

## Fire Service Commission Funding

We are very pleased to announce agreement to enter the third five-year partnership with the New Zealand Fire Service Commission. Under this partnership agreement, the University of Canterbury offers and administers a Master's Degree in Fire Engineering, and employs a lecturer with funding from the Commission. As pointed out in the negotiations, the Commission funding is only a small part of the total funding for the degree programme, but the programme could not offer an acceptable level of education without this support.

## Science Outreach

This year we have been involved with the University's Science Outreach programme in local Secondary Schools. The aims of the programme are to encourage an appreciation of the pivotal place that science and engineering hold in modern society; to describe how research has the potential to solve some of the problems of our modern world; to persuade young people that the study of engineering and science at University is rewarding. The programme also helps to improve the communication skills of our graduate students.

ME Fire graduate students visit schools and give a 45 – 50 minute presentation on the science of fire through the principles of chemistry and physics. They help the students understand how fires ignite and what reactions keep them going, how fires spread and how much energy they have, and what sorts of materials make the best fuels.

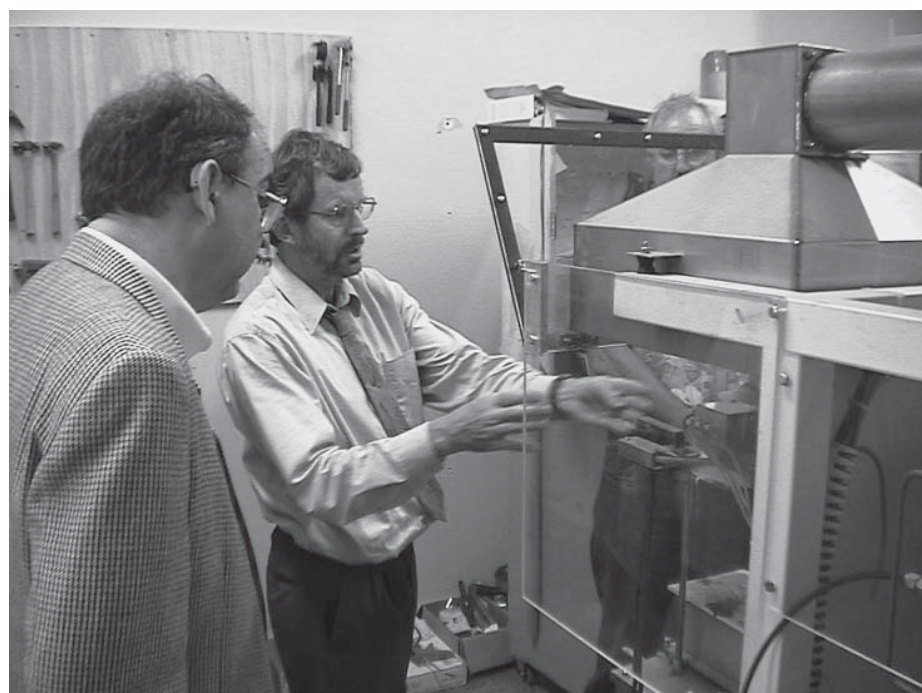
So far we have given over 50 presentations to schools around the country including Christchurch, Palmerston North, New Plymouth, Queenstown, Wanaka and Cromwell thanks mainly to the efforts of Stuart Harris and Craig Mills. To find out more about the Science Outreach programme contact Rebecca Hurrell at [outreach@canterbury.ac.nz](mailto:outreach@canterbury.ac.nz) or visit <http://www.outreach.canterbury.ac.nz>.

## Visitors

Dr Robert White from the U.S. Forest Products Laboratory (Madison, Wisconsin) came to visit us during the year and gave a presentation on the fire performance of wood composites.

Nils Johansson was this year's exchange student from Lund University, Sweden. We also welcomed Dr Joo Saeng Park who is here for a year as a post-doctoral researcher from Korea investigating the fire performance of timber construction.

*Robert White, Andy Buchanan and Warren Lane discuss Warren's experiments using the Cone Calorimeter.*



## Research sponsorship

Research projects undertaken by our students often need money to pay for equipment and materials, particularly where there is experimental work involved. The Department of Civil Engineering provides limited financial assistance and we are also able to use a small portion of the New Zealand Fire Service Commission sponsorship money to help students with their research. However, we are grateful to several other significant sources of funding which allow us to continue a range of projects:

- Roger Harrison was awarded a research scholarship through the SFPE Educational and Scientific Foundation for his Master's degree project on balcony spill plumes. ( Roger is shown on the right with technician Grant Dunlop and the test rig).
- CHH Futurebuild have provided financial support for Warren Lane and Stuart Harris to investigate the fire performance of laminated veneer lumber (LVL).
- Stuart Harris also has an Enterprise Scholarship from Technology New Zealand, in association with CHH Futurebuild.
- Winstones Wallboards continue to provide help for student projects, including the current investigation into the degradation of gypsum plasterboard under fire exposure, by Chu Ngu



## Conferences and visits

Mike Spearpoint attended the 20th CIB International Conference on Information Technology for Construction at Waiheke Island, Auckland and the International Conference on Building Fire Safety, QUT, Brisbane. In both conferences Mike gave presentations related to his ongoing research work into the integration of fire simulation software with the IFC building product model.

Mike also went to the Fire Protection Association New Zealand (FPANZ) seminars on the recently published New Zealand standards for fire alarm systems and sprinkler systems. These seminars were also attended by several of our current graduate students thanks to the reduced registration fees offered to us by Bob Taylor at FPANZ.

In March 2003, Andy Buchanan presented a paper on Fire Safety in Timber Construction at a meeting of the International Union of Forest Research Organizations (IUFRO), at Rotorua. Andy Buchanan also attended a Structures in Fire specialty conference organised by the Society of Fire Protection Engineers (SFPE) and the American Society of Civil Engineers (ASCE) in Baltimore, USA during October. This was followed by a workshop on future research needs for structural fire engineering, hosted by the National Institute for Standards and Technology (NIST). Andy presented papers at both events.

## Summer work experience

Arup Fire – Australasia is offering the opportunity to work in one of their offices over the summer break, for students who are intending to undertake our ME (Fire) degree. Students will learn how performance based fire safety design is developed on various types of projects and be exposed to general consulting aspects such as fee submissions, contracts, assessment documentation, approvals processes and client contact.

Arup Fire will employ selected students for a three-month period in their Brisbane, Sydney, Perth or Melbourne offices before starting the Masters programme. This is an excellent chance for students to put what they will learn during their coursework into context as well as allowing them to travel and work at the same time.

A similar summer work scheme is also being offered by Connell Mott MacDonald and their scheme is open to 2nd and 3rd Pro students who might be interested in pursuing a career in Fire Engineering once they have completed their undergraduate studies.

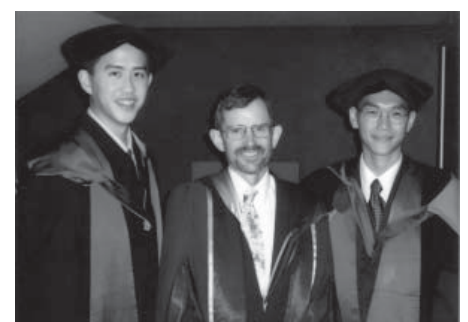
## News

Charley Fleischmann has been on sabbatical leave for the second half of this year. During this time he spent a couple of months visiting the US during where he

worked with the developers of FDS at NIST. While Charley has been away, the ENFE 604 Case Studies course has been looked after by Tony Enright, a PhD graduate of our programme, who now works for Connell Mott MacDonald here in Christchurch.

## PhD Congratulations

Congratulations to Dr Ee Yii and Dr Linus Lim who both graduated with their PhD degrees at the April 2003 ceremony. They join a small group of five PhD graduates from the Fire Engineering Programme at the University of Canterbury, the others being Dr Geoff Thomas, Dr Tony Enright, and Dr Jason Clement. The topic of Ee's thesis was modelling of post-flashover compartment fires, and Linus's topic was structural behaviour of reinforced concrete slabs in fire. Both Ee and Linus are now working in Sydney, Ee with Arup Fire and Linus with Holmes Fire and Safety.



*Prof Andy Buchanan with new Fire Engineering PhD graduates Linus Lim(left) and Ee Yii (right).*

## Research Reports

The most recent Fire Engineering Research Reports are listed. Previous reports are listed on our website at [http://www.civil.canterbury.ac.nz/fire/fe\\_resrch\\_reps.html](http://www.civil.canterbury.ac.nz/fire/fe_resrch_reps.html), with many available for download as PDF files. You may purchase hardcopy reports for NZ\$50 (postage included) from Catherine Price, [catherine.price@canterbury.ac.nz](mailto:catherine.price@canterbury.ac.nz).

### 2003/1 Ee H Yii

Modelling the Effects of Fuel Types and Ventilation on Post-Flashover Compartment Fires

### 2003/2 L Lim

Membrane Action in Fire Exposed Concrete Floor Systems

### 2003/3 J Williams

Life Safety Risk Assessment for Firecells with a Single Means of Escape

### 2003/4 B Hume

Water Mist Suppression in Conjunction with Displacement Ventilation

### 2003/5 VCM Huynh

Flame Spread Measurements of NZ Timber Using an Adaptation of the Cone Calorimeter Apparatus

### 2003/6 J Taylor

Post-earthquake Fire in Tall Buildings and the New Zealand Building Code

### 2003/7 J Chang

2-D Analysis of the Performance of Connections with Unprotected Steel Structural Members Exposed to Parametric Fire

## fire engineering recruitment

Sentinel Engineering is a UK based recruitment company which specialises in Fire Engineering. We readily recognise that from an employer's perspective, one of the main problems in any niche technical area is to identify suitable applicants for their requirements. From an applicant's perspective, Sentinel aim to be able to pass on up-to-date market knowledge to match each individual's personal career expectations with our client's needs and current ability.

Sentinel Engineering has established itself in the United Kingdom as a company which provides this search and selection service for both companies and individuals in the global Fire Engineering market. We have successfully placed a range of Fire Engineering professionals across the world and likewise found suitably qualified applicants for a huge range of companies which have approached us.

Sentinel represent professional fire engineers from all over the world, presenting a tailor-made range of opportunities to suit their needs, both professionally and in terms of geographical location.

Our website provides the opportunity for people based anywhere on the planet to register their requirements or advise us as to their current situation instantaneously – please contact one of our specialist consultants immediately to discuss how we can help you.

**T** 0044 1892 513400

**F** 0044 1892 548400

**E** [fire@sentinel.uk.com](mailto:fire@sentinel.uk.com)

**W** [www.sentinel.uk.com](http://www.sentinel.uk.com)

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## Publications

- R.Parry, C.A.Wade, M.J.Spearpoint. Implementing a glass fracture module in the BRANZFIRE zone model. Journal of Fire Protection Engineering. 2003.
- M.J.Spearpoint. The potential impact of building product models on fire protection engineering. Fire Protection Engineering, Issue 19, pp.42-48. 2003.
- M.J.Spearpoint. Properties for fire engineering design in New Zealand and the IFC building product model. 20th International Conference, Information Technology for Construction. 2003.
- L.Lim, A.H.Buchanan. Stability of Precast Concrete Tilt Panels in Fire. SESOC Journal, Structural Engineering Society New Zealand, Vol.16, No. 2, pp 44-54. 2003.
- J.Nyman, H.Gerlich, A.H.Buchanan. Equivalent fire resistance of drywall construction exposed to compartment fires. Proceedings, Fire and Materials Conference, San Francisco. January 2003, pp 21-32.
- L.Lim, A.H.Buchanan, P.J.Moss. Behaviour of simply-supported two-way reinforced concrete slabs in fire. Proceedings, ASCE/SFPE Structures in Fire Conference, Baltimore, Maryland, USA. October 2003.
- A.H.Buchanan. International status of design standards for structural fire safety. International Workshop on Research Needs for Structural Fire Engineering. National Institute for Standards and Technology (NIST), Baltimore, Maryland, USA. October 2003.
- M.J.Spearpoint, Integrating the IFC building product model with zone fire simulation software. Proc. International Conference on Building Fire Safety, QUT, Gardens Point Campus, Brisbane, Australia, 20-21 November 2003, pp. 56-66.