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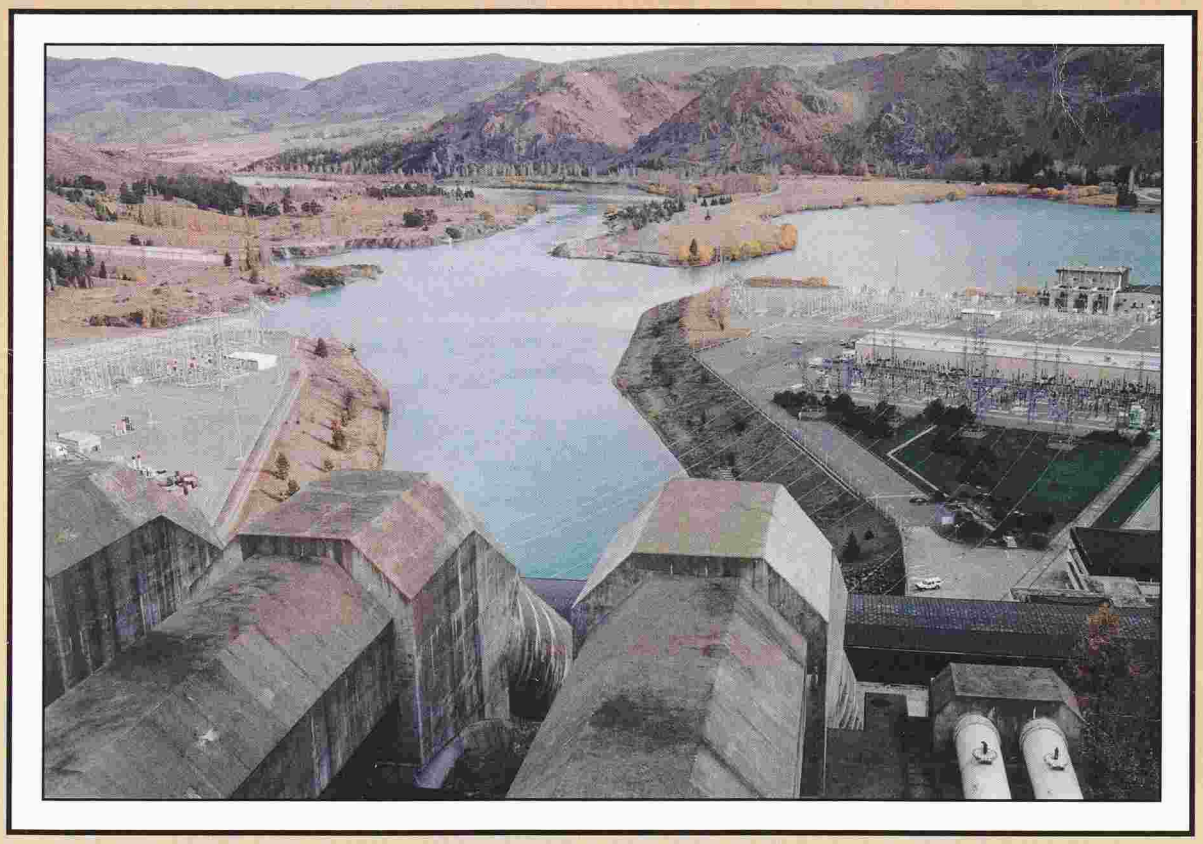
THE HEALTH ENGINEER



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 1 Spring 2003

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Cover Photograph :- With the possibility of power cuts if the lake storage levels drop too low, the lower Waitaki River is again being looked at for more power generation. Another Benmore Dam?

The health and viability of any organisation 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.

President's Comments

As this edition goes to print final planning for this year's Conference is being undertaken. The theme for the conference is Education and Training – "Making Today's Experience Tomorrow's Knowledge" and has provided the opportunity for a diverse range of topics to be covered. We have followed last year's successful combination of Facilities and Biomedical streams on day one and split streams on day two. The site visits will also provide an opportunity to view the application of research and development, manufacturing and quality systems, with visits to Dynamic Controls and Pulse Data International. Both companies are known internationally for excellence in their respective fields.

In November last year BOC announced the Engineer of the Year Award. This is an opportunity to acknowledge the contribution that has been made by a Facilities or Biomedical engineer. Nominations for this year's award may come from colleagues or the manager of an individual who has made a significant contribution in their field. The award will provide the opportunity to travel to an Australasian conference of relevance to their discipline.

The Biomedical service training course that has been in the process of development over the last year is now complete and will be offered by the TAFE in Australia for the first time later this year. It is our intention that this course will be available in New Zealand and will be an ideal foundation for those entering the Biomedical service field.

The amendment to the Electricity Regulations in January this year has had an impact in the electrical field for HealthCare organisations. AS/NZS3003, 3551 and 2500 have now been cited as a mean of compliance with the Electricity Regulations. ECP12 has now been superseded and inclusion of the three standards will assist in clarifying the uncertainty that existed previously as to which documents were relevant to this particular area of our activity.

It is encouraging to see a number of people have put their name forward as nominees for the Executive. It is essential that we have fresh faces and thought processes to assist with the ongoing development of our Institute. We have a sound membership base and it is vital that we build on this in the next few years. As I step down as President at the end of this year it would be my wish that we further develop the Biomedical participation in the life of the Institute. To achieve this it will be essential that we develop a core group who will become willing contributors to provide networking and information dissemination as a basis for further development of our Biomedical role.

Tony Blackler

New Zealand Institute of Health Estate and Engineering Management.
Australia / New Zealand Exchange 2002
Delegate: Kevin Bardsley.
Melbourne City, Australia.

Introduction

As a NZIHEEM member for 23 years, who has also served for several years on the executive, I was proposed and selected as delegate for ANZEX in 2002.
I had been fortunate to have been to Australia in 2000 to attend the International Conference of I.F.H.E. in Sydney, soon followed by a holiday to Melbourne in 2001 to run the city marathon, and I looked forward to the chance of returning to Melbourne in 2002, the venue for the 53rd Annual Conference of IHEA.

My choice of subject for my presentation at the conference (a requirement) was an easy one, as we had just completed a Library and Academic Centre at Waikato Hospital including a successful innovative partnering program with our project architects, design consultants and builder.

My itinerary was self-selected from development projects of interest that I had read about in the excellent Australian I.H.E.A magazine, with the final contacts being arranged and confirmed by my ANZEX coordinator, IHEA Federal executive member, Mike Ellis from Adelaide.

The following "diary" is intended to inform those members who may aspire to travel as ANZEX delegates in the future and I hope reveal the enormous gains to ones self development, strengthening the Institute and benefits to one's employer

13/14th October Sunday/Monday: (Travel / Free-day)

Departed NZ 7.35am from Hamilton on FreedomAir
Landed 8.30am Melbourne time

Some of the highlights of my weekend were: lunch with a relative at the Heidi Museum of Modern Art (Suburb of Heidelberg), a walk around the naturally beautiful Yarra river parkland, dinners with extended family, viewing the new Federation Square, the Exhibition Centre on the Yarra and the seemingly boundless casino.

15th October Tuesday (Executive Meeting and Conference Welcome Function)

I travelled from suburbs to my motel, Elizabeth Towers, which is opposite the Royal Melbourne Hospital (RMH) This was the venue for the conference. I then met Mike Ellis and his wife and proceded to the R.M.H. where I met the I.H.E.A. National Council Members:

President Roy Aitken (West Aust), Octo Moniz (West Aust), Mike McCambridge (South Aust), Jim Meldrum (NSW), Stuart Hentschel (Queensland).Geoff Johnston (NSW), Sergio Adofaci (Vic). Apologies were received from Brian Cork (Vic), (ANZEX delegate for 2002) and Kevin Moon (Vic).

I was welcomed to the National Council meeting which commenced at 10.00am. At morning tea we toured the newly refurbished conference facility at RMH with Mike Mc Cambridge showing us the trade exhibitors area, dining area and the main auditorium for the conference.

A few notes from the Federal (National) Council Meeting

Total IHEA membership 416 (including 100 retired members).

New Financial records have been impressively restructured in accordance with new gov't. rules.

Consultants had been involved during the year on development of "Professionalism" and "Quality" objectives for the I.H.E.A

The venue for the 2003: 54th conference is Royal Prince Albert (RPA) Hospital, Sydney.

A 2-hour "Marketing for IHEA" briefing was provided for two consultants who are running a "workshop" at the conference tomorrow.

The meeting closed at 4.30pm

An official welcoming dinner for delegates, was held that night in the RMH venue, closing at 10pm.

16th October Wednesday

DAY 1 of the 3 DAY I.H.E.A. CONFERENCE 2002

THEME: RISK MANAGEMENT IN HEALTH-CARE FACILITIES

105 were registered for the conference.

The conference commenced at 9.10am, with the official welcome by Paul Scown, the CEO of Melbourne Health : "RMH has 1200 nurses, has a $95M operating budget and is part of a Health network which has a budget of $500M, which currently running a $16M deficit".

His advice to engineers present included : "Make sure your new 30 bed wards are constructed so that they can operate as a 60 bed unit."

His opening address was followed by a welcome by Roy Aitken, National President of the IHEA.

Roy made several points to think about during the conference:

How does the IHEA add value to the members in their places of work?

The importance of members adopting the principals of Strategic Asset Management.

Are we "too good" at maintaining old hospital's and plant?

"We need to improve sharing of resources, not going beyond our capabilities, and to know when to seek the assistance of others."

See the IHEA website for a Risk Management Planning Template (members only section))

Papers presented on the day (Copies are available.)

1) Dr Elizabeth Mullins (Keynote speaker):
Subject: Managing Clinical Risk in Healthcare, Why bother?

2) Bill Geerlings: Subject: Strategic Asset Management: "Survey all assets every 2 to 3 years,"

Criteria: Location (relationship and Co-location), Capacity (machinery, department), Condition, Compliance.

3) Octo Moniz and John Dransfield.
Subject: Understanding Engineering Risks and Risk Mitigation in Healthcare

Sponsor Segment: ECOLAB (paper available)

4) A Risk Management Guide: Deacons Lawyers (They developed the IHEA web-site Risk Management Tool)

LUNCH

5) Dr David Bradt (Keynote speaker), Subject: Lessons learned from the 11th September disaster aftermath. (He was involved as a clinician for Red Cross)

6) Gary Busowsky, Subject: Risk Management in Facility Management.

7) Kevin Bardsley, Subject: "Partnering in Contract Management" (NZ)

Sponsor Segment: Dorma BWN.

IHEA Annual General meeting was then held and this terminated at 5.30 pm.

The formal trades night was held from 6.30 to 10.00pm

17th October Thursday (Day 2)

The day commenced at 9.00am where I met two kiwis attending from Palmerston North.

Papers presented today were:

1) Professor Graham Brown (Keynote Speaker), Subject: Evolving Antibiotic Resistance.

2) An Infection control nurse from Austin Hospital, Subject: Training in the operation of cleanrooms, ante rooms, pressures gauges, alarms etc.

3) Kevin Moon, Subject: Management of Risk to patients of maintenance and construction activities: Pre-design Planning for Risk Assessment (involving the clinical team).

4) John Colquhoun, Subject: Computational Fluid (Airflow) Dynamic in Operating Theatre Design . (Bassett Applied Research)

(Airflows over table/patient,and team). Ideal ceiling layouts for HEPA units. "More" air though, is not always a positive thing".

5) IHEA Marketing Drive, facilitated workshop, (delegates broke into three workgroups for brainstorming and reconvened to discuss session outcomes)

Lunch and Site Tour: We toured the new $10M Work-in-Progress, reconfiguration of the services tunnels under the Royal Melbourne H.(An innovative risk mitigating project designed to replace ageing, exposed services and allow for ease of future building reconfiguration).

6) John Colquhoun: Subject: "Economically Sustainable Development" This was very forward-thinking and practical.

7) Ben Gelnay of the Dept. of Human Services (DHS). Subject: Essential Services.

He spoke of the need for fully worked up business cases based on risk assessment / management. "Make a bullet (business case) and fire it!". "Make it your job to have a high profile in this area." His other advice "Bring in energy consultants at Day 1,at the concept stage. (DHS has an energy consultants brief.)

I was treated to a night on the town with the President, Partners and delegates.

18th October Friday (Final Day 3).

The morning session commenced sharp at 9.00am.

Papers presented:

1) Doctor Gishel (Keynote speaker) Subject: A healthy heart and developments in Cardiology.

2) Ken Liddell. Subject: Strategic Asset Management Systems

"In Queensland, C.E.O.'s **must** spend 2.5% of their recurrent budget on both asset maintenance and Electro-medical equipment, possibly rising to 3 to 4% next year".

Queensland DHS has a very good manual which includes top down evaluation systems, right through to general service data sheets for each type of system.

3) Michael McLennan. Subject Non Ionisation Radiation Exposure

(Mainly rooftop Microwave /Telecom Transmitter Systems)

4) Mark Grieg. Subject: A Risk-Assessment-Based View of Engineering Services Infrastructure.

He analysed the AS/NZS Standard: 4360: Standard Risk Management Method: It is a good process to communicate to you executive and outside agencies such as your insurance company, "Your cards are on the table"

5) Jeremy Bowler. Subject: Corrosion in Piping.

A case study from Jeremy Bowler revealing causes and findings re pin-holing of "blue water" mainly copper mains in his hospital.

6) John Dixon Essential Services Compliance in Regional Areas (Compliance schedule in NZ language)

7) Bob O'Brien. Subject: Emergency Power for Equipment Used in Invasive Procedures.

Bob covered then importance of Catheter laboratory power supplies, U.P.S. supplies (for fluoroscopy only) using Lead acid not Ni. Cad

LUNCH

8) Professor Graham Brown (Keynote speaker) Bill and Linda Gates World Immunisation Program.

Graham is one of two Australians on the Gates Foundation.

9) Comedian of the highest order, Stunning surprise light relief covering subjects such as Tasmanians, animals, his girlfriend, those from Adelaide, ex wife, the casino, Thankfully no kiwi or sheep jokes.

Sponsor segment with Muller Industries

Presentation by the NSW Branch of 54th conference at Royal Prince Alfred Hospital in Sydney

The evening of the Gala Dinner - an excellent fun formal occasion at the Chiffley on Flemington where awards were presented and great music, dancing and conversation was enjoyed.

19th / 20th Oct. Saturday/Sunday: Social Outing and Post conference farewells.

Departing from the Chiffley Hotel at 10am, we travelled en masse to the South Bank then via a water taxi to Williamstown for lunch and the afternoon to rummage around this old historic sea port. Later I said fond farewells to the remaining delegates who were checking out and departing in the morning.

After collecting my wife from the airport Sunday morning we spent the day touring the city, and meeting finally with our friends, with whom we would stay for the remaining days of hospital visits and sightseeing.

21 Monday: Ist Day of Hospital Visits

My appointed time to meet Jeff De Campo, Director of Engineering at **Frankston Hospital** was 10.30am. After a 40 km journey on the train and a short walk to the hospital site, Geoff and I had a 20 minute discussion in his office and I was then introduced to some of his engineering personnel.

Jeff showed me around Stage 1 of a recently completed $21m development featuring a Entry/Reception lobby, new wards featuring collocation of Paediatrics/Obstetrics and Cardiology / Respiratory. These were mainly 4 bed / 2 bed wards and singles in a 30 bed configuration. I was particularly impressed by the sizable glass areas in all bedrooms and the resulting natural light.

The hospital has 40000 attendances at E.D. per annum, and has 4 existing theatres. The campus had grown rapidly along with the community and was now extremely constrained by road boundaries. Jeff advised me "the Ministry will generally not pay for carparking or roading development"

In the second stage ($15M), which was yet to commence, there will be two additional theatres to be built along with two day-surgery theatres and an expansion of the CSD to cope with the additional load.

We finished with a tour of the boiler house which is gas fired, steam and a control room with Honeywell BMS control systems for the site.

Geoff very kindly dropped me at the station where after a 40 minute trip back to Melbourne Central

From here, I travelled out to **Maroondah District Hospital** which is 40km North west of Melbourne where John Postlewaite, Deputy Chief Engineer was expecting me, and from 3pm to 5.30 we toured the site: A new $20M single storey was under construction at the foundation stage. The site also featured an existing Acute Psychiatric Block and there were 4 theatres in regular use.

Some of the new plant items seem were:

A Carrier reciprocating chiller plant.
An 800 KVA generator R.R./ Perkins
Hydrovane reciprocating Med. Air Compressors (2)

A new 30 bed ward was under construction. The innovation in elevating the existing roof-top plant and main building switchboard two stories onto a steel structure to allow the two 30 bed wards to be built underneath was impressive.

John kindly dropped me to the station where I caught train and tram home by 6.30pm.

22nd October Tuesday
The Austin Hospital at Heidelberg.

I had an appointment at 10am with Glen Cottee, Relocation Project Manager for Mercy Womens Hospital. We had a discussion in the project office, where the Dept of Human Services (our MOH) have a large project team in residence, Glen explained the project and showed me over the site of the new $320M hospital which is currently under construction. Glen is part of a team overseeing the soon to be relocated Mercy Women's site ($80 of the total cost) The development is the largest Victorian State project of any kind currently in progress. The women's tower block layout plans have been signed off and Glen provided some of these plans of the tower block to me to view.

Glen also offered several "Power Point" presentations showing the processes and the stages of design/development that they have followed which was of interest as we are embarking on the process at Waikato and Thames.

I spent a good deal of time looking around the "Austin" which is a large older base hospital located on a difficult steep hilly site. Many of the current buildings are well used: the new development due to open in 2004 will be a marvellous asset to the community and staff.

23rd October, Wednesday

I arrived at 9.00am at the **Royal Melbourne Childrens Hospital** to find Hank de Deug the Network Principal Engineer expecting me. Hank introduced me to his staff and is justly proud his engineering department. All trades were out-sourced, with a separate capital projects department. I then met his senior projects manager whose department undertakes $8m-$16m of capital work each year. A new research centre is currently in planning.

We toured the ED, NBIC, ICU, and 7 theatres including the CSD. Of special interest was the Children's play space (Starlight) with its own TV and radio station which broadcasts to all internal wards .

The engineering department overviews all security and BMS from one control room. Interestingly they have 2-3 serious public disturbances each week which need to be addressed by security.

I felt very honoured to spend some time with Research Director, Professor Bob Williamson whose Murdoch Research Trust employs 500 scientific researchers on

the hospital site! Human Genome research features. Bob advised he thought the "NZ research scene very small and not government backed. Bob used to work in Dunedin Hospital 13 years ago.

Hank then drove me to the **Royal Women's** where we saw the recently refurbished adult birthing area. This hospital may be relocated to RMH as the rumour goes. This is anticipated within 5-6 years so any capital work is tentative but ongoing i.e. $7m chilled water upgrade was progress at present. Some of the massive plant items viewed were:

1.3MW chiller capacity (largest Trane type units in Australasia.)
1.1MW generators x 2 on the roof in soundproof enclosures.
Front entrance and Women's ambulatory Area has been upgraded. "$12m repaint as quoted by Hank".
The New Born Unit was visited also.
Both the RCH and RW hospitals are in need of major upgrading but Government funds are tight . Planning is therefore in stage lots. RCH needs another 1600 car-parks and these are in urgent need

Hank had an excellent must-see model website (access via "departments" in www. rch.org.au) All his personnel are featured on his web site.

Royal Melbourne Hospital

My next appointment was back at the RMH where I met Mike Mc Cambridge and Brian Pope the Facilities Manager.

I was also introduced to Sue Ralph, Director of Infrastructure, who knows Dr Jan White, our CEO at Waikato.

Mike then escorted through the following facilities

1. A new A/E
2. A temporary adult observation prefabricated single storey ward .
3. A new inpatient dialysis unit - in an older narrow building but with modern efficient fitout with interesting joinery, easychairs.
4. A brand new state of the art ICU - a jewel in the crown, (one feature was an open air veranda for one patient)
   All bed services were via overhead suspensions, with nothing floor mounted.
5. New 60 bed wards!! (ideally 31 each).
6. The new three storey underground car park mentioned below.

All clinical areas have significant educational training rooms incorporated into each level, including the ICU and wards.
They had constructed a modular $1m 2 story temporary ward-block solely for decanting!

A 3 level carpark was excavated under the football field with the football field placed back on top with trees!

They are widening an existing narrow plan building and extending the height by 3 stories to provide space for 62 bed (2 by 31)wards with a clip-on lift high speed to ED from a new heliport on the roof .

Summary

My tour of Melbourne thus ended but in summary of my experience of these hospital visits my ability to visualise possibilities has been elevated through what I had seen and my appreciation and admiration unsurpassed for what is being achieved through the excellent and innovative works that our Australian Hospital Engineering colleagues are involved in.

This vision and innovation is driven by constraints such as limited land areas in the city and also the suburbs, inflexible building stock, cost of real estate, and project budgets, as in NZ, money is not as freely available as one might think.

Annette and I departed Australia at 7pm Friday night after a free day and a half, some of this time spent compiling the 250 photographs I had taken during my visits and during the conference .

On my return home I presented a summary of my visit to the excellent IHEEM Conference in Auckland in November 2002.

I especially want to thank Mike Ellis, the Federal Council of IHEA, the executive of NZIHEEM, my employer Waikato DHB and my hospital tour hosts for their kindness and valuable time. I also wish to wish this years ANZEX delegate Bill McDougall, "Bon Voyage".

The New Zealand Institute
of Health Estate & Engineering Management

58th Annual Conference
Christchurch

Education & Training

"Making Today's Experience Tomorrow's Knowledge"

6th & 7th November 2003

The Hotel Grand Chancellor

MEDXUS
high quality healthcare solutions

infinity solutions

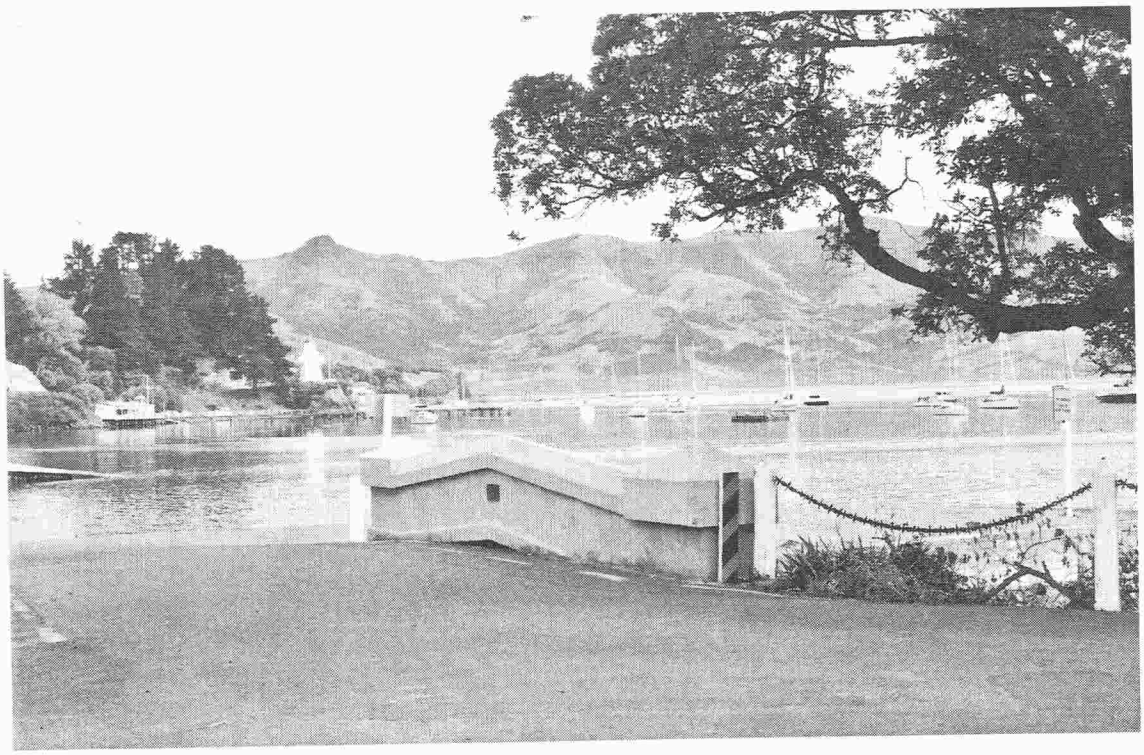
tyco Healthcare

city care

Photo above - The Christchurch Arts Centre.

Possible destinations for the Partners Programme ?

Photo below - Akaroa Harbour.



Conference Programme

Thursday 6th November

0800 - 0900 Registration

0900 - 0915 Official Opening

0915 - 1000 Clinical Paper –Prof. of Emergency Medicine
– Mike Ardagh

1000 - 1030 *Morning Tea*

1030 - 1115 Anzex Delegate
– John Dransfield

1115 - 1200 Health NSW
– Facilities Planning

1200 - 1300 *Lunch*

1300 - 1345 Clinical Paper
- Mobile Surgery

1345 - 1430 ANZEX Report
- Andrew Paterson

1430 - 1500 Update on 3 key Standards

1500 - 1530 *Afternoon Tea*

1530 - 1615 Strategic Asset Management – RDT Pacific

1615 - 1715 Annual General Meeting

1800 - 2100 *Trades Night*

Friday 7th November

Facilities

0830 - 0915 Citycare -Major Sponsor

0915 - 1000 Energy Management

1000 - 1030 *Morning Tea*

1030 - 1115 Facilities paper

1115 - 1200 Auckland Hospital Mechanical Services

1200 - 1245 Members paper

1245 - 1345 *Lunch*

1400 - 1630 Site Visit

Biomedical

0830 - 0915 Biphasic Defibrillation

0915 - 1000 Aspects of Ventilation

1000 - 1030 *Morning Tea*

1030 - 1115 Biomedical Service Technician Training Course

1115 - 1200 Developments in Anaesthesia Delivery

1200 - 1245 ICU Equipment Development

1245 - 1345 *Lunch*

1400 - 1630 Site Visit to Pulse Data International

1830 Cocktail Hour and Annual Dinner.

developing energy services contracts would be useful. It was also felt that the time taken to reach agreement could be reduced by 25-50%, with corresponding cost savings for professional fees. Suppliers of energy services and potential clients both identified similar requirements. The main sticking points centred on payment terms, share of risk, and legal terminology.

The features of the proposed tool include :-

- A modular approach to the contract for maximum flexibility.
- An element of standardisation for all energy services contracts.
- Sector specific guidance where appropriate (e.g. NHS).
- Sample clauses and descriptions of related issues. Clauses and methodologies to encourage Best Practice on energy efficiency
- Direction for compliance with PFI/PPP procurement.

The new tool will take the form of an interactive piece of software distributed on a CD-ROM. The output will be available in March 2003.

In the NHS Plan the Government has committed to a further £6.5 bn PFI projects including 100 new hospitals and approx £1 bn of smaller projects. This commitment will guarantee an improved energy performance for the new build hospitals to the new target of 35-55 GJ/100 m^3 and generate opportunities for Trusts to procure energy related projects through the PFI route that will perform at 55-65 GJ/1OO m^3.

Conclusion

The benefits to be gained from energy management and the potential to meet the new targets have been clearly demonstrated across the NHS for many years. The demand for this type of service is obvious from the growing numbers of Trusts which are providing energy through this type of contract. The new directives and Government legislation now detail clear energy and environmental objectives that will serve to focus on improved energy performance in hospitals. This can only help to meet the new targets, and achieve better energy usage and ultimately "green" performance. +

Editor's note - Just over two years ago the New Zealand Government introduced the **National Energy Efficiency and Conservation Strategy.** Towards a Sustainable Energy Future, through the EECA.
Some of the initiatives were looking for a 15% improvement in energy efficiency in five years, increasing renewable energy supply, improve efficiency in the energy sector, achieve best practice design in new buildings among a whole throng of initiatives. All very important for health and hospitals
Its now two years on, some results should be visible. Can anyone comment?