The Centre for Wind-Resistant Structures of the Department and CSIRO Building Construction and Engineering, Australia, jointly organized an International Seminar on Loading Standards for Structural Design: What They Can Do and When They are Inadequate. The seminar was held on 6th July at River View Hotel. Following the seminar, an International Workshop on Alignment with International Standards on Loading and Structural Design was held at NUS on the 7th and 8th of July.

The seminar attracted over one hundred participants with thirty five foreign delegates from Australia, China, Indonesia, Japan, Korea, New Zealand, Papua-New Guinea, Philippines, Thailand and the United States of America. This seminar is the second in the series, which was initiated two years back in Melbourne with the aim of harmonizing the loading standards to enhance trade within APEC region. As a first step towards harmonization of loading standards, the theme selected for the Singapore meeting was the ‘alignment of regional standards with international standards’

The seminar featured presentations by nine invited speakers on functions and processes of APEC Technical Group on Loading Standards, ISO standards, Singapore standards, applications of regional standards in the design of buildings and roof structures to wind and earthquake loads. These presentations provided a framework for the workshop participants to develop harmonized standards across APEC countries, and provided an opportunity for the local professionals to learn the applications and limitations of the current loading standards in structural design.

During the workshop, the current state of APEC member economies and standards on General Design Requirements and Structural Loading were reviewed with corresponding ISO standards, and recommendations were made on ways of achieving better alignment resulting in harmonized standards that reflect particular requirements of the region.

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The Centre for Protective Technology was established in 1998 through a Memorandum of Understanding between the Ministry of Defence (MINDEF) and the National University of Singapore (NUS). This Centre is multi-disciplinary in the nature of its research activities. The mission of the Centre is to spearhead research efforts in developing advanced protective technology for defence-related construction and to provide scientific and engineering solutions to meet this area of needs. Two of the research programmes of this Centre, namely the Structural Dynamics and Advanced Protective Material Programme, and the Geomechanics and Explosion Effects Programme, are currently managed by the Department. Current research projects involving departmental staff in these two programmes include:

(a) Analysis and design of blast doors.
(b) Constitutive studies and damage modelling of concrete.
(c) Fibre-reinforced polymers.
(d) Ground vibration effects on buildings and structures.
(e) Impact and penetration testing.
(f) Cratering and near-field ground shock.
(g) Ground vibrations from underground explosions.
(h) Use of geosynthetics in blast-resistant applications.
(i) Mechanics of earth penetrating projectiles.

In addition to MINDEF projects, departmental staff involved in these programmes are keen to collaborate with other faculty members, as well as local and overseas organisations in research relating to the above areas as well as other aspects of protective infrastructure and related fundamental and constitutive studies. Such projects can be directed towards the solution of specific problems or a class of problems, or the development of certain core research competency.

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Collaboration with MIT

Collaboration with University of Melbourne

The occurrence of haze episodes in this region has attracted wide interest among environmentalists, private land owners and government organisations and much public concern has been expressed on the ill effects of the haze on social, health and economic activities. The source of the regional haze has been attributed to the burning of huge tracts of forest in Indonesia and in spite of measures instituted to dissipate the continuance of slash and burn practice in Indonesia, authorities still expect periodic occurrence of haze episodes in the region. The dry El Nino season has exacerbated the situation here and there is continuing concern on the need to better understand the manner by which haze particles from forest fires in Indonesia disperse to neighbouring countries. In order to better comprehend the way haze particles move in the region when subjected to prevailing meteorological conditions, an appropriate regional climate model needs to be applied.

The Division of Atmospheric Research at CSIRO in Melbourne, Australia, has a regional climate model (DARLAM) which has been used for the modelling of changes in atmospheric composition of greenhouse gases such as CO₂, methane etc. under scenarios of landuse/landcover change. In this collaborative project with CSIRO, the DARLAM model shall be recalibrated and adapted for the modelling of haze particles in this region. The project seeks to enable the prediction of the occurrence of haze episodes and to provide real-time simulation of the development and propagation of haze particles in the region. Based on information obtained from computer simulation studies, appropriate estimates of haze impacts can be made and suitable policy measures may then be taken.

The two-year project commenced in July 1998 with a 3-month attachment of a research scholar to work with Dr John McGregor at the CSIRO Division of Atmospheric Research laboratory in Melbourne. On completion of the training attachment at CSIRO, the project shall proceed with the installation of the computer model at a dedicated PC at NUS. Installation and running the regional model on a PC will also provide the portability in demonstrating the modelling effort to other interested parties at non-NUS sites such as the Ministry of the Environment and the Singapore Meteorological Services. Once the regional haze model has been set-up at NUS, simulation of a number of scenario shall be carried out. Of importance, shall be the establishment of the relationship between the extent of haze episodes in Singapore and neighbouring areas. Simulation is proposed to be carried out to investigate the real-time development of haze clouds and its movement under a number of monsoonal climate conditions.

Contact Person:
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Collaborator: Prof J L McGregor (Melbourne)
SPECIALTY CONTRACTORS

Specialty contractors play an important role in the architectural/engineering/construction (AEC) process. They contribute specialized labor, equipment, and tools as well as detailed process know-how that are not otherwise available to those conceiving the design and the General Contractor. By nature each contractor’s work is limited in scope relative to the AEC process. However, in aggregate, they must work concurrently and in a coordinated fashion during different phases of the project so that their team effort can actually set the pace at which construction progresses. On building projects it is usual for 30 or more specialty contractors to perform 70 to 80% of the work. Thus, the coordination of specialty contractors’ work is crucial to project success. Despite their importance, relatively little research attention has been paid to them.

This study will provide a better understanding of production tasks or phases of the specialty contractors, especially how the work of one contractor would influence the progress of work of the others and the General Contractor. The result will be a generic model of data flow which will provide the framework for re-engineering, concurrent engineering and applying information technology to improve delivery efficiency of the work, and communication and coordination of information among the different participants in the project. It also provides the basis for developing a simulation model for planning and management of production tasks. Such a tool will allow for capacity planning, inventory level monitoring and resource level manning.

The proposed study follows the management principles and thinking of lean construction, which is the complement from the construction perspective of the new production philosophy called lean production. Lean construction looks at the flow of resources. By managing flows, inventories can be reduced or better placed, and other production wastes can be significantly decreased. Existing management tools in the construction industry do not permit the type of planning and management envisaged in the proposed study. A new set of tools is being developed, such as Last Planner (Howell and Ballard). The proposed study is to augment these tools for the management of the production tasks of the specialty contractors. Total amount of funds: S$31,650.

Contact Persons:
Principal Investigator: Assoc Prof David Chua Kim Huat, Tel: (65) 8742195; e-mail: cvedavid@nus.edu.sg
Collaborator: Prof I D Tommelien (Berkerly)

Collaboration with
University of California, Berkeley

Production Management in SPECIALTY CONTRACTORS

A Study of Biostability of Stored Potable Water and Treated Effluent

Biostability is an important issue for water distribution and industrial water recycling and reuse systems and has been receiving considerable attention in the fields of water treatment, water reclamation and water quality management. Water with poor biostability will lead to the formation of biological slimes that are attached to the surface of distribution pipes and water storage tanks. The formation of slimes will in turn result in an increase in energy costs for water transportation, pipe corrosion, and dissolution of iron and other metal ions into water. It is therefore clear that poor biostability will lead to deterioration of water quality, violation of water quality standards, and increased operating costs.

Although biostability has been studied in North America, Europe and East Asia, the results obtained thus far suggested that biostability is very much governed by the prevailing local conditions. As a result, it is necessary for each country concerned with water supply and water reclamation to investigate biostability based on her own local conditions and to establish experimental procedures and interpret the implications of the findings relevant to her own conditions. The objectives of the project are:

(a) To establish appropriate analytical procedures for measuring the biostability of stored potable water and treated effluent based on Singapore conditions;
(b) To establish a database on biostability of stored potable water and treated effluent relevant to Singapore conditions;
(c) To evaluate the effectiveness of selected treated technologies in terms of biostability relevant to Singapore conditions.

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Collaborators:
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Mr C T E Lim, Tel: (65) 8746392; e-mail: cvectes@nus.edu.sg
Prof P Shah (Northwestern University)

Collaboration with Northwestern University

Strengthening of Reinforced Concrete Elements

This project is to further our current research and development efforts into the repair and strengthening of reinforced concrete elements. The significance of this research to the industry is reflected in the ever-increasing need and expenditure for upgrading existing infrastructure and the redevelopment of those damaged through wear or neglect. Repair and strengthening of these structures are often expensive due to the high cost of materials and skills required. Selection of remedial methodologies is often based on the judgement of the engineer. The project aims to investigate cost-effective ways to repair and strengthen reinforced concrete elements. This project will be carried out in collaboration with Prof. S.P. Shah of Northwestern University, USA. Prof. Shah has developed an accurate method of monitoring crack formation in concrete specimens. With his collaboration, it is hoped that a similar system be developed locally to facilitate future research in this field. The project commenced in August this year and is expected to be completed in 3 years. Total funding amounts to about S$150,000.

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Principal Investigator:
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Assoc Prof K C G Ong, Tel: (65) 8742169; e-mail: cvengkgc@nus.edu.sg
Mr C T E Lim, Tel: (65) 8746392; e-mail: cvectes@nus.edu.sg
Prof P Shah (Northwestern University)
**Fatigue Crack Modelling**

The determination of crack development due to fatigue loading is at present based on highly empirical methods. As a result, there is some doubt as to their predictive quality in departures from well-researched problems. It is proposed to improve such prediction on the premise of the recently-formulated unified model. The material medium will be “Seeded” with local defects to reflect the existence of micro-cracking. Subsequently, the most critical of these cracks will be deemed to extend under load in accordance with unified fracture criteria. Where sub-critical cyclic loading occurs, the weakening of the material ahead of crack tip due to the notional systematic breakdown of inter-molecular bonds will be modelled such that a correspondingly lower level of loading than for monotonic application would be sufficient to cause fracture.

Contact Persons:
Principal Investigator:
Assoc Prof K W Lo, Tel: (65) 8742288; e-mail: cveljy@nus.edu.sg
Collaborator:
Assoc Prof M O Lai, Tel: (65) 8742577; e-mail: mpelaimo@nus.edu.sg

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**Advanced Analysis for the Design of Composite Structures**

Use of lightweight composite materials has gained wide acceptance in North America and Western Europe for infrastructure construction. Composite construction is less labour intensive and the structure is often lighter and buildable compared to the conventional reinforced concrete or steel structures. A lightweight system will produce a significant reduction in labour costs arising from a reduction in the time and man-hours needed for erecting and dismantling the structures and their transportation. The harsh working conditions in the marine and construction environment further require the structure or element to withstand chemical/ultra violet corrosions, bursting pressure, cutting/welding debris and salt-laden environment. In resolving the above challenges, the steel group proposes to develop lightweight polymer/carbon/glass-fibre composite materials for the construction and marine industries. The steel group has been involved in several projects of composite construction and has developed a computational model to predict the limit-states behaviour of composite elements. With the test facilities available in the structural laboratory, it is now feasible to perform full-scale tests to formulate design guidance for composite structural elements. This project is funded by NUS with a grant of $111,760. The research findings will help to strengthen the core group research into the development of high-strength and lightweight products for the industry.

Contact Persons:
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Collaborator:
Assoc Prof N E Shanmugam,
Tel: (65) 8742288; e-mail: cveshanm@nus.edu.sg

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**Graduate Diploma in Aviation Management**

The Department of Civil Engineering, NUS has been hosting the Graduate Diploma in Aviation Management programme jointly with the Singapore Aviation Academy (SAA) since 1994. Due to the multi-disciplinary nature of the programme, the NUS portion is hosted jointly with the Faculty of Arts and Social Sciences.

This programme consists of 7 modules, of which 3 are offered by SAA and 4 by NUS. The modules offered by NUS are Transportation Economics, Transportation & Development, Management in Transportation and Transportation Analysis. All modules, except Transportation Analysis, are taught in an eleven-week special term from July till October each year.

Participants of this Diploma programme are mostly senior airport managers, with degrees in engineering, technology, science, social science or business management. So far, the programme has attracted 51 professionals from 19 countries and regions (other than Singapore), including Angola, Bhutan, Botswana, Gambia, Hong Kong, Indonesia, Macau, Malaysia, Myanmar, Nepal, Namibia, Oman, Papua New Guinea, South Korea, Thailand, Saudi Africa, Uganda, Zambia and Zimbabwe. As of June 1998, 24 of them have successfully graduated with a Diploma.

The Department is pleased to learn that Mr. Bethuel Tijao Nujetenga, one of our Diploma graduates in the Class of 1996, is recently appointed as Director, Civil Aviation in the Ministry of Works, Transport and Communication, Republic of Namibia.

**Seminar on Structural Concrete: Design, Construction and Maintenance**

A half-day seminar on “Structural Concrete: Design, Construction and Maintenance” was organised by The Structural Concrete Group of the Department of Civil Engineering on 19 August 1998. The seminar provided a forum for the presentation and discussion of new concepts in structural concrete design, and issues related to the construction and maintenance of concrete structures, among both local and foreign participants. The presentations included “Asian Concrete Model Code”, “Retrofitting of Reinforced Concrete Buildings”, “Design, Construction and Maintenance of Civil Defence Shelters”, and “Retrofit and Its Design Method”. It was well attended by about 80 academicians and practising engineers.

Contact person: Assoc Prof Tan Kiang Hwee
Tel: 8742260; e-mail: cvetankh@nus.edu.sg
The Land Transport Authority of Singapore and NUS signed a research collaboration agreement on 1 September 1998 to develop laboratory and field performance evaluation procedures for drainage mix. Drainage mixes have been used on several sections of Singapore expressways to improve the wet-weather skid resistance properties of pavement surface. The project will work out network level procedures for conducting performance evaluation of the wet-weather skid resistance of drainage-mix pavements. A procedure for verifying drainage mix design in the laboratory will also be established. The recently patented NUS laboratory and field permeameters will be useful tools for achieving the objectives of this project. The NUS project investigators are Assoc Pros T F Fwa, S A Tan and W T Chan. The LTA research team members consist of Mr Lim Bok Ngam, Senior Manager (Roads Construction), and Engineers Mr Muhammed Najib and Mr Chuai Chip Tiong. LTA contributes the total project funding of $312,000.

Contact Person: Assoc Prof T F Fwa; Tel: (65) 8742276; e-mail cvetankh@nus.edu.sg

The Department of Civil Engineering hosted the 10th meeting of the International Committee on Concrete Model Code for Asia at the National University of Singapore from the 17 to 18 August 1998. Besides twenty foreign members from 10 Asian countries, local representatives from the Building Control Division of the Public Works Department, Construction Industry Development Board, Singapore Productivity and Standards Board, and The Singapore Contractors Association Limited also attended the meeting. The Committee’s aim is to establish a model code for the design, construction and maintenance of concrete structures that would facilitate cross-border construction activities in Asian region. It will be issuing the second draft of the document in March next year. The meeting also discussed the by-laws for the Committee as well as the establishment for a permanent body. For further details, please contact Assoc Prof Tan Kiang Hwee at 8742260 or cvetankh@nus.edu.sg.

Participants of the 10th Meeting of the International Committee on Concrete Model Code for Asia

Following the earlier visits of WERF officials, WERF has sent a letter informing us that they would like to develop a MOU with WBG. WERF noted that the R&D programmes conducted by WBG through its four R&D teams offered them a comprehensive window to the R&D interests in water and wastewater treatment in the region. WERF is the research foundation belonging to Water Environment Research, an association for environmental engineers and scientists with the largest membership in the world. WBG has also been invited to bid for WERF funded projects.

Prof Miao Yinggi Visits WBG

Prof Miao Yinggi of Jiangsu University of Science and Technology paid the group a visit on 24 August 1998 and had discussions with Prof WJ Ng on SBR technology. Prof Miao was particularly interested in WBG’s work on cyclic technologies because he is writing a book on wastewater treatment and he would like to include a section on such technologies. He toured WBG’s experimental set-ups and expressed keen interest in WBG’s comprehensive programme on SBR R&D. He would also look forward to opportunities to collaborate with WBG on wastewater treatment R&D.

In August a team from French environmental engineering company, Lyonnaise des Eaux, visited the Wastewater Biotreatment Group (WBG), to examine its R&D programs. The team of Drs Jaques Manem, Urbane, and Audic spent a day studying WBG’s R&D programs and has decided to focus on WBG’s Cyclic Team’s program. Lyonnaise and WBG are presently in discussion on R&D collaboration and research funding.

R&D Collaboration with Lyonnaise Des Eaux

Dr J Manem led a team drawn from Lyonnaise’s Paris and Sydney research laboratories in a visit to WBG on 21 August 1998. Lyonnaise is a major French multinational environmental engineering and construction company. The French team spent a day studying WBG’s R&D programs and decided to focus on WBG’s Cyclic Team’s program. Lyonnaise and WBG are presently in discussion on R&D collaboration and research funding.

Contact Person: Assoc Prof Ng Wun Jern
Tel: (65) 8742172; e-mail cvengpwi@nus.edu.sg

Dr Calvert Churn led a team of wastewater engineers from Eastman Chemicals to visit WBG's experimental facilities on 24 August 1998. They were particularly interested in the work conducted by WBG’s Pretreatment and Biofilm Teams. Eastman is investing in a major manufacturing facility in Singapore and this includes a large wastewater treatment plant to treat the chemical wastewater. This treatment plant is expected to include anaerobic and aerobic reactors — the systems being investigated by the two WBG teams.

The Water Environment Research Foundation (WERF) has sent a letter informing us that they would like to develop a MOU with WBG. WERF noted that the R&D programmes conducted by WBG through its four R&D teams offered them a comprehensive window to the R&D interests in water and wastewater treatment in the region. WERF is the research foundation belonging to Water Environment Research, an association for environmental engineers and scientists with the largest membership in the world. WBG has also been invited to bid for WERF funded projects.

Activities of Wastewater Biotreatment Group (WBG)

Eastman Chemicals Team Visits WBG

Dr Calvert Churn led a team of wastewater engineers from Eastman Chemicals to visit WBG’s experimental facilities on 20 August 1998. They were particularly interested in the work conducted by WBG’s Pretreatment and Biofilm Teams. Eastman is investing in a major manufacturing facility in Singapore and this includes a large wastewater treatment plant to treat the chemical wastewater. This treatment plant is expected to include anaerobic and aerobic reactors — the systems being investigated by the two WBG teams.

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Tel: (65) 8742172; e-mail cvengpwi@nus.edu.sg

Participants of the 10th Meeting of the International Committee on Concrete Model Code for Asia
Assoc Prof Chan Eng Soon received the CE Dept Teaching Excellence Award 1998.

Assoc Prof Lee Fook Hou received the CE Dept Teaching Honours List Award 1998.

Mr Lim Huay Bak, Principal Laboratory Technologist was conferred the 1998 National Day Efficiency Medal, Pingat Bakti Masyarakat. Mr Lim Huay Bak was also conferred the 1998 National Day Award for public service, Pingat Bakti Masyarakat.

Mr Loo Leong Huat Laboratory Technologist in the Geotechnical Engineering Laboratory was conferred the 1998 National Day Award for public service, Pingat Bakti Masyarakat.

Assoc Prof K C G Ong and S A Tan received the SAC-SINGLASS Technical Assessor Silver Award by the Singapore Accreditation Council in July 1998 in recognition of service and contribution to the SAC-Singapore Laboratory accreditation Scheme.

Assoc Prof Lee Fook Hou received the List Award 1998.

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6 July Oil Pollution in Coastal Waters: Sources, Issues and Maritime Policy. Mr Zafurul Alam, Maritime and Port Authority of Singapore Oil Spill Detection by Satellite Remote Sensing, Dr I-Lin, Centre for Remote Imaging, Sensing and Processing (CRISP), NUS. Singapore’s Experience on Combating of Oil Spills, Dr Tiancheng Song, MPA.

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Prof P Paramasivam has been conferred the Fellow of the International Society of Ferrocement for his established expertise in ferrocement and contributions to the welfare of the society.

6 July Oil Pollution in Coastal Waters: Sources, Issues and Maritime Policy. Mr Zafurul Alam, Maritime and Port Authority of Singapore Oil Spill Detection by Satellite Remote Sensing, Dr I-Lin, Centre for Remote Imaging, Sensing and Processing (CRISP), NUS. Singapore’s Experience on Combating of Oil Spills, Dr Tiancheng Song, MPA.

Coastal Circulation and Mixing Processes, Prof N Jothi Shankar, NUS.

Prof P Paramasivam was conferred the Fellow by Prof A E Naaman, President of International Society of Ferrocement.

Mr Lim Huay Bak, Principal Laboratory Technologist was conferred the 1998 National Day Efficiency Medal, Pingat Bakti Masyarakat.
Overseas Academic Student
Exchange Programme

The following students of the department have been selected for the overseas academic student exchange programme in semester I, session 1998-9:

<table>
<thead>
<tr>
<th>Name</th>
<th>University</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Chia Wee Loon (CE 3)</td>
<td>Iowa State University, USA</td>
</tr>
<tr>
<td>3. Heng Kia Hoong (CE 3)</td>
<td>Purdue University, USA</td>
</tr>
<tr>
<td>4. Gan Hwee Phing, Jane (CE 3)</td>
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<tr>
<td>5. Lim Khoon Ling (CE 3)</td>
<td>University of Waterloo, Canada</td>
</tr>
<tr>
<td>6. Chan Ming Hwang (CE 3)</td>
<td>University of Western Ontario, Canada</td>
</tr>
<tr>
<td>7. Tuang Ai Khim (CE 3)</td>
<td>University of Texas at Austin, USA</td>
</tr>
<tr>
<td>8. Tan Yee Yong (CE 3)</td>
<td>University of Toronto, Canada</td>
</tr>
<tr>
<td>9. Lim Hong Jing (CE 3)</td>
<td>University of California, Berkeley, USA</td>
</tr>
<tr>
<td>10. Tan Ki Mien (CE 3)</td>
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<td>11. Wong Hwee Lim (CE 3)</td>
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<td>12. Lee Beng Hong (CE 4)</td>
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</tbody>
</table>

List of Publications


New Appointments

**RESEARCH ASSISTANTS**

Mr Ang Wu Seng, 7 July 1998
Mr Tanisilvan s/o Thangayaw, 16 July 1998
Mr Zhou Xue Feng, 16 July 1998

**RESEARCH SCHOLARS**

Mr Ang E Tze Christopher, 29 June 1998
Mr Balasubramaniam Shankayavan, 11 July 1998
Mr Chan Swee Huat, 13 July 1998
Mr Chan Wai Hoe, 2 July 1998
Ms Chen Jian, 1 July 1998
Mr Ding Yongcong, 28 August 1998
Mr G A A Pradeep, 17 July 1998
Mr Huang Peng, 13 July 1998
Mr Hu Min, 31 July 1998
Mr Jayaraman Ventakaraman, 1 July 1998
Mr Kandiah Pasikaran, 1 July 1998
Mr Koh Siong Teck, 2 July 1998
Mr Li Guangming, 21 July 1998
Ms Liu Shuling, 3 August 1998
Mr Madhavan Kumar Mandal, 5 September 1998
Mr Md Nazrul Islam, 27 August 1998
Mr Narayar Datta Pokharel, 3 August 1998
Mr Nadarajah Surendran, 11 July 1998
Mr Ng Chiew Chiat, 1 July 1998
Mr Ramanalingam Nagalingam, 6 August 1998
Mr Subramaniam Srisakthivel, 7 July 1998
Mr Sivasubramaniam Sabesan, 7 July 1998
Ms Shanty Mafa Mabalais, 8 July 1998
Mr Shen Li Jun, 1 July 1998
Mr Siddwartha Kumar Mandal, 16 July 1998
Mr Sothinathan Kapilan, 21 July 1998
Ms Sivas Subramaniam, 3 August 1998
Ms Sivas Subramaniam, 5 September 1998
Ms Sivas Subramaniam, 16 July 1998
Ms Sivas Subramaniam, 27 August 1998

Assoc Prof T Balaendra was invited by HDB to present a paper in the 3rd Anniversary seminar of the Prefabrication Technology Centre, entitled “Construction Innovation – Meeting the Challenges – Innovate or Evaporate.” The seminar was held in July 98.

Assoc Prof Lioong Shie-Yui has been invited to serve on the Editorial Board of WATER INTERNATIONAL, the Journal of the International Water Resources Association.

Assoc Prof K C G Ong was invited to present a paper entitled “Behaviour of Loop Joints in Flexure” at the PTC Anniversary Seminars, Housing and Development Board, 6 July 1998.

Assoc Prof M A Mansur has been invited to serve as a member of the Editorial Board, Journal of Ferrocement from 1998-2001.

**Prof P Paramasivam** presented a keynote paper entitled Performance of Columns repaired Under Sustained Loads co-authored with KCC Ong and D M Kaluarachchi in the International Conference on High Performance High Strength Concrete at Perth, Western Australia,10-12 August 1998.

Prof P Paramasivam was invited to present a keynote address on Recent Research and Applications of Ferrocement in Singapore in the Sixth International Symposium on Ferrocement at University of Michigan, Ann Arbor, USA.

Prof P Paramasivam has been elected as the first Vice-President of the International Society of the Ferrocement and the Editor-in-chief of the Journal of Ferrocement for the period of 1998-2001. He was also successful in bidding for the Seventh International Symposium on Ferrocement to be hosted by the National University of Singapore in July 2001.

Assoc Prof Tan Kiang Hwee was invited by the Association of Consulting Engineers, Singapore (ACES) to give a talk on “Application of Continuous Fibre Reinforcing Materials in Structural Rehabilitation” on 11 July 1998. The talk dealt with the design considerations and recommendations for structural strengthening works using externally bonded FRP sheets and plates.

Assoc Prof Wang Chien Ming has been invited to be a member in the Local Advisory Committee of the Eighth Asia-Pacific Vibration Conference (APVC’99) to be held on 13-15 December 1999, Singapore.

Assoc Prof Wang Chien Ming has been elected to be the Honorary Secretary of the Steering Committee for the International Conference on Optimization Techniques and Applications (ICOITA).
This year the Engineering Faculty introduced for the first time the Teaching Excellence Award for Innovative Teaching. This award is specially aimed at encouraging staff members to be innovative in their teaching; because with every innovation comes risks that it will not go down well with some students.

The winners of the prestigious award are selected by a Faculty Teaching Committee based on students’ nominations and Feedbacks. The CE Department is proud to clinch two of the three awards. Assoc Prof Wang Chien Ming and Assoc Prof Ang Kok Keng became the inaugural recipients of the award. Both received the award from RADM Teo Chee Hean, Minister for Education during the Annual Engineering Alumni cum Faculty Dinner on the 17th September 1998.

Assoc Prof Wang Chien Ming

“A lecturer that teaches with refreshing and contagious enthusiasm”; “one that is welcomed even on a Monday morning”. These are some of the remarks of students for Assoc Prof Wang and his style of teaching. Professor Wang brings real world problems right into the classroom to make his subject interesting and immediately relevant to the learners. He employs simple and novel real-life (of daily occurrences) examples and analogies to bring abstract and difficult concepts of mechanics across clearly to the students (often with a tinge of humour); and teaches useful ideas that are not found in the textbooks.

Assoc Prof Ang Kok Keng

Assoc Prof Ang Kok Keng uses computer-based multi-media materials extensively in his teaching. For the last two years, Assoc Prof Ang has also exploited the wonders of Internet to run a virtual classroom. In the virtual room, students have access to on-line interactive tutorials both to test their knowledge of the subject and to get some answers to their problems. Assoc Prof Ang is a pioneer in the exploitation of IT for teaching within the Faculty.

Forthcoming International Conferences and Workshops

<table>
<thead>
<tr>
<th>Date</th>
<th>Conference/Workshop</th>
<th>Contact Person</th>
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<tbody>
<tr>
<td>30 Nov – 1 Dec 1998</td>
<td>KKN* Seminar in Civil Engineering 1998</td>
<td>Assoc Prof C M Wang (e-mail: <a href="mailto:cvewcm@nus.edu.sg">cvewcm@nus.edu.sg</a> • Tel: 874 2157)</td>
</tr>
<tr>
<td>2-4 Dec 1998</td>
<td>Second International Conference on Thin-Walled Structures</td>
<td>Assoc Prof N E Shanmugam (e-mail: <a href="mailto:cveshanm@nus.edu.sg">cveshanm@nus.edu.sg</a> • Tel: 874 2288) Dr Richard J Y Liew (e-mail: <a href="mailto:cveljy@nus.edu.sg">cveljy@nus.edu.sg</a> • Tel: 874 2154)</td>
</tr>
<tr>
<td>5 Dec 1998</td>
<td>International Workshop on Recent Developments and Future Trends in Thin-Walled Structures</td>
<td>Assoc Prof N E Shanmugam (e-mail: <a href="mailto:cveshanm@nus.edu.sg">cveshanm@nus.edu.sg</a> • Tel: 874 2288) Dr Richard J Y Liew (e-mail: <a href="mailto:cveljy@nus.edu.sg">cveljy@nus.edu.sg</a> • Tel: 874 2154)</td>
</tr>
<tr>
<td>15-16 Apr 1999</td>
<td>IES-CTR Symposium on Public Transit for the 21st Century</td>
<td>Assoc Prof T F Fwa (e-mail: <a href="mailto:cvetfft@nus.edu.sg">cvetfft@nus.edu.sg</a> • Tel: 874 2276)</td>
</tr>
<tr>
<td>1-3 Dec 1999</td>
<td>5th International Symposium on Field Measurements in Geomechanics</td>
<td>Assoc Prof S A Tan (e-mail: <a href="mailto:cvetantsa@nus.edu.sg">cvetantsa@nus.edu.sg</a> • Tel: 874 2278)</td>
</tr>
<tr>
<td>15-17 Dec 1999</td>
<td>Fourth Asia-Pacific Conference on Computational Mechanics for the Next Millennium</td>
<td>Assoc Prof K K Ang (e-mail: <a href="mailto:cvetkk@nus.edu.sg">cvetkk@nus.edu.sg</a> • Tel: 874 2570)</td>
</tr>
<tr>
<td>28-30 Jun 2000</td>
<td>6th International Conference on Applications of Advanced Technologies in Transportation Engineering</td>
<td>Assoc Prof T F Fwa (e-mail: <a href="mailto:cvetfft@nus.edu.sg">cvetfft@nus.edu.sg</a> • Tel: 874 2276)</td>
</tr>
</tbody>
</table>

*KKNN – Kyoto University, Korea Advanced Institute of Science and Technology, National Taiwan University and National University of Singapore