan more often for when plant may not be needed. For example, main air handlers can be switched off at night in unoccupied areas such as the hospital's academic wing.

This has reduced electricity load by 200 kVA electricity at night, and adds to the savings already being achieved in the performance contract programme.

An automated ripple control system is planned, to shed non-essential loads at times of peak power charges.

This includes limiting the operation of chillers and reducing the speed on water pumps.

## CREDITS

**Client** Otago District Health Board

**Main contractor** Honeywell NZ Ltd

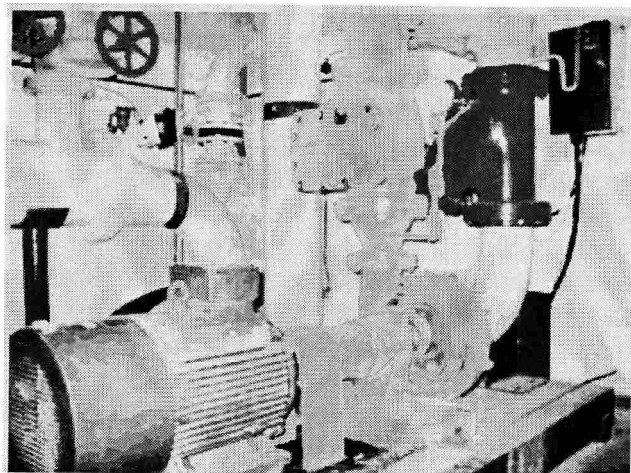
**Electrical sub-contractor** Tyco Electrical, Dunedin

**Mechanical sub-contractors** Holyoake Atmos, Dunedin

**EECA Crown Energy Efficiency**

**Loans advisor** Dan Coffey

**Case study text and photos** Emsol (Energy Management Solutions Ltd)



THE BLACK PANEL ON THE WALL IS A VARIABLE-SPEED DRIVE (VSD), WHICH CONTROLS THE SPEED OF A GREEN CONDENSER PUMP AND BLUE MOTOR.



## The New Zealand Institute of Health Estate & Engineering Management

### Reports –

**61<sup>st</sup> Annual Conference**

**Crowne Plaza Hotel**

**9<sup>th</sup> & 10<sup>th</sup> November 2006**

The Facility Engineer's view by Kevin Bardsley

Outgoing NZIHEEM President Andrew Paterson, Wellington welcomed the 60 delegates present.

Wayne Brown, businessman, engineer and long term Chairman of the Auckland DHB, opened the conference, offering NZIHEEM a possible slogan "Engineers keep the health service running"

Among the many wise words, he said..

"The systems that engineers develop and maintain enable highly trained clinical staff to do their tasks."

"Medical is "one to one", Engineering is "one to many."

"ADHB (the health business) is the largest business in Auckland "by far" (with 9000 employees)."

"Engineers recently facilitated (at ADHB) the migration and integration into the new site(s), a population larger than the town of MORRINSVILLE!"

"Promote your role and educate those around you about it" he urged. Who in this room has arranged a tour for clinicians or board members of the plant rooms and networks under and around your hospital?"

Keep up with technical change but don't lead it...

GOOD, FAST, CHEAP, you can only ever have two out of these three. Think about it!

Graham Dudfield, Waikato, presented – "Career Pathways in Healthcare Engineering", leaving the ball firmly served into our courts as far as creating opportunities through modern apprenticeships and possibly re-establishing the previously successful NZIHEEM cadetship model of the seventies.

Kevin Moon, IHEA Council Member and this years ANZEX exchange engineer from Melbourne, presented very professionally on managing risk, especially infection control risk in construction and maintenance. A very good free downloadable IC manual is available on the IHEA (Australia) website.

Site visits on Thursday afternoon were to Fisher and Paykel Healthcare Division, and BOC's air separation facility at Glenbrook.

The AGM was held at 5pm where the following new office bearers were appointed -

President, Bill MacDougall (Auckland)

Term: 1 year

Sec/Treas., Kevin Flower (Taranaki)

Term: 2 years

Vice president, Tony McKee

Congratulations to all the committee.

The AGM was followed by Trades night (with cocktails and nibbles) with 35 exhibitors.

Trades night, a tradition at conference, was extremely well supported by members and exhibitors alike, with over 100 guests attending for over three hours. Organisers and members should be congratulated by showing strong commitment to ensuring the major sponsors and other sponsors and exhibitors received value for their expense and effort. Of course many attendees went home with much technical information on the latest biomedical and facilities engineering information, not to mention many of the prizes offered by the exhibitors.

On the second day, 10 papers were presented in the morning session between 8.30am and 12.45pm, across two separate technical streams

Among these very good facility papers, Nick Waddington, SKM Wellington, encouraged us to "join the crusade" of sustainable design. Dan Coffey (EECA) urged us "energy technology...we have it now...go out and build it!"

The afternoon session saw us all rejoin and four very different and informative papers described...SSU design and operation, Tomorrows healthcare technologies, Asset management in healthcare (member's paper) and ANZEX report.

The annual dinner was a great night, well supported and held with buffet and wine in the Crowne Plaza ballroom. During the evening the BOC sponsored Engineer of the Year award was presented by Jim Nesbit, to a very able young biomedical engineer from the West Coast District Health Board, Robert Raeder.

Not least, the ladies program was well organised over the two days by Lyn MacDougall and enjoyed by all those ladies who participated.

A final message coming though from the executive and the general tenor of the conference, Members please make your applications for the significant training grant and put your or others names forward for the BOC Healthcare Engineer of the year. Keep referring (and contributing) to our website and magazine, promote and do not undersell your professional value to your organisation, and have a great Christmas break!

In summary, a first class conference was again organised by Bill MacDougall and his Auckland based team. A big thankyou to you Bill and your team.

## Report on 61<sup>st</sup> Annual Conference of NZIHEEM.

The Biomed Engineer's View by Kevin  
Flower, Webmaster

**Andrew Paterson**, President NZIHEEM officially declared our 61<sup>st</sup> Conference open at 0930 on Thursday 9<sup>th</sup> November 2006. Andrew welcomed all delegates, speakers and guests.

The Keynote speaker was **Wayne Brown**, Chairman of Auckland DHB, whose presentation considered the statement "Engineers keep the Health System running". Mr Brown considered strange the fact that a National Pandemic Exercise was occurring this day to test the systems for managing a pandemic whilst the majority of the nation's Hospital Engineers were absent from their place of work.

**Graham Dudfield** of Waikato DHB was our ANZEX Delegate to the IHEA Conference in Adelaide. Graham presented a paper titled "Hospital facilities management and engineering – creating a career pathway". The paper discussed such things as our aging workforce and skills shortage and the fact that replacement engineers are difficult to find and the experience lost through retirements can be huge. An example given was the loss of 8 staff over recent times at Waikato that removed, collectively, 150 years of experience. Graham indicated that some action is required to develop a career pathway to encourage school leavers into hospital engineering and reminded members of the Institute that the Institute was a prime mover of the Hospital Engineer Cadet Training Scheme that trained many existing hospital engineers such as Graham Dudfield.

Morning tea was kindly sponsored by GE Healthcare & CASS Medical and delegates used the time to refresh acquaintances and network.

The Australian ANZEX Delegate to our Conference, **Kevin Moon**, presented a paper regarding the infection control risks involved in maintenance & construction in Hospitals. Kevin indicated that "We work in a 'no like environment' with special infection control needs". We should cultivate a working relationship with the infection control team to ensure greater knowledge of some of these special risks and ensure we empower our workers and contractors with this knowledge.

The afternoon session involved site visits to either the **BOC Glenbrook production** site or **Fisher & Paykel Healthcare manufacturing site** at East Tamaki. I chose the Fisher & Paykel site visit and was suitably impressed with the growth of the premises since their move from Panmure. Fisher & Paykel manufacture almost every part of the medical devices they sell including all peripherals and consumables. The visit also included a presentation covering the need for humidification and some of the biological and machine processes involved.

The Institutes Annual General Meeting was held on our return to the Conference Venue. The business of the AGM involved the election of officers and the new Executive comprises: **Bill MacDougall** (Auckland) President, **Tony McKee** (Hastings) Vice President, **Kevin Flower** (Taranaki) Secretary/Treasurer, **Kevin Bardsley** (Waikato) Executive Member, **Barry Vaughn** (Waikato) Executive Member, **Richard Whitehead** (Capital & Coast) Executive Member, **Jim Logan** (Retired) Journal Editor, **Andrew Paterson** (Capital & Coast) Immediate Past President, **Tony Blackler** (Canterbury) Executive Member/Mentor.

The 62<sup>nd</sup> Annual Conference will be held 8<sup>th</sup> & 9<sup>th</sup> November 2007 at the Grand Chancellor in Christchurch.

The ANZEX Delegate to represent NZIHEEM at the IHEA National Conference at Melbourne in September 2007 was announced as **Kevin Flower** of Taranaki DHB.

A feature of our Conference is the Trades Night this year held on Thursday evening. Refreshments were kindly sponsored by RS Components. 32 Trades stands meant the three hours available was quite busy if each stand was to be visited. Represented at the Trades Night were SKM, JCE Holdings, Biolab, BEIMS, RS Components, CASS Medical, Alphasat, Aquatherm, Austco, BOC, Cardinal Health (Alaris & Pyxus Products), Clipsal, Domo Technica, EECA, Medical Design Innovations, Medical Equipment Services (Welch Allyn), MedXus, Philips Medical Australasia, Promed Technologies, ZOLL Medical, Tech Rentals, Sub60, Keyport, Tyco Healthcare, Medchem Surgical, Halstead Flooring Concepts, BECA, and Miracle Electronics Ltd.

On Friday morning the Conference Delegates split into a Biomedical or Facilities stream for presentations of particular stream interest. **Gareth Hull** presented the first Biomedical paper titled "Anaesthetic machines and gas flow pathways". Gareth's presentation was based about information used to train new anaesthetic technicians and involved clear descriptions and pictures.

**Sue Frost** spoke about "Electrosurgical safety from a clinical perspective" and, whilst representing her diathermy company well, provided some insights into the difficulties experienced by theatre nurses in finding the right compromise between diathermy machine needs and the available spaces left on the patient for the return electrode.

Morning tea was sponsored by BECA.

**Brent Percy** presented a good view of what goes behind the walls for "Medical gas piped systems – an overview from supply to outlet". The presentation style was discussion oriented and a lot of useful information was imparted regarding methods of reticulation and some of the hazards involved in installation and maintenance.

"Biomed involvement in Projects and Major Capital Expenditure" was discussed by **Tony Blackler**. As most of us understand both the clinical issues and the technical plans we are best placed to advise at an early stage. Remember to consider Life Cycle Costs especially as relates to medical equipment and peripherals/consumables. A wealth of information exists within our network and should be utilised.

**Mike Kelly** of RS Components spoke of the rather new, and special, relationship set up between Auckland DHB Clinical Engineering and RS Components for the management of the purchasing to invoice process. "E-Commerce – How does it work for you?" presented a view of a method of procuring parts quickly for the biomedical team, but still with sufficient control for the accounts personnel. The process involves the Internet and a suitable exchange of database information with authorities etc. The process has proved very functional for Auckland but mostly made me, personally, very pleased that my employer allows our engineering department a stand alone purchasing system.



For the afternoon session both streams rejoined. **Anthony van Lamoan**, manager CSSD Auckland DHB, Spoke of "Sterile services initiatives". Anthony is passionate about his work and compared CSSD to a manufacturing pharmacy for the purposes of cleanliness issues. Anthony spoke of location and delivery times in considering the design of new CSSD and the fact that we need to design for tomorrow not today.

**Neville Gibbs** presented a strong sales pitch for the Merlon Nurse Call System. He used a wish list scenario to describe the design principles of their system, "Taking technology to help us, not make us work harder".

Afternoon tea was again sponsored by BECA.

**Andrew Paterson** spoke of "Asset Management Concepts". Another passionate speaker, Andrew has partially implemented a plan to database all relative data

regarding assets, including full Autocad, or similar, drawing information with sufficient metadata tags to allow simplified storage and retrieval of assets within assets etc.

**Graham Dudfield**, ANZEX Delegate 2006 presented a picture show of the site visits made during his visit to Australia. The presentation was well constructed and informative with special regard to similarities and differences between our two country's facilities systems. Graham also invited delegates to attend the next IHEA National Conference, 11 to 15 September 2007, in the Telstra Dome, Melbourne.

**Bill MacDougall**, Conference Organiser and newly elected President advised delegates and guests regarding our annual dinner in the evening.

The Annual Dinner was another chance to meet and network and enjoy an excellent meal at the same time. After the meal The winner of the BOC/NZIHEEM Engineer/Biomed of the Year award was announced and the award was presented to **Robert Raeder**, of West Coast DHB. Robert receives a framed certificate and an allowance of up to \$2000.00 to attend a conference overseas.



The 2007 ANZEX Delegate to Melbourne, Australia was publicly announced as **Kevin Flower**, of Taranaki DHB. The ANZEX Delegate is sponsored for an up to two-week visit to Australia to attend and participate in the Annual Conference and to visit Hospitals and Health Care Facilities.

Tony and Allison Blackler invited all delegates and partners to attend the 62<sup>nd</sup> Annual NZIHEEM Conference over 8<sup>th</sup> & 9<sup>th</sup> November 2007 at the Grand Chancellor in Christchurch.

Webmaster.

## Conference partners' programme

On Wednesday morning Jim and I braved the Auckland traffic to arrive at the Crown Plaza Hotel to begin another conference. It was great to welcome Heidi Moon, the Australian delegate's wife and to meet up again with Lyn McDougall, Allison Blackler, Judie Flower and Chanel van den Berg. We started off in Lyn's room to complete the filling of the delegates' conference packages and then went up to Judie's room [27<sup>th</sup> floor I think] for morning tea. [Lovely tea and cakes Judie]. Lyn, then said she would take us to Brown's Bay for lunch and a look at the shops. First we had fun getting out of the parking building. We searched three levels before we found the car [husband parked it last]. Next, when Lyn came to the automated exit, the ticket to let us out had not been validated by the Hotel [the car park fees were put on the bill]. Several cars were now amassing behind us. Fortunately the manager was handy so got us backed up and parked whilst Lyn sorted it out. Once out on the streets it was an eye-opener to us, from the smaller regions, how traffic moves in the big city – roads and cars seemed to be hurtling in all directions. Lyn handled it effortlessly. Brown's Bay is an attractive northern suburb with stunning views of the sea and a delightful shopping area. We had a lovely lunch at a French Café [Heidi confided that one of her favourite pastimes is eating!!!- don't know how she stays so slim.] Then it was shopping time. We found an old style emporium with so much "stuff" it was hard to manoeuvre between the aisles. Joy oh joy! Bargains galore. A few yards of fabric, some as low as \$2 a metre, and other interesting things were purchased. And, who was that trying to talk us into buying strange garments that modest ladies would not be seen dead in?!! It wasn't you, was it Allison? An enjoyable day, thank you Lyn.

That evening we joined our partners for the executives' dinner.

Thursday arrived very wet and windy. We had one more lady join our happy band – Sue Ward. Our destination was to be Dress Mart so out we went onto Queen Street to catch the free shuttle. Easier said than done. After several false starts and stops, being directed to wrong places and with a quick sprint down Queen Street we eventually caught the bus!! No stone was left unturned in our search for a bargain in Dress Mart. Much trying on and ho – humming but we all got back on the bus two hours later clutching a bag or two.

While we were away Lyn had set up a demonstration of colour analysis and tips on wardrobe planning. Co-ordination is the key so we are all going home to throw out the "orphans" in our wardrobes and to look more carefully at the colours we wear. Chanel was the lucky? guinea pig used to demonstrate how colours affect the way we look. A very interesting and fun session. We finished with a lovely Devonshire tea.

The evening was spent at the Trade stands exhibition. As always the stands were interesting and informative. Much hilarity was caused by an electronic golf cum darts game, set up in the foyer, which tested eye and

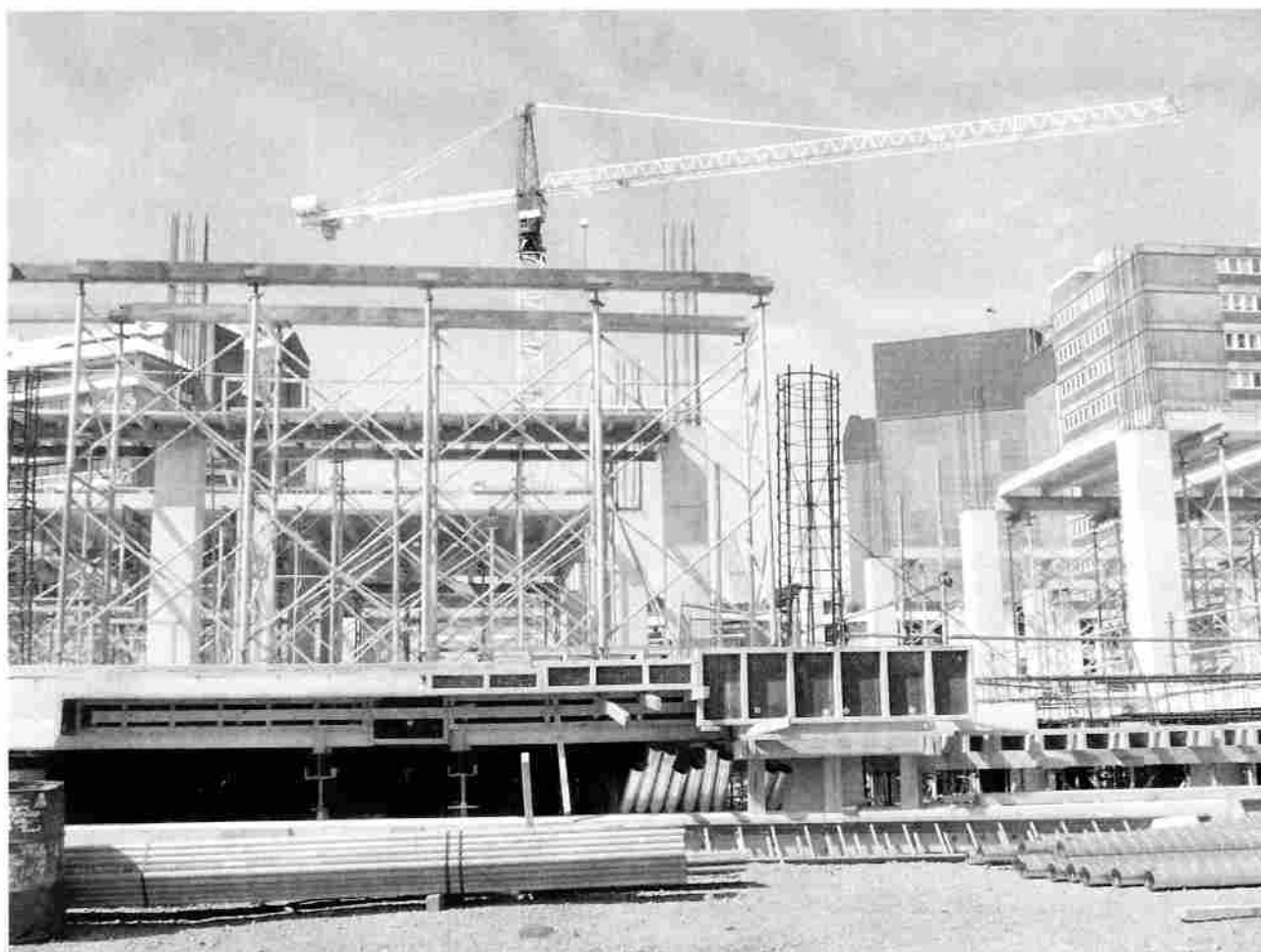
hand co-ordination. The ladies were gratified to see Chanel come third.

The bad weather had subsided when we met in the foyer on Friday morning to take a bus to Crystal Mountain in the Waitakeres. This gallery houses a large selection of minerals and crystals – not only in the raw state but also cleverly crafted into jewellery and ornaments etc. More shopping with purchases on show over morning tea in the café attached to the gallery. Then it was back on the coach for the trip over the Harbour Bridge to Devenport. An art gallery at our "get off" point was explored, along with Peter Raos' glass blowing studio. It was a short walk around the corner to a chocolate shop – plenty of customers but little buying as it was very expensive. We found a little café for lunch in an arcade off the main street. Allison and Judie explored upstairs while the rest of us were ordering. Next thing there was thumping and scraping coming from over head!! They were rearranging the furniture so we could all sit together!! So we sat in splendid exclusivity – no room for anyone else. At 3p.m. we caught the ferry back to the city [very calm on the harbour] where we would catch another bus to Victoria Market. It was a very hasty tour around that before it closed, with more bags of goodies going back to the hotel. The "shop till you drop" team is alive and well.

The last event of the conference is always the Annual Dinner. We were joined by other partners who could not make the daytime get-togethers – Tric, Denise, Wendy, Arlene, Megan, Annette, Chris and Posie. After the formal speeches and presentations Allison presented Lyn with a gift for so ably organising the ladies programme. Thanks were extended to Jasmine and Chanel for their help and Heidi was given a blown-glass kiwi to remember us by. All-in-all another very enjoyable conference. We look forward to meeting many more ladies at the next conference in Christchurch.



The lady partners.



This busy scene is the new Wellington Hospital slowly rising out of a very deep hole. Existing buildings are in the background.



Two shots of MidCentral District Health Boards new Horowhenua Medical Centre. The main entrance is on the left and on the right is the view from Liverpool Street. Unfortunately the completion of this project will mean the closure of the 135 bed Horowhenua Hospital which was built between 1967 and 1979 in three stages and is still in relatively new condition.