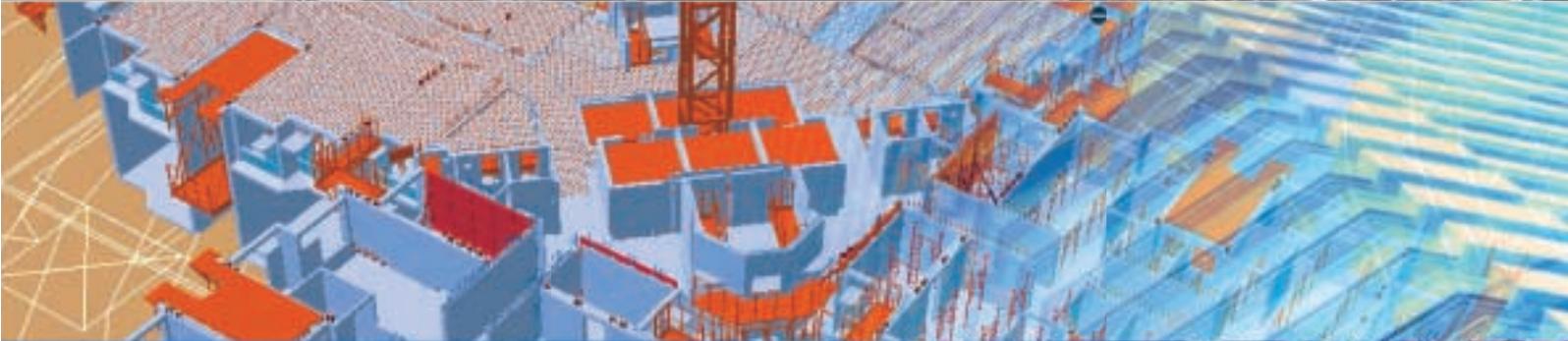


Faculty of Construction and Land Use

FCLU *News*

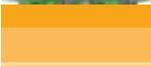
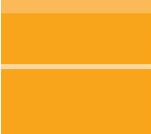
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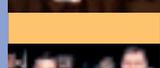


**THE CONSTRUCTION INDUSTRY'S
RESEARCHER OF CHOICE**



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Message from the Dean

Welcome to this, our third Faculty newsletter. You may remember that the feature article of our second newsletter focused on the small steps which we, as a Faculty, are taking to address the problem of poor air quality in Hong Kong. The Hong Kong SAR Chief Executive, Dr the Honourable Donald Tsang Yam-kuen, in his Letter to Hong Kong this October acknowledged the importance of such small steps as being incremental in the achievement of necessary air quality improvement.

We also touched on the importance of collaboration between industry and academia in the pursuit of technical excellence in the built environment. In the feature article of this, our third newsletter we are enlarging on this theme, by giving descriptions of the applied research undertaken by the CLU Faculty in collaboration with local practitioners in Hong Kong. The results, you will see, not only benefit the local environment but also have an effect world wide.

The Construction Industry Review Committee (2001) report, "Construct for Excellence" recommended not only the need for an increase in such collaboration but also the establishment of a "research culture" within and across the whole construction industry in order to substantially increase research activity. These recommendations were based on the contention that an advanced highly performing cost effective industry must, by its very nature, be constantly alert to new possibilities, be innovative and through its own initiative want to contribute to knowledge and understanding relevant to local construction needs. Such an industry would not want to simply passively accept new ideas developed elsewhere.

After 15 years of deliberate focused intent, a strong research culture is now endemic in the CLU Faculty, and indeed we can claim a very strong presence among the

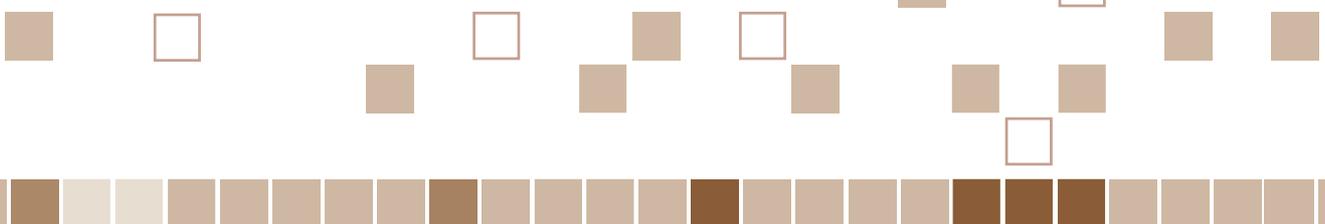
international community of construction academics. Hong Kong now needs to develop that research ethos amongst industry leaders and professionals. This can be achieved through the development of a *symbiotic relationship* between academia and the construction industry, whereby firms join with academia to form consortia and collectively fund projects of long term importance to the development of the construction industry. In such cases, firms with a true research ethos would take a proactive interest in the actual running of the project as conducted by the full time academic research staff. A symbiotic relationship, so developed, would provide a "win-win" situation for both industry and academia. Research output would increase many times over, industry competitiveness would be enhanced and a by-product would be the steady production of personnel with research experience and training, ready to up skill the pool of construction practitioners as they filter out of the university and so help accelerate the realisation of that desirable research culture in industry. We, as a faculty, are ready and sufficiently experienced to contribute to such an operational model.

Indeed as the following feature article makes clear, a substantial start has already been made to bring to fruition the above outcome. However, we need to accelerate progress, as there is much to be done and achievements to be gained in the generation and acquisition of new knowledge and understanding.

With the above in mind we offer you once more a glimpse into the work and achievements of the CLU Faculty.

Professor Andrew Baldwin
Dean of Faculty of Construction and Land Use

November 2006



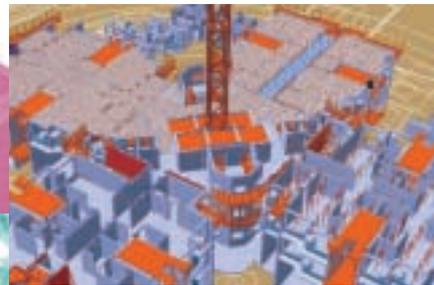
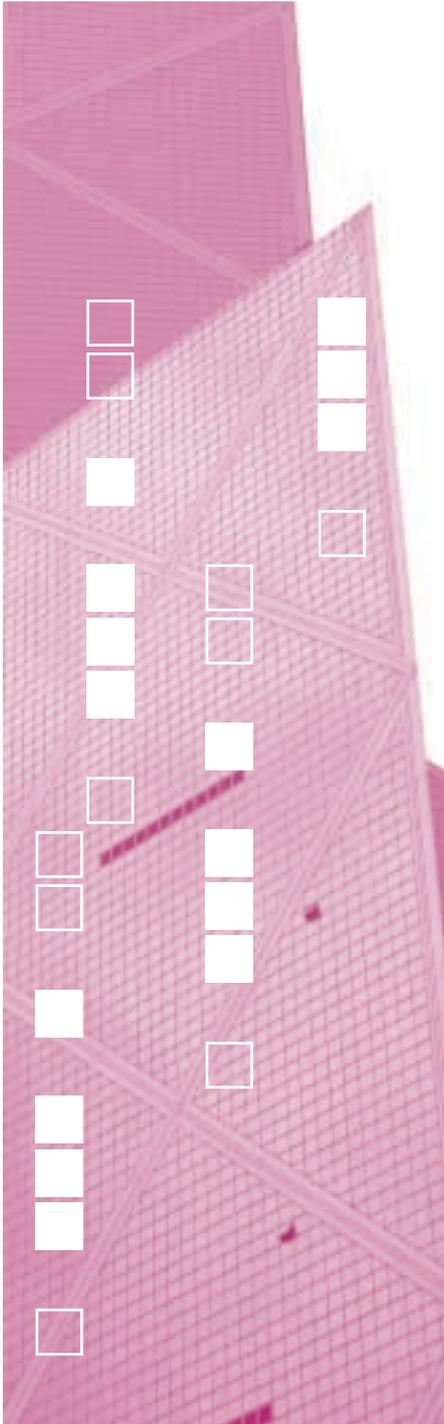
FCLU

The Construction Industry's Researcher of Choice

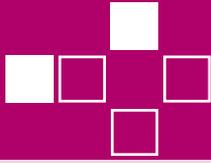
建設及地政學院：建造業的科研首選

In this feature article a description is given of some of our applied research achievements to show the **"FITNESS FOR PURPOSE"** of our research policy regarding our mission to contribute to the betterment of the built environment of Hong Kong.

Our research policy is illustrated in Part 1 and samples of research studies are given in Part 2.



Part 1



Research Policy and Philosophy of FCLU

The inauguration of the Faculty of Construction and Land Use (FCLU) in 1992 was the first step in a journey designed to help fulfill the motto of The Hong Kong Polytechnic University.

“To learn and to apply, for the benefit of mankind.”

As a major consequence, a research culture has developed across the whole construction faculty and is one which includes a strong “figure 8” relationship between short term applied and longer term fundamental research, where the one energizes the other.

High standard fundamental original research, however, has been the necessary foundation for the subsequent recognition of the high quality applied and strategic research level, which has now become typical of this Faculty. The subsequent output has made a strong impact on both the built environment and the academic world.

This research culture is also compatible with the findings of the “Construction Industry Review Committee” (CIRC), appointed in 2000 by the Chief Executive of the



Hong Kong SAR to review the current state of the construction industry (defined as covering new engineering and building projects, maintenance and renovation work as well as decoration and aesthetic activities). The objective of the CIRC was to recommend improvement measures across all areas of the construction industry. The ensuing 2001 recommendations, relating to research and development, underpin the already existing policy of the Faculty’s research business plan. These recommendations are essentially as follows:

1. to promote a culture of innovation, with the objective of improving the overall performance of the construction industry through technology upgrading;
2. to encourage the adaptation of successfully used international codes of practice and materials to local conditions;
3. to encourage industry and the local research community to work in collaboration and to set clear objectives, directions and priorities for local construction research; and
4. to take account of both the immediate needs of the industry and the direction of its long term development. (CIRC, paragraphs 7.39 & 40)

Thus, to a degree and with the above in mind, the subjects of our research have been established by:

Networking and exploring the needs and development potential of many aspects of the building industry, with the aim of achieving a balanced research programme.





Research projects are taken from such fields as structural engineering, geotechnics, construction management, air and water quality control, hydraulics, environmental sustainability, building services and site safety.

Liaison between the construction industry professional and academia, as recommended by the CIRC, is clearly demonstrated in the research activity of FCLU. Traditionally, the industry has a fragmented structure, which to a large extent makes effective delivery and promotion of research and development by individual companies expensive and impractical. Additionally the industry professional does not have the time for such activity, as his main function is to deliver, run and maintain construction projects. However “lack of time” does not mean “lack of knowledge” of improvements that could or should be made. Hence the communication of commercial judgments as to when and where to commission applied research activity is a bonus for all concerned.

Collaboration between FCLU and the industry and government departments, has resulted in the enhancement of aspects of construction industry efficiency and the identification of important opportunities for further research and development.

“Gain is Mutual”

Contributing to the above success is the size of FCLU’s research resources. Within the academic world it is likely that no other research entity is large enough to equal the Faculty’s ability to focus substantial academic resources on construction topics.

However the above statement, without evidence of achievement, is valueless and smacks of “pie in the sky”. The construction professional will naturally be thinking:

“The above sounds great... but what have FCLU academics actually achieved?”

Indeed in 2001 CIRC reported:

“We observe that at present, there is a relatively low awareness locally of the research output of local tertiary institutions in the construction field and, with some important exceptions, there is a low take up of these research results.”(CIRC, para. 7.39)

Reasons regarding these findings could be that:

1. communication and coordination between industry and local research institutions is inadequate;
2. a mismatch between construction research outputs and construction industry needs;
3. lack of knowledge of the success status of local research persists,
4. the industry is wary of the risks involved in adopting innovative techniques or methods.

As stated above our mission is to contribute to the **betterment of Hong Kong and its people through the medium of an improved built environment.**

Thus bearing in mind: a) the CIRC’s above observation regarding poor communication between the industry and academia, b) the possible impression of people in general that research activity has little practical value to daily lives, and c) our belief in the genuine interest of construction industry personnel in the latest research output, we would like, in this feature article, to provide news of the progress of some of our applied research activities and highlight:

1. the energizing impact of the figure 8 relationship between high level consultancy and research output;
2. the importance of university collaboration with the industry and government bodies;
3. the direction our research is taking;
4. the results which, to date, have achieved social and financial benefits for the industry and society; and
5. the strides made in the development of innovatory materials, design, communications, and the use of information technology.

Our research output indicates clearly our belief that research consultancies should not simply be designed to “solve today’s problems” but should “explore and be prepared for the construction needs of tomorrow” (CIRC, paragraph 7.40).

Thus, with “the needs of tomorrow” in mind, in Parts 2 and 3 below we will show:

Firstly what could arguably be described as a glimpse into the “face of the future” regarding the application

of information technology in the construction industry, as illustrated by studies 1 and 2 (Part 2 section A).

Secondly, how strides have been made in adapting innovatory technology, materials and codes of practice to local conditions, as illustrated by studies 1 to 5 (Part 2 section B).

Thirdly, progress with organizing the matching of research output with the needs of the local construction industry (Part 3).

Part 2



Studies which illustrate the success of the Faculty’s research strategy



SECTION A

Information Technology (IT) first became one of the “buzz” phrases approximately ten years ago. Its value, today, is increasingly gathering force in the construction industry.

But the following questions are often asked:

1. “Is IT simply an addition to the administrative costs of a construction project, with little discernable benefits?”
2. “Does IT investment, in many cases, merely being under taken to serve as a license qualifying a contractor to acquire new work?”

Indeed, IT in the construction industry, has yet to become fully utilized as a means of improving project productivity and cost. Currently it is more likely to be implemented by construction firms for communications and data base management and Enterprise Resource Planning (ERP) systems.

However, although construction activity advance simulation is still in the early stage of development for everyday construction work in practice, it is highly likely that in future it will become the routine way of determining “the best way to do the next job.”

“The Best Way to Do The Next Job ”

FCLU is well advanced in the development of this field and the research examples given below are illustrative not only of the success of this development but also of the mutual benefit which can be achieved through close collaboration with the industry. In the case of the use of IT, accurate simulation modelling in advance of real construction is shown to be a practical tool enabling the enhancement of productivity, implied increase in profit margins and verification of chosen construction methods.

This is resulting in new knowledge and understanding, as presented in research publications and the stimulation of further research development and progress, but also in some hands on experience and among the bolder practitioners in industry.

Two industry collaborative project examples described below: “Intelligent Technologies for Construction”, and “a Construction Virtual Prototyping Laboratory”, illustrate the results of using IT to enable decisions to be made to enhance production efficiency prior to the start of the physical construction process.

Intelligent Technologies for Construction

Dr Ming Lu of the Department of Civil & Structure Engineering, has created intelligent technologies for construction, via the ***Simplified Discrete-Event Stimulation Approach (SDESA)*** which has been developed over the past 5 years providing construction engineers with a simple to use simulation tool for describing project operations, and evaluating and improving construction schedules.

Of interest are four real life cases, presented below, which illustrate the use of the SDESA platform to facilitate the simulation of complex construction operations or in other words, illustrate "SDESA in practice". The simulation results in these cases, together with the process animation both validated the SDESA derived models, and have enabled management teams to experience the effectiveness of SDESA modelling, with the result that engineers on site were better able to determine the optimum construction method.

Pre-cast Concrete Segmental Viaduct Construction

In collaboration with Gammon Construction Limited, Dr Lu's research team successfully field-tested the "SDESA" simulation platform on the Deep Bay Link North construction site for a complete four-day installation cycle using the stepping gantry erection method.

By experimentation through simulation, resource utilization, the site layout plan and the logistics of delivering the pre-cast box segments were optimized in

an integrative way to suit practical constraints of time, space and technology.

The normal preference, in the case of a pre-cast concrete segmental viaduct construction, is to store pre-cast segments on site close to their final location. In the Gammon project, site constraints made this difficult. Simulation using the SDESA platform however showed, that as long as the journey between storage location and final location was less than as much as twenty five minutes, the required four-day cycle could still be achieved. This finding led to the identification of storage space which was more spacious, and convenient than had previously been thought possible. This new storage space was found within twenty minutes travel time of the final destination. Construction was completed on time.

Conclusions were drawn on the value of the case study after a review meeting with a group of experienced and junior contractor personnel.

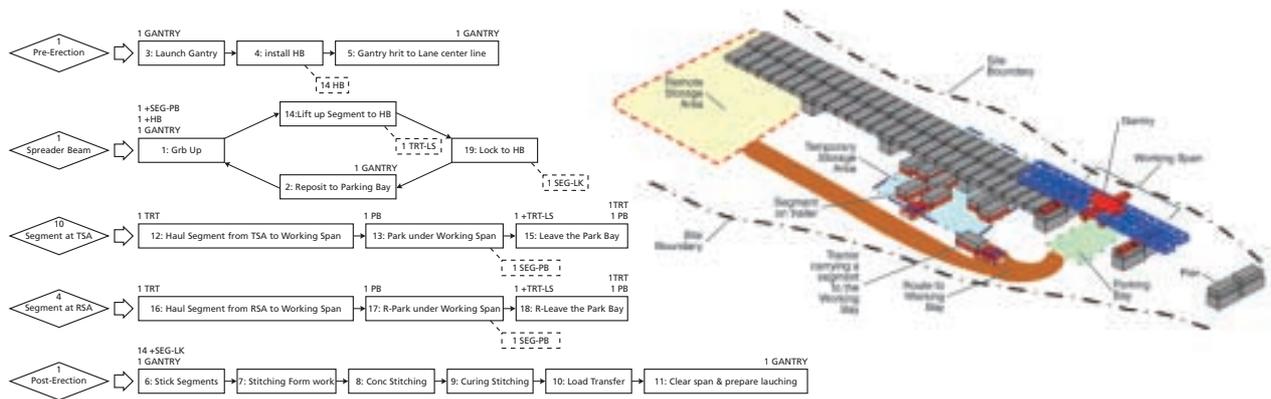
1. Cross-checking results from simulation and implementation helped the project director as well as field managers to verify their experience and intuition, and convinced them of the functionality and reliability of the SDESA simulation.
2. It is believed that with the aid of simulation, even relatively junior engineers would be capable and confident of proposing construction plans that would lead to cost-effectiveness and productivity in the field.



Site picture on Deep Bay Link North Project



Knowledge sharing with managers and engineers of Gammon Construction Limited



Simulating real site operations to improve cost efficiency at site level

The versatility of SDESA has been demonstrated on three other types of activities, as briefly introduced below.

- **The Kai Tak Airport Demolition and Recycling**
- **The Steel “Bird Nest” Structure being Erected for the Beijing Olympic Stadium**
- **Studying Ready Mixed Concrete Mixing Delivery and Placing Operations in Hong Kong**

In the Kai Tak case, the time-cost relationships in carrying out waste segregation were modeled and explored via simulation. For the Beijing structure alternative steel component assembly sequences and assembly area provision schedules were simulated before final decisions

were reached. In the case of Ready Mixed Concrete, the ability to very rapidly (about 60 seconds) simulate future likely truckmixer availabilities for the rest of that day and at any time during the day, provide back-up “intelligence” to the truckmixer current digital map position on the control centre desktop computer. The latter map is achieved through the use of integrated positioning and navigation units in the truckmixer cabs.

Dr Lu Ming
 Department of Civil & Structural Engineering
 [E-mail: cemlu@polyu.edu.hk]

Construction Virtual Prototyping Laboratory Construct in the Computer

In July 2004, the Department of Building & Real Estate (BRE) established the Construction Virtual Prototyping Laboratory, with a cash donation from Yau Lee Construction Limited, the donation of software from Dessault Systems, and research funding and further equipment from The Hong Kong Polytechnic University (PolyU).

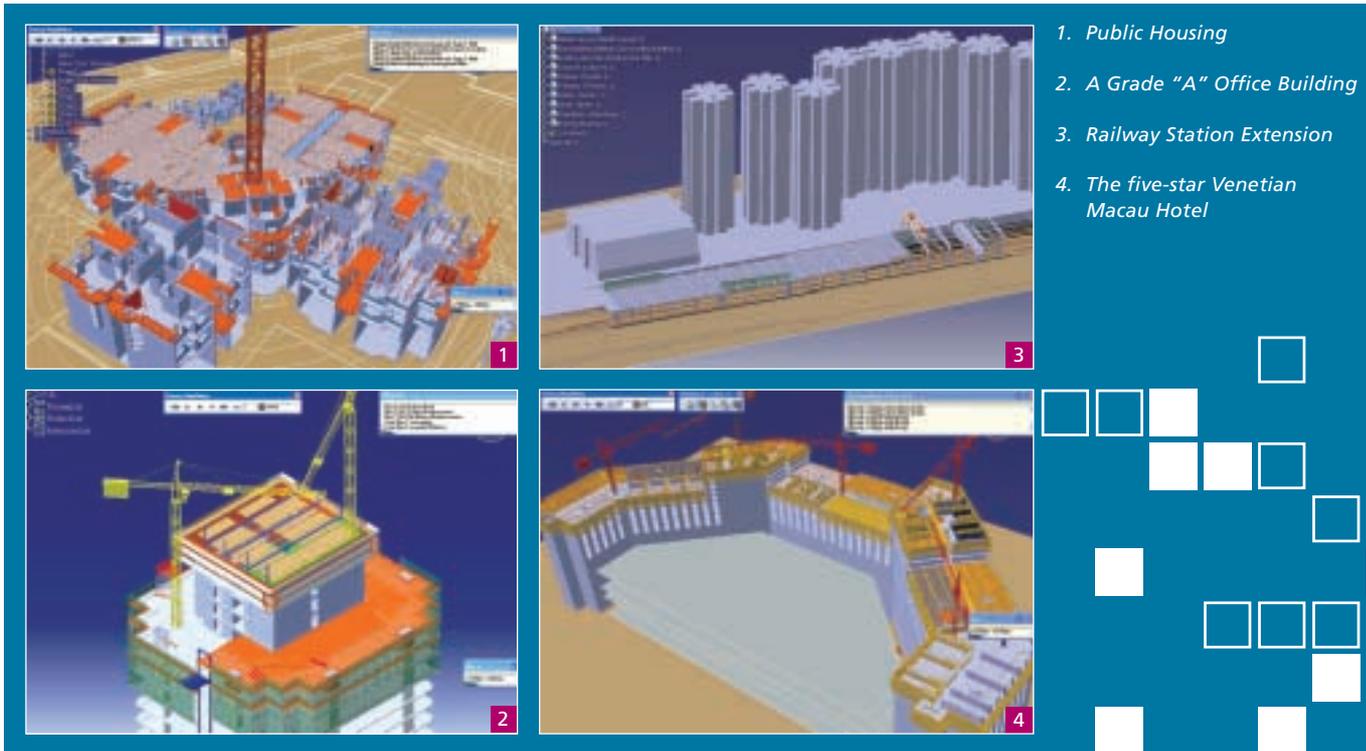
Virtual Prototyping (VP) provides a modeling and simulation environment so powerful that the production, fabrication and assembly of construction components, including the associated operational process is simulated visually in the computer.

In other words a construction project with VP can go further by integrating the whole process around the building information model, thus all aspects of

production, including design, construction, planning, scheduling, purchasing and plant management are included and a necessary link too, to accounting and costing processes.

VP Technology Provides a Powerful Decision Support System

Within the last 10 months Professor Heng Li of BRE and his team have been conducting research and consultancy projects with five contractors to evaluate, for those contractors, the applicability of VP technology. Positive initial results illustrate that the technology has the ability to reduce overall time and the cost in delivering a project. The research projects undertaken on a consultancy basis and outlined below illustrate VP capabilities in various construction projects.



1. Public Housing
2. A Grade "A" Office Building
3. Railway Station Extension
4. The five-star Venetian Macau Hotel

PUBLIC HOUSING

The feasibility of a 6-day flow cycle was examined for the construction of two pioneering 40-storey residential buildings adopting the new pre-cast public housing design. More than 70% of the structure consists of pre-cast elements, including pre-cast slabs, walls, facades, staircases, bathrooms, and kitchens. The focus of the study was on the utilization of the tower crane, the lifting sequence for lifting pre-cast elements, and the storage locations for those elements with the aim of ascertaining the possibility of shortening the construction cycle. It was found that the 6-day working cycle for each wing of the building could be successfully reduced to four.

A GRADE "A" OFFICE BUILDING

A Grade "A", 70-storey office building requiring a 3 or 4-day floor cycle was examined during the tender stage. The focus of the study was to evaluate the location of the tower cranes, the utilization of jump forms and table forms, the utilization of tower cranes and Holland hoists, and the installation of safety screens. The findings, given to the developer, as requested, enabled the demonstration of the feasibility, safety and the environmental suitability of the chosen construction method.

RAILWAY STATION EXTENSION

The railway station extension was to be constructed above existing train rails. Possible construction methodologies were evaluated. The focus was on ensuring the podium could be built above the rails without interfering with the existing structure and train services and consequently within a specified limited working time each day. The podium was to be constructed of pre-cast beams and trusses. Three alternative construction methods involving a gantry,

mobile crane and rolling trolley, were suggested by the contractors. Hence detailed plant movement and installation sequences were simulated. As a result the use of the rolling trolley was found to be the most suitable for this project.

A FIVE-STAR HOTEL

The five-star Venetian Macau Hotel tower construction project involved a total gross floor area of 350,000 square meters. Each floor of the tower was divided into five bays, with each bay divided into four smaller bays. Using VP, the feasibility of the 4-day cycle, previously prepared by the contractor was examined, focusing on an even concrete placing rate throughout the four days, and the production of an efficient formwork lifting and storing plan. As a result of the simulation, the dynamics and interrelationship of the many activities that would take place on site during the building programme were illuminated thereby enabling the contractor to produce an improved 4-day cycle.

By means of the above research studies further scope for research and improvement in information technology application have been identified. In particular it was found that the current VP technology could not simulate some construction problems/situations encountered in real life projects. In addition it was found that the knowledge management facility within the systems to be incapable of automatically acquiring knowledge from past data and examples. The research team, supported by a PolyU niche area grant, is currently working to solve these problems.

Professor Heng Li
 Department of Building & Real Estate
 [E-mail: bshengli@polyu.edu.hk]

SECTION B

The studies described in this section further illustrate the intention for our research interests to accommodate the construction needs of tomorrow, with specific focus on:

Adaptation to local conditions for innovatory technology, materials and codes of practice.

As one would expect, features such as climate, geology and space constraints are unique to Hong Kong and as such have a bearing on built environment design. Traditional skills have long been used in the building industry together with design codes borrowed from whatever country or area was thought to be, appropriate.

The CIRC while acknowledging the strengths of the industry drew attention to the need for development of such as local codes of practice, adaptability of materials and regulations.

Effective communication between the industry and professional and academic institutions can satisfy the need for such as:

1. the adaptation to local conditions of innovative technologies and materials which have been or are being used successfully world wide;
2. the drawing up of codes of practice or designer's guides to assist design professionals evaluate and articulate designs relevant to local conditions; and
3. the recognition of the need for communication between industry and research institution and also within those research institutions themselves.

The research outputs below fit the above recommendations and aspirations. The subjects of studies include:

- **Road Building Materials and Technologies**
- **Stormwater Intake Design**
- **Traffic Real-time Data**
- **The Cracking and Failure of Masonry Cladding**
- **Advanced Steel Structure Design and Codes of Design Practice**

The Hong Kong Road Research Laboratory Ensuring Road Pavement Quality

The Hong Kong Road Research Laboratory began operations in 2002 to provide help in the form of Research and Development (R&D) in all matters relating to road pavement quality. It was a well studied response to a demonstrable need and rapidly became involved in consultancies. Its director and founder is Dr Alan Wong of the Department of Civil & Structural Engineering.

This Laboratory is the only such laboratory in South East Asia and now serves the Hong Kong SAR Government, civil engineering contractors and contractors in areas which require high level expertise.

The results of two of the Laboratory's projects contributed to the establishment of the Hong Kong Code of Practice on Waterproofing Systems. They are:

1. The evaluation of waterproofing systems for route 8 Ngong Shuen Chau Viaduct completed in January 2005.
2. The R&D project completed for the Highways Department in August 2005.

An R&D project conducted for the Highways Department on the study of porous asphalt material, completed in

November 2004, produced a new mix which has since proved itself by performing better than the conventional mix. The new mix helps to significantly lengthen the service of friction courses.

The result of the study was included, in the particular specification and has been applied to all new highway maintenance contracts from 2005.

Currently, the Laboratory is committed to two other R&D projects, one is a study of rutting behaviour of wearing course material, and the other is the study of Reclaimed Asphalt Pavement (RAP).

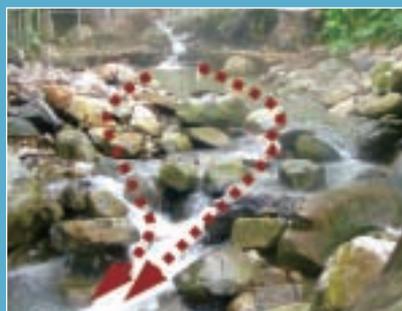
The first project aims at setting up a code of practice on the timing of roads opening up to traffic after maintenance.

The second aims to build a mix design specification for the Highways Department on the use of RAP material for road pavements.

Dr Alan Wong
Department of Civil & Structural Engineering
[E-mail: cewgwong@polyu.edu.hk]

Floods: A Danger That Can Ruin Lives!

Physical Modelling Test – The Tsuen Wan/Kwai Chung Vortex Drop Intake Systems



Flow pattern in the existing upstream of Intake 2



Flow pattern reproduced in the scale model



Flow diversion in the vortex drop intake system

It is believed that severe rainstorms may result in considerable excess stormwater run-offs in the upper catchment areas of Tsuen Wan and Kwai Chung.

In an attempt to alleviate such situations, the Drainage Services Department (DSD) of the Hong Kong SAR Government is to build two stormwater vortex drop intake systems, (Labeled "intake 2" and "intake 3" in the figure above). The intention is for up to 90 m³/s of stormwater run-off to be intercepted and diverted vertically through a drop shaft, to a main tunnel and drained to the open sea.



Tsuen Wan Drainage Tunnel and the locations of the 3 intake systems

The coastal and hydraulic engineering group of the Department of Civil & Structural Engineering has been invited by the DSD, through Mott Connell Limited, to design and conduct a set of scale physical modelling tests to determine an optimum design for each intake system. The design must provide satisfactory hydraulic performance and have minimum impact on the existing ecosystem.

The complex natural-manmade hybrid intake system consisting of an approach channel, a vortex chamber, a vortex drop shaft, a section of the natural stream

connecting to the approach channel, a deaeration chamber, an adit tunnel, and a section of the main tunnel connecting to the adit tunnel has been scaled down 20 times in the laboratory.

This scale physical model, has been carefully designed to satisfy the conditions of dynamic similitude between the real and laboratory situations, ensuring accurate reproduction of the gravitational force as well as the frictional force.

Of particular importance in this project, on the one hand, is that the intakes should handle a given amount of flow interception under 200-year rainstorm events, to prevent flooding events in the surrounding area. On the other, the intake should, as far as possible, minimize flow interception before the rainfall intensity reaches the amber rainfall level to sustain the sensitive ecosystem downstream, e.g. Tso Kung Tam stream.

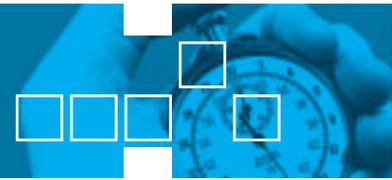
From the point of view of those living in the area the test should also identify the location and the extent of any hydraulic jumps as well as occasions when stormwater overtops to flood the adjacent ground.

Based on the results of the modeling tests, a new design has been proposed to,

1. effectively convey the 200-year stormwater run-off;
2. minimize the impact due to the intake systems on the existing ecosystem; and
3. minimize the construction cost of the intake system.

Dr Onyx Wai
 Department of Civil & Structural Engineering
 [E-mail: ceonyx@polyu.edu.hk]

Traffic Chaos and High Stress! Real-Time Traveler Information System



It is not unusual, particularly in urban districts, to have a choice of many road routes when traveling from A to B. If no relevant traffic information is available, the traveler has to guess which route will be the most effective for his purpose. Unfortunately, in such situations it often seems as though the whole world is in competition for the same road space, leading to traffic chaos and acute frustration.

Fortunately, it is becoming increasingly possible to empower the traveler with ready access to user friendly road travel information systems which would relieve much of this travel stress.

Work has been and continues to be carried out in the Department of Civil & Structural Engineering. A flexible route choice model, Traffic Flow Simulator (TFS), has already been developed, providing short term forecasting of travel times on major roads in Hong Kong.

In order to enhance the application of TFS in practice, a transport information system website, called "SpeedOnRoad" was developed by the Departments of Civil & Structural Engineering and Land Surveying & Geomatics of the Faculty of Construction and Land Use to provide offline forecast traffic information.

On the "SpeedOnRoad" website users can nominate the trip origin and destination for their journey and then can select the shortest/fastest route for their journey.

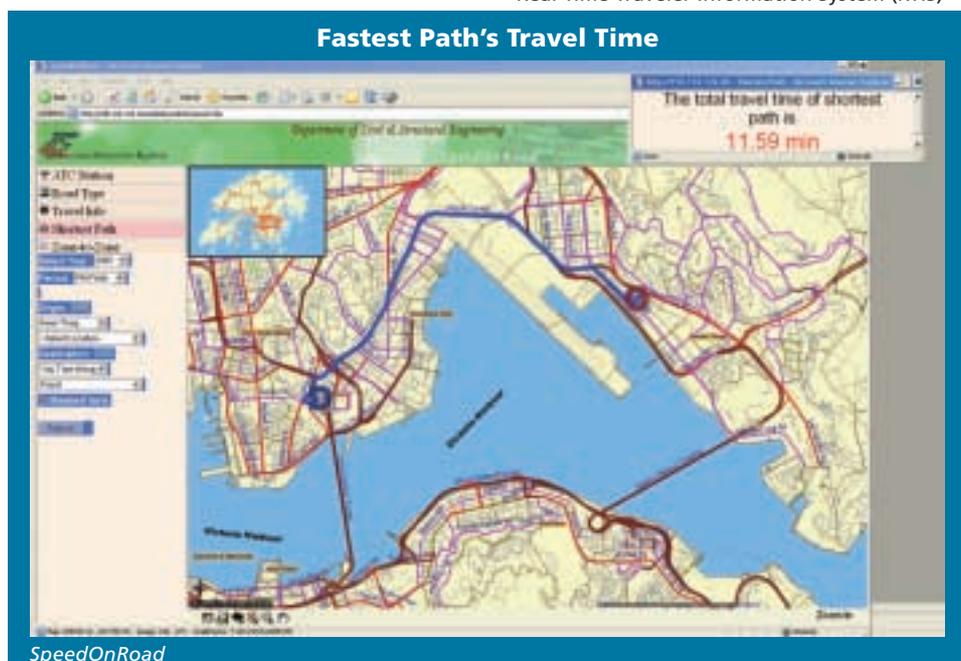
Recently a Memorandum of Understanding was signed by Autotoll Limited and The Hong Kong Polytechnic University to jointly develop a road traveler **Real-Time Information System (RTIS)** to provide road traffic information for Hong Kong. "RTIS" illustrates the integration of the Faculty's existing research and development programme with

real-time data supplied by Autotoll. A data fusion technique will be applied to enable this integration and so improve the online prediction of travel times and estimations of real-time fastest paths for travel between different origin and destination pairs.

The real-time database is produced by probe vehicles equipped with the Global Positioning System (GPS) and vehicles installed with Autotoll tags.

RTIS will help to facilitate pre-trip planning and road traffic management on Hong Kong's road networks, hence making an effective contribution to a reduction in travel stress and a safer environment.

Real Time Traveler Information System (RTIS)



Professor William Lam
Department of Civil & Structural Engineering
[E-mail: cehklam@polyu.edu.hk]

Bringing the Safe and Viable Use of Stone for Aesthetic Purposes into the 21st Century

Stone has been used as construction material since ancient time and is still one of the most popular materials for cladding walls or for facades on commercial buildings.

However, such rock panels do not have the dimensions or the integrity of stone used in ancient times because a) they are much thinner and b) they are exposed, in urban areas, to the effect of acid rain.

The result is serious cracking causing such safety concerns that would inhibit the use of such panels.

Notable examples include the bowing and cracking of the Italian carrara marble facade of the Anoco Building in Chicago, a 344m tall 80-storey building, now known as the Aon Center. All 43,000 rock panels had to be replaced at a total cost of \$80 million dollars. A task completed in 1991, which is exactly half of the original total cost of the whole building, about 20 years before.

In Hong Kong, serious spalling and cracking started to appear in the granite cladding of the 23-storey Bank of East Asia Headquarters Building, De Voeux Road, Central, in 1993, 10 years after its completion. Replacement resulted in a loss of approximately HK\$38 million.

Professor K.T. Chau and Dr Robina Wong of the Department of Civil & Structural Engineering are now working on both theoretical analysis and experiment on the cracking of rock panels due to both thermal effect from the sun and the environmental effect due to acid rain. The first ever theoretical analysis of cracking in rock panel facades has been accepted by "The International Journal of Solids and Structure" and will be published in the near future.

For the first time, time dependent cracking on external cladding due to sunshine and environmental effects have been explained by fracture mechanics.

A series of experiments are now being conducted to examine the effect of acid rain on the cracking phenomenon of rock panels. The research was

funded by a Competitive Earmarked Research Grant of the Hong Kong SAR Government and France/Hong Kong Joint Research Scheme.



Professor K.T. Chau
Department of Civil & Structural Engineering
[E-mail: cektchau@polyu.edu.hk]



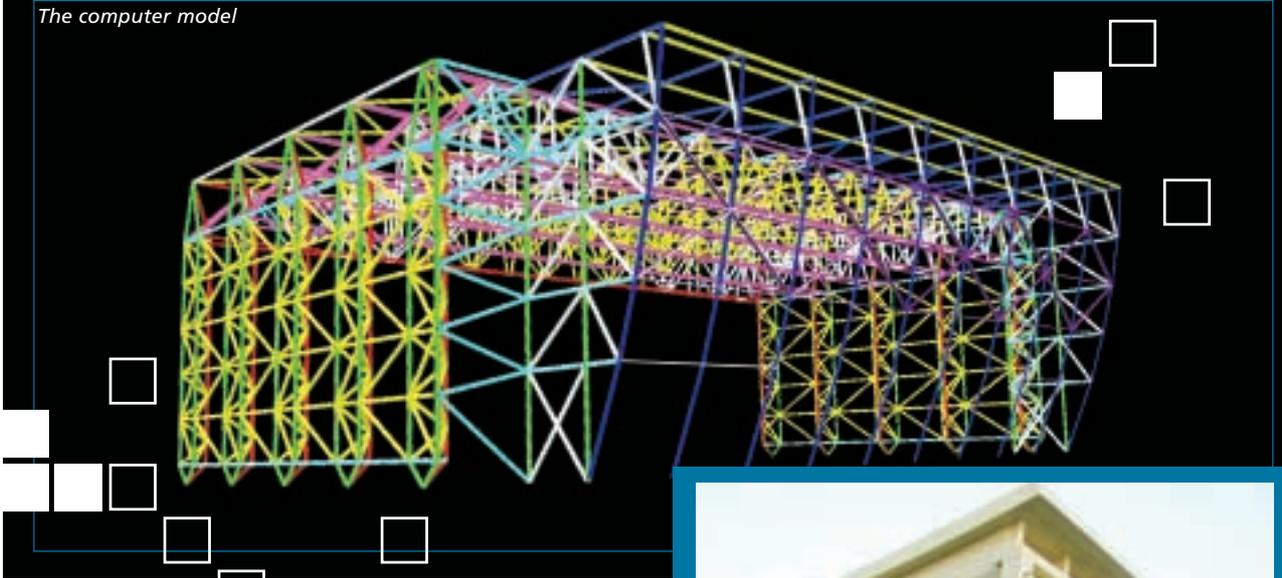
Four-point bending test for cracked rock panel



Example of cracking and bowing of rock panels on cladding walls

Improved Safety, Structural Economy and Cost in the Design of Steel Structures A Revolutionary and Practical Design Technique and Concept for Steel Structures

The computer model



After 15 years of research, Professor S.L. Chan of the Department of Civil & Structural Engineering has developed "Practical Advanced Analysis" for the design of steel structures.

The behaviour of a steel structure is simulated in the computer under loads which for safety reasons will be greater than the actual loads expected to act on the real structure. Allowance is made for imperfections in component manufacture and for member misalignment as required by modern codes of practice.

The loads can be taken beyond the stage when a structure remains fully stable, so as to simulate the behaviour of that structure, after localized buckling and failures have occurred and progressive collapse sets in.

"Practical Advanced Analysis" represents a huge improvement in traditional design in respect of ultimate safety, structural economy, and even in the cost and time of the design process itself.

In addition "Practical Advanced Analysis" is:

1. easily extended to analysis of the dynamic behaviour of a structure under earthquake effect; and
2. enables the prediction of the behaviour of a structure when affected by fire, by substituting the normal properties of steel with those to be expected after exposure to high temperatures.



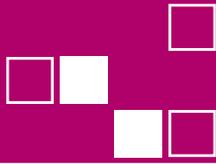
The completed basketball stadium

Photos 1 to 2 above illustrate the application of "Practical Advanced Analysis" to the East Asian Games Stadium, on which Professor Chan worked as a consultant steelwork engineer with the architectural firm, Eddie Wong and Associates.

Regarding technology transfer, which is a feature of the business plan of the Faculty of Construction and Land Use, Professor Chan has been invited to contribute to seminars of the Structural Division of The Hong Kong Institution of Engineers, The Institution of Structural Engineers, the Institution of Engineers Singapore, The Institution of Engineers, Malaysia and the Malaysian Iron and Steel Industry Federation. He also conducted workshops on the new design method for the engineers.

Professor S.L. Chan
Department Civil & Structural Engineering
[E-mail: ceslchan@polyu.edu.hk]

Part 3



Matching Research Output to the Needs of the Local Construction Industry

Research output obviously loses some practical value:

1. if those who could derive benefit from the innovative aspects presented, remain in ignorance of that which has been achieved;
2. if research studies within the academic community are unnecessarily duplicated through want of communication among the various institutions;
3. if academia, through force of circumstances, is unable to identify the construction industry areas, where enhancement or improvement is necessary in the interests of performance or societal comfort.

Awareness of such as the above three scenarios encouraged the Construction Industry Review Committee (CIRC) to draw attention to the need, particularly in the case of shorter term applied research, for some form of coordination between industry and academia and also among academic institutions themselves. It was felt that such strategies would maximize the impact of research



output and hence better contribute to an increase in the competitiveness of the industry.

Research funding bodies, research providers and end users were advised to work in partnership and to collaborate both in funding and identifying clear research objectives, directions, and priorities, (CIRC 7.39-7.40) or in other words, to identify mutually beneficial areas of interest.

The following is one of the examples of partnership and collaboration:

The Construction Industry Institute, Hong Kong (CII-HK)



CII-HK is a relatively new joint initiative developed by industry and academia and specifically pioneered in Hong Kong by the Hong Kong Housing Society. CII-HK is modelled upon and connected to CII-Texas and CII-Australia. Since its inception the CII-HK has been strongly supported by The Hong Kong Polytechnic University (PolyU) via the Faculty of Construction and Land Use.

The essence of the mission of CII-HK is: "to offer a direct link between owners, industry, and research groups for the establishment of priorities, approval of research and subsequent flow of benefits."

From the several studies completed, one typical example, of a study which enhances coordination and



Announcement of the findings of the project on "Repair, Maintenance and Sustainability of the Ageing Residential Building Stock in Hong Kong" at a press conference on 22 June 2006



communication between local research organizations and the industry, is supported by the partnership between CII-HK and PolyU, to conduct a jointly funded multidisciplinary study of the "Repair, Maintenance and Sustainability of the Ageing Residential Building Stock in Hong Kong". Hong Kong has thousands of privately owned residential buildings in poor states of repair, representing a major economic and social issue.

The University multidisciplinary research team was coordinated by Professor Francis Wong, Head of the Department of Building & Real Estate. Expertise was also drawn from the Departments of Applied Social Sciences, Building Services Engineering and Civil & Structural Engineering.

The CII-HK task force, comprising members from a wide range of Hong Kong SAR Government Departments and industry organizations and lead by Professor Chan Ka-kui,

provided support and guidance. Project funds were provided by both CII-HK and the University. The former provided the cost of the research assistants and the latter provided the costs of the full time academics.

The findings of this study were announced at a press conference on 22 June 2006.



The University's multidisciplinary research team

We began this feature article by referring to the research philosophy and policy of the Faculty, the objective of which is, in part, to:

"skill today's professional workforce to compete tomorrow."

The manner in which this can be achieved has been illustrated through descriptions of the outputs of some of our applied research studies. Particular attention has been paid to the necessity to take into account the need to adapt innovative technology, materials, tools and codes of practice to local conditions in order to build a knowledge base for local design professionals.

Strong acknowledgement has also been given to the importance of co-ordination and collaboration between faculty research units and the local construction industry, in order to keep aware of industry's needs and the direction of its long term development, and to keep active and buoyant the "figure 8" research relationship, beneficial to both academia and industry. This will help ensure technological advancement and the effective upgrading of overall performance, productivity and profitability. We also feel what has been achieved so far, paves the way for the establishment of a flourishing symbiotic union that will have even more exciting and comprehensively innovative results.

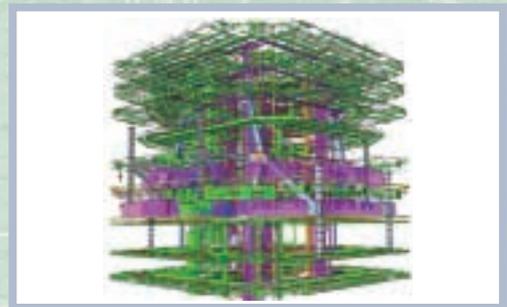
Technology Transfer and Research Developments

技術轉移與科技發展

Research Collaboration between Swire Properties Limited and BRE

建築及房地產學系與太古地產攜手學術研究

Swire Properties Limited and the Department of Building & Real Estate (BRE) signed a Memorandum of Understanding (MOU) in June 2005. Under the MOU, the two parties agreed to collaborate on a research study on the application of Building Information Modelling (BIM) for construction and real estate developments in Hong Kong. The research team members, including Dr Andy Wong (Principal Investigator) and Mr Kenny Tse (Co-Investigator), undertook to evaluate the benefits of the application of the BIM tool, "Digital Project" and various stages of the project procedure in a high rise commercial development project, the One Island East. "Digital Project" was first



A portion of the Mechanical/Electrical/Plumbing Model

introduced to Hong Kong by Gehry Technologies in December 2004. It is considered as an alternative BIM application based on the programming architecture which is built on a mechanical CAD system – CATIA. The findings in the pre-contract stage have been presented at an international conference and a luncheon seminar in BRE. The project is now in the construction stage and more results will be reported in the near future.

Dr Andy Wong

Department of Building & Real Estate

[E-mail: bskdwong@polyu.edu.hk]

Acoustics Research Supported by Donations

業界熱心捐贈聲學學術研究

Over the years, the Department of Building Services Engineering (BSE) has worked very closely with the local industry and has gradually built a reputation locally, and in the Chinese mainland and at international levels as a result of its high level consultancy projects and research. Within the

period 1 June 2005 to 28 February 2006, BSE received a donation of around HK\$700,000 because of its reputation in building services engineering, acoustics and air quality. A novel air conditioning system was also donated. All these donations were designated by the donors to be used in the support of the teaching and research of Professors S.K. Tang and Daniel W.T. Chan. Most of the donors are building services equipment suppliers and firms with acoustics as their core business.

Part of the above donation will be used to build a multipurpose building acoustics testing facility, conforming to International Organization for Standardization (ISO), British Standard (BS) and American Society for Testing and Materials (ASTM) standards, and consisting of a standard reverberation chamber of volume ~200m³ and a smaller reverberation room of volume ~60m³. The former is for sound absorption measurements and will act as the receiver room during the sound transmission loss tests. The latter is the source room for sound transmission loss tests and the receiver room for impact insulation tests. It will also be used for the ASTM standard gaseous emission tests in conjunction with the newly donated air conditioning system. The small room is large enough for the testing of the emission from normal office and household furniture. This facility will be fully tested and commissioned for the Hong Kong Laboratory Accreditation Scheme (HOKLAS).

The remaining portion of the donation will be used for the development of infectious disease control services. Further donations are currently under negotiation.

Professor S.K. Tang
Department of Building Services Engineering
[E-mail: besktang@polyu.edu.hk]

A Taxi Services (Market Competition) Policy Review

計程車服務市場競爭政策探討

A Taxi Services (Market Competition) Policy Review was conducted in the name of the Public Policy Research Institute of The Hong Kong Polytechnic University from 15 November 2005 to 14 February 2006. The research leader was Dr Hung Wing-tat from the Department of Civil & Structural Engineering (CSE).

The objectives of the Review are:

1. to review the market intrusion of the van-type Light Goods Vehicles (LGV) into the taxi trade;
2. to identify the discrepancies, if any, in policy, law and

- regulations governing the operation of the taxis and the vans that give rise to the market confusion; and
3. to make recommendations to clarify the roles of the taxis and the van-type light goods vehicles in passenger transport.

Major recommendations of the Review are:

1. The services offered by the van-type LGV companies obviously jeopardize the taxi business. The activity of the van-type LGVs especially at the airport probably violates the Chapter 374 Road Traffic Ordinance. The responsible authority should take immediate actions to stop all such illegal activities.
2. The current situation whereby van-type LGVs and taxis offer overlapping passenger carriage services especially at the airport is highly unsatisfactory.

In view of the market intrusion as revealed in the Review Report, there is an immediate need to restrict the van-type LGVs to primarily that of carrying goods so as to comply with the spirit of the law. The research team suggests three possible directions:

1. to do away with the back seats in the vans, to reflect their primary goods carrying role. The impact of this change to genuine goods carrying vans is minimal, based on surveys of the number of passengers in such cases;
2. to specify the key words "goods carriage" to be used in LGV advertising; and
3. to clearly define the terms "personal effects" and "goods" in the Chapter 374 Road Traffic Ordinance so that goods do not include items such as brief cases or small bags.

Licensed hire cars, company cars and hotel cars, which take passengers to the airport, may sometimes be unlicensed passenger vehicles. To cater for passengers who travel in a big group, with more luggages, a larger taxi body is needed. The authority may consider allowing larger passenger carrying taxis.

In a panel meeting of the Legislative Council (LegCo) held on 24 March 2006, the Environmental Transport and Works Bureau (ETWB) submitted a paper addressing this taxi competition issue. The Report was particularly referred to and in the same LegCo paper, ETWB committed to look into the recommendation of the Report.

Dr Hung Wing-tat
Department of Civil & Structural Engineering
[E-mail: cewthung@polyu.edu.hk]

Planning of Preservation Works for St John's Cathedral

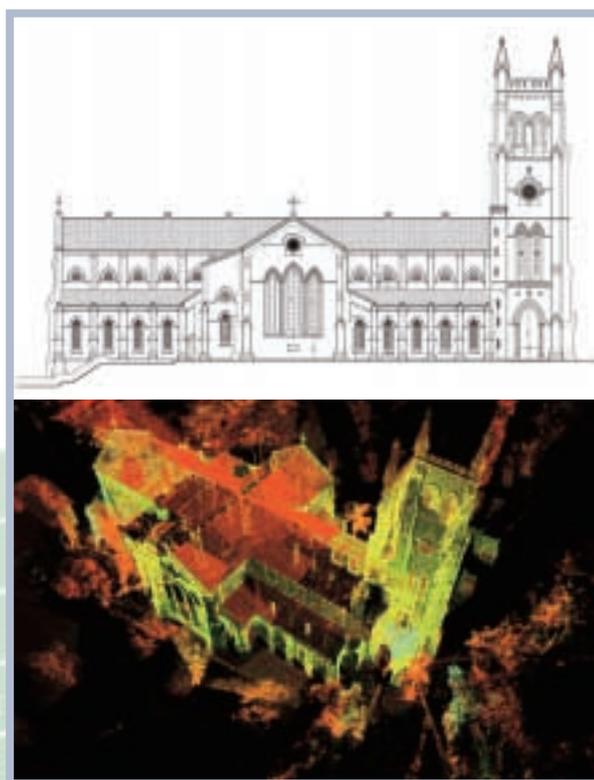
聖約翰座堂維修保養計劃

The foundation stone for St John's Cathedral, Central, Hong Kong, was laid in 1847 and survived through the years including the Japanese occupation during World War II. The Cathedral is the oldest Western church in Hong Kong and is recognized as one of the finest in the region. Its cultural significance was recognized by its becoming a declared monument by Hong Kong's Antiquities Authority in 1996. Unfortunately, no architectural plans were available, making any maintenance, refurbishment or restoration projects difficult.

To address this problem and to aid the planning of preservation works for St John's Cathedral, Dr Bruce King from the Department of Land Surveying & Geo-Informatics of The Hong Kong Polytechnic University (PolyU) and Professor Ho Puay-peng from the Department of Architecture of The Chinese University of Hong Kong (CUHK) joined forces. Through the application of both conventional and advanced surveying techniques, the surveyors measured, laser scanned and photographed the Cathedral and Li Hall creating data accurate to the millimeter level that the built heritage specialists turned into a complete set of drawings. The whole project took nearly two years to complete and was funded by the Cathedral and through research grants from PolyU and CUHK. In addition, the project offered a unique opportunity for surveying students to gain meaningful experience with the technology of laser scanning.

This project marks the first time that the two teams of experts from PolyU and CUHK have worked together. Previously, the necessary dimensions for architectural drawings were collected manually using tapes and other simple measurement tools with access to difficult-to-reach areas assisted by ladders and scaffolding. Objects containing intricate details were obtained by sketching and photography. Such an approach to a building rich in architectural details and of large and varied shape would have been a daunting task, not to mention the impact scaffolding inside the Cathedral would have had on the day-to-day running of the church.

Laser scanning is a relatively new technology in Hong Kong that solves many of these problems and, when combined with photogrammetry, presents new opportunities to those people and organizations interested in the recording and preservation of buildings and objects that either have significant cultural and heritage value or present unique measurement problems.



Dr Bruce King
 Department of Land Surveying & Geo-Informatics
 [E-mail: Isbaking@polyu.edu.hk]

Innovations in Lightning Detection & Protection Techniques

雷電探測及防護技術的創新研究

Dr Chen Ming-li and his ILD

Lightning causes casualty, loss of life and does damage to a wide range of objects and systems. Recently, great progress has been made in innovative advanced

lightning detection and protection techniques in the Department of Building Services Engineering, the application of which may lead to significant mitigation of lightning-caused disasters. Those innovations include:

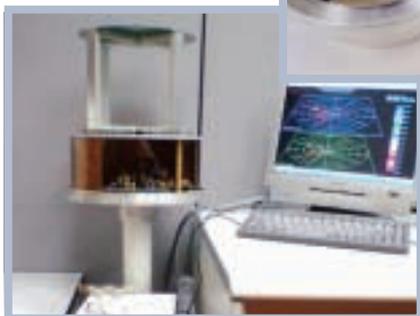
1. An Integrated Lightning Detecting System (ILD) capable of recording concurrently 10 different electromagnetic and optical parameters related to lightning. Data obtained by using the ILD can be used in the study of a wide range of lightning phenomena, and in the development of new lightning warning and protection systems.



2. A new type of Rotating-vane Atmospheric Electric Field Mill capable of sensing the electrostatic field at ground level in a thunderstorm over a broad dynamic range with automatic gain ranging, a key device for lightning warning networks.
3. A Single-station-based Lightning Locating System capable of reporting a lightning location, the time occurrence and discharge type in real time. It can operate in a single- or multiple-station mode, with large operational flexibility.



The New Electric Field Mill



The Lightning Location System

Dr Chen Ming-li
 Department of Building Services Engineering
 [E-mail: bemlchen@polyu.edu.hk]

It is clear that not much can be done to alleviate this situation without a greater understanding of such particulate matter.

Studies related to control strategies require the particulate matter to be first characterized into full chemical profiles to provide necessary data.

Professor S.C. Lee and his team of the Department of Civil & Structural Engineering propose to set up and operate a supersite programme in Hong Kong and the Pearl River Delta to better understand the chemical profile and sources of PM₁₀ and PM_{2.5}.

The objectives of the above programme are:

1. To obtain the atmospheric measurements that characterize the constituents, precursors, co-pollutants, atmospheric transport, and source categories that characterize and affect PM in selected regions. The intention is to understand source receptor relationships and the factors that affect PM on a given site.
2. To obtain atmospheric measurements to address the research questions and scientific uncertainties about PM source-receptor-exposure-effects relationships. The intention is to develop standards and strategies that protect public health.

The above will be conducted via the introduction and operation of research grade monitoring stations on urban sites to obtain long term records of advanced particle measurements including concentration levels, particle sizes and aerosol compositions will be investigated.

Professor S.C. Lee
 Department of Civil & Structural Engineering
 [E-mail: ceslee@polyu.edu.hk]

An Enemy to Health

Investigation of Particulate Matter (PM₁₀/PM_{2.5}) in the Pearl River Delta

研究珠三角的微粒對健康的影響

Exposure to particulate matter from air pollution in the Pearl River Delta has increased in recent years to the extent that the health of people in Hong Kong and southern China has deteriorated. The constituents of Particulate Matter (PM), including sulphate, transition metals, crustal elements, and organic compounds are the unwelcome contributions of mobile and local stationary combustion sources, transport over long ranges from distant combustion sources, local industries and long range combustion sources.

Dealing with the effects, exposure, concentrations, and source-receptor relationships, as well as management alternatives for such particulates (PM₁₀/PM_{2.5}) and the associated scientific uncertainty is not only a headache for administrations but also a source of frustration to the sufferers of chest complaints and the like.

A “Buildability Assessment Model” (BAM) for Hong Kong

適用於香港的建築物「易建性」評估模型

A research team at the Department of Building & Real Estate recently completed a Research Grants Council (RGC) funded project entitled “A Model for Buildability Assessment in Hong Kong”. “Buildability” refers to the extent to which design decisions facilitate efficient use of construction resources and enhances the ease and safety of construction on site.

The BAM Model encompasses the following:

1. Structural Systems
2. Slab Systems
3. Envelope Systems
4. Roof Systems
5. Other Buildability Features including
 - Internal Wall Systems
 - Building Services Aspects
 - Finishing Systems
 - Building Features
6. Site Specific Factors

The outcomes of the research project contribute in 5 ways:

- The project is the first funded study in Hong Kong to quantify the abstract concept of buildability, evolving from the pioneering work of Singapore.
- It expresses buildability in a more tangible and understandable form which allows measurements and comparisons of buildability from the designs themselves.
- The awareness of design professionals in improving the buildability of their designs can be enhanced.
- Society as a whole can reap the fruits originating from the major economic contributor, represented by the construction industry, because of increase in productivity, maximisation of resources usage, reduction of wastes and enhancement of environmental protection as well as the provision of safe workplaces.
- The findings and the methodology of the research study are also of international interests since buildability is a universal issue.

A monograph has been published, together with a CD-ROM containing an introductory slide show and the semi-automated assessment proforma. Limited copies are available from Dr Patrick Lam (the Principal Investigator) on a whilst-stock-lasts basis.



Dr Patrick Lam

Department of Building & Real Estate

[E-mail: bsplam@polyu.edu.hk]

Establishment of a Quality Model of Spatial Data for Lands Department, Hong Kong SAR Government

為地政總署建立空間數據的質量模型

Professor John Shi and his colleagues at the Department of Land Surveying & Geo-Informatics are working on the consultancy project “Provision of Services for the Establishment of a Quality Model for the 1:1000 Topographic Data of the Survey and Mapping Office, Lands Department”.

The digital topographic map at the scale of 1:1000 (B1000) is the fundamental spatial data infrastructure for Hong Kong. The data is widely used by Hong Kong SAR government departments, local industry and research institutions. The data serves for many disciplines, such as building, real estate, tourism, fire service, utility, slope management and others. In response to the growing concerns over the quality of the data from the users, the Land Information Centre (LIC) of the Lands Department initiated this project to establish a high quality data model and data quality evaluation methodologies for the B1000 map. Professor Shi and his team are now working on the data quality models and the recommendation on quality evaluation methodologies for spatial data.

Professor John Shi

Department of Land Surveying & Geo-Informatics

[E-mail: lswzshi@polyu.edu.hk]

PolyU's Civil Engineering Research Output Ranks First and Citation Ranks Second in the world

理大土木工程研究出類拔萃

In the field of civil engineering research, The Hong Kong Polytechnic University (PolyU) has not only put engineering knowledge to good practical uses, but has also published a large number of quality research papers in leading international journals.

According to an independent survey, PolyU has been ranked number one in the world on the number of papers published in leading journals from 2003 to 2005 in the field of civil engineering, with a total of 265 publications, followed by other world class universities in the area such as MIT, Stanford University, University of California (Berkeley), Imperial College and University of Illinois.

Professor Ko Jan-ming, Vice-President (Research Development), said, *"PolyU has achieved many engineering breakthroughs in recent years. We are proud that our quality research in civil engineering have been published widely in the world, contributing to the further development of the study. We will make good use of our expertise through active participation in applied research and major consultancy projects for the government and industry."*

The survey was conducted by Thomson Scientific, an established authority in compiling Science Citation Index. It analyzed the total number of papers in the field of civil engineering which were accepted for publication in reputed international journals over the three-year period. According to Professor Li Yok-sheung, Head of the Department of Civil & Structural Engineering, the survey also examined the total number of citation in the year 2005 with reference to institutional publications between 2003 and 2004. In this particular category, PolyU is ranked second in the world with a total of 105 citations, only marginally behind the University of Illinois in the United States (with 110 citations) but well ahead of other top universities such as MIT, Stanford University, and University of California (Berkeley).

In counting the number of cited publications, Thomson Scientific extracted data from 79 international journals in the field. These authoritative publications include the Journal of Hydrology, Coastal Engineering, and the Journal of Structural Engineering, to name but a few.

In Hong Kong, PolyU has been highly successful in winning Competitive Earmarked Research Grant (CERG) for the discipline of "Civil Engineering, Surveying, Building and Construction". For the six consecutive years since 2001/02, PolyU has been ranked first in both the amount of grants won and the number of projects supported. In 2006/07, PolyU has been awarded more than \$17 million of CERG funding for some 37 new research projects in this particular discipline.



Staff and Department Awards

輝煌的科研成果 學者蜚聲國際

Achievements of Individual **Academics** and **Research Teams**

The 2nd Awardee of the President's Award of HKIE

歷來第二位獲頒香港工程師學會會長特設成就獎

In recognition of the dedicated and valuable service of its member of any class who has served the Institution with distinctive achievements, The Hong Kong Institution of Engineers (HKIE) launched the President's Award in 1994. This year, Ir Professor Ko Jan-ming receives the honour of the President's Award, who is the 2nd awardee in the past 12 years.

As the Vice President for Research Development and Chair Professor of Structural Engineering of The Hong Kong Polytechnic University, and former Dean of the Faculty of Construction & Land Use, Ir Professor Ko has devoted his efforts to tertiary education in general and engineering education in particular in the past three decades.

Ir Professor Ko is internationally recognised in the research area of Structural Health Monitoring. He is currently the President of the Asian-Pacific Network of Centers for Earthquake Engineering Research. Meanwhile, Ir Professor Ko has served the HKIE in many capacities and has significant contributions to the Institution. He was the Chairman of HKIE Accreditation Board from 2001 to 2006 and of the Structural Division in the 1997/98 Session. He was the Chairman of the Structural Discipline Advisory Panel from 2000 to 2001 and of the Education and Examination Committee from 1996 to 2001. He has represented the HKIE in the Federation of Engineering Institutions of Southeast Asia and the Pacific on the Engineering Education and Training Committee. He was also Chairman of the Organising Committee of several major conferences.

Ir Professor Ko has been actively serving the local community. He is a governing council member of Construction Industry Institute, Hong Kong and a council member of the Hong Kong Institution of Science. He was the President of the Hong Kong Society of Theoretical and Applied Mechanics and the President of the Hong Kong Association for the Advancement of Science and Technology.



Professor Ko Jan-ming (right)



Assistant Specialty Editor of ASCE Journal of Construction Engineering and Management

美國土木工程師學會建築工程及管理期刊專欄助理編輯

Dr Patrick Fong, Associate Professor of the Department of Building & Real Estate (BRE), has been appointed assistant specialty editor in October 2005 to the renowned American Society of Civil Engineers' (ASCE) Journal of Construction Engineering and Management (JCEM). Dr Fong is specifically responsible for the Labour and Personnel area. JCEM is regarded as a top journal in the construction engineering and management field by many construction departments worldwide and is published by the ASCE on monthly basis. Dr Patrick Fong is one of the few editors appointed outside the United States.

Chairman of HKIOA

香港聲學學會主席

The 13th Annual General Meeting of the Hong Kong Institute of Acoustics (HKIOA) was held on 15 March 2006. Dr C.M. Mak was elected for the Chairmanship of the Institute for two years. HKIOA was founded in 1993. Its objectives are to promote the knowledge and practice of acoustics and to maintain and present the integrity and status of the profession to the public and the government.

PolyU Scientist Named Croucher Senior Research Fellow

香港理工大學結構工程教授榮獲裘槎優秀科研者獎

Professor Xu You-lin, Chair Professor of Structural Engineering and Director of the Research Centre for Urban Hazards Mitigation at The Hong Kong Polytechnic University (PolyU), was honoured with the prestigious Senior Research Fellowship of the Croucher Foundation, in recognition of his outstanding research achievements.

Professor Xu's remarkable research achievements have won him numerous awards. Apart from the Croucher Senior Research

Fellowship Award, another outstanding and external award was the Natural Science Award (First Prize) from the State Education Commission of PRC awarded to Prof Xu and his research partners in 2003.

Professor Xu's research interests include wind loads and wind effects on buildings and long span bridges, seismic loading and seismic effects on buildings and long span bridges, and vibration control and health monitoring of large civil structures. He has been involved in over 55 research/consultancy projects, including the important consultancy projects on the Tsing Ma Bridge, the world's longest road-and-rail suspension bridge, and the Stonecutters Bridge, one of the world's longest cable-stayed bridges to be completed in 2008. From 2002 to 2005, he also led a \$10 million research project on the mitigation of urban hazards which was identified by the University as an Area of Strategic Development.

Professor Xu is affiliated with renowned national and international professional bodies. He is Vice President of the Chinese Society for Structural Control and Fellow of The Hong Kong Institution of Engineers. He is also a member of the 11th steering committee of the International Association of Wind Engineering, a member of the American Society of Civil Engineers, and a member of the Australian Wind Engineering Society.

Professor Xu is currently Associate Editor of the International Journal of Advances in Structural Engineering, a member of the Editorial Board of the International Journal of Wind and Structures, and a member of the Board of Directors of the Asian-Pacific Network of Centres for Earthquake Engineering Research. Over the years, he has published over 120 research papers in leading international journals and over 140 international conference papers, and he also reviews papers for ten international journals in the field.

The Croucher Senior Research Fellowships scheme was first introduced in 1997/98 academic year. The value of each Senior Research Fellowship is about US\$100,000. It is awarded to local academics who have excelled in scientific research work.



From the left: Professors Suleyman Demokan, Xu You-lin and Ko Jan-ming

Distinguished Scholar Awarded Fulbright Scholarship

理大傑出學人獲富布賴特獎學金資助赴美

With the support of the Fulbright-Hong Kong Scholar Programme, two outstanding young scholars of The Hong Kong Polytechnic University will enjoy the valuable opportunity of spending 6 to 10 months undertaking research work at major institutions in the United States.

Mr Charles Wong Man-sing, PhD candidate of the Department of Land Surveying & Geo-Informatics (LSGI) is one of the awardees.



The Department of Land Surveying & Geo-Informatics (LSGI) signed a 10-year agreement with NASA to establish an Aerosol Robotics Network Station at the University to study the air pollution problems of the Pearl River Delta. Mr Wong Man-sing (right), site manager and PhD student of LSGI, working on this project with his supervisor Dr Janet Nichol.

Mr Wong is the first Fulbright-AIG Scholar sponsored by the insurance and financial giant. He is currently pursuing doctoral studies, under the supervision of Dr Janet E Nichol (Associate Professor of LSGI), on the use of satellite images for monitoring air pollution in Hong Kong and the Southern China. He plans to use the scholarship to spend 10 months at the Earth System Science Interdisciplinary Centre of the University of Maryland Washington DC and to visit the National Aeronautics and Space Administration during his time in the USA.

The International Building Performance Simulation Association

國際建築性能模擬學會

The International Building Performance Simulation Association (IBPSA) is a non-profit making international society of building performance simulation researchers,

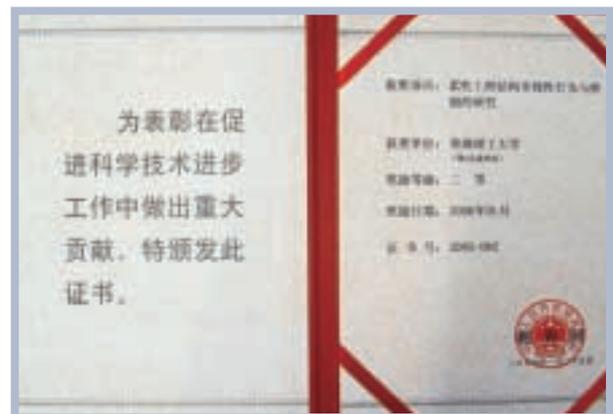
developers and practitioners, dedicated to improving the built environment. IBPSA was founded to advance and promote the science of building performance simulation in order to improve the design, construction, operation, and maintenance of new and existing buildings worldwide.

IBPSA has regional affiliate organizations around the world. Currently, more than 10 regional affiliates have been established. Dr J.L. Niu, Associate Professor of the Department of Building Services Engineering and Director of the Research Centre of Building Environmental Engineering, having been a member of the International Scientific Committee of IBPSA since 2002, helped in establishing IBPSA-China as a founding member in December 2005. Dr Niu will also serve as the first Convener for Region 8 covering Hong Kong, Macau and Taiwan.

2nd Class Science and Technology Progress Award

科技進步二等獎

A research team from the Civil & Structural Engineering Department, comprising, Dr Y.Q. Ni, Professor Ko Jan-ming, Mr X.G. Hua, was honoured with the 2nd Class Science and Technology Progress Award (2005) by the China Education Ministry for their "Study on Nonlinear Behaviour and Control of Flexible Civil Structures". This was a joint research project in collaboration with Hunan University, China.



Certificate of 2nd Class Science and Technology Progress Award

Happold Brilliant Award

屋宇設備工程學課程獲國際嘉許

The BEng(Hons) in Building Services Engineering programme offered by the Department of Building Services Engineering (BSE) has won again the Happold Brilliant Award for Excellent in Teaching in 2005/06. In early 1997 the programme received the distinct honour of being named the 1st recipient of the prestigious award, established in memory of the late Sir Edmund Happold. Sir Edmund was a dedicated and highly respected teacher of engineering who dedicated his whole life to the world of architecture and engineering. The Award was set up in 1995 by The Chartered Institution of Building Services Engineers to award annually a programme judged by the Institution to have contributed most to the quality of teaching of building services engineering at undergraduate level.

Students of this programme learn the art and science of providing safe, healthy and energy-efficient built environments that have minimal adverse environmental impacts. They can select the Sandwich mode of study and take one year of industrial training after year two. Meanwhile they can also join the Student Exchange Programme to study at a university in the UK, continental Europe or the Chinese mainland for a semester.

The programme satisfies the academic requirements for Corporate Membership of The Hong Kong Institution of Engineers and has international recognition through the UK's Chartered Institution of Building Services Engineers.



Professor John Gilleard (BSE) with his students

The Most Valuable Consultancy Projects Awarded by PolyU Technology & Consultancy Company Limited

卓越顧問項目獎

The above award was gained by two research teams from the Department of Civil & Structural Engineering and are described as follows:

The “Structural Health Monitoring and Safety Evaluation of Long-Span Bridges: the Sutong Cable Stayed Bridge and the Jiangjin Suspension Bridge” (\$1.62 million) led by Dr Y.Q. Ni and included Professor Ko Jan-ming and Mr X.G. Hua

The Hong Kong Polytechnic University (PolyU) holds the lead in bridge structural health monitoring research and has been awarded a number of high-level consultancy projects including the development of a long-term structural health monitoring system for the world longest cable-stayed bridge, the Sutong Bridge with a main span of 1088m.

The integrated structural monitoring system enables essential information to be gained not only regarding the state of the health of the bridge structure but also its activation under extreme loadings. Consequently the system can detect structural deterioration and damage, provide early warning of structural failure, check the reliability of sensing and control systems, and activate the control system to protect the structure from extreme loadings of natural and man-made hazards.



Professor Poon Chung-kwong, President of PolyU, and Mr Gordon Leung, Acting Commissioner for Innovation and Technology Commission, Hong Kong SAR Government (middle two), toasting at the ceremony.

The new system will be a valuable asset, in terms of bridge structural health monitoring technology, particularly in view of the great number of long span bridges to be constructed in the immediate future. It should do much to allay the increasing concerns about infrastructure serviceability and safety.



Recipients of the Most Valuable Consultancy Projects Award

The Development of Novel Photocatalytic Oxidation Water (PCO) and Indoor Air Quality (IAQ) Treatment Technology (total contract sum \$3.81 million) Professor Chau Hong

The purity of air and water is important to our lives particularly regarding the maintenance of health. The Photocatalytic Oxidation System is a breakthrough in the area in maintaining both indoor air and water quality.

This system has received many awards: the Chinese Manufacturer Association of Hong Kong Equipment Design Award 2002, Machinery and Equipment Design Certificate of Merit 2003 of the Hong Kong Award for Industry, the Salon International Des Inventions of Geneva Award in 2004.

The Photocatalytic Oxidation System is used widely in two main areas: indoor air treatment and water treatment. For indoor air treatment, the system can be easily installed, either in a ventilation duct or a main air conditioning system. It is used extensively and efficiently in such as high storey government offices, restaurants, elderly homes, schools and airport offices for the removal from the air of airborne bacteria, chemical pollutants and odour.

For water treatment, the Photocatalytic Oxidation System is employed in the actual treatment systems including such as those for drinking water, water for aquaculture and swimming pools. Hence the System ensures the safety of both air and water in different commercial sectors.

The selection criteria for Most Valuable Consultancy Projects Award are based on:

1. high value added service
2. financial merit (total contract sum)
3. market merit (no. of clients served/no. of projects)
4. social merit (impact on community/professional sector)
5. impact on PolyU

Harold E. Nelson Service Award from the Society of Fire Protection Engineers, USA

理大消防工程講座教授喜獲殊榮

Board of Directors of the Society of Fire Protection Engineers (SFPE), USA has selected Professor W.K. Chow as the 2006 recipient of the Harold E. Nelson Service Award in recognition of his dedicated and inspired service to the ideals and goals of the Society.



Professor W.K. Chow (left)

The award is named after Harold E. "Bud" Nelson, P.E., whose parallel fire protection engineering and society careers are truly worthy of emulation. This is the first time the award was selected to a recipient in the Far East.

A local chapter of SFPE was set up in Hong Kong in October 2002, with Professor Chow as the Founding President of the local chapter. Over 100 local fire engineers have joined the chapter. This is a good vehicle for promoting teaching and research activities at The Hong Kong Polytechnic University to international institutes.



Overseas Placements for Young Professors 2005/06

年青學者海外交流

The Overseas Placement Scheme for Young Professors is designed to give people who, at a young age, have proved to be of exceptional academic worth, and who, in time, are expected to become "world-class scholars". Overseas placements are given to encourage the development of this potential. The opportunity is provided either to 6 awardees for a 6-month duration or 3 awardees for a 12-month duration. The placements are at a leading overseas (including the Chinese mainland) research centre, either at a university or in a corporation. Priority is given to persons in those disciplines supporting Hong Kong's strategic development direction.

Professor Wang Tao of the Department of Civil & Structural Engineering has been awarded a 12-month placement to be carried out in the United States and the Chinese mainland to further his atmospheric research studies and Professor John Shi of the Department of Land Surveying & Geo-Informatics has been awarded a 6-month placement to be carried out in the United States and the Chinese mainland to further his research in spatial information technology with emphasis on uncertainties in spatial data and analyses.



Students and Alumni

學生與校友

12th Faculty of Construction & Land Use Students' Association (FCLUSA)

多彩多姿的大學生活

Study Tour

A study tour sponsored by the Faculty of Construction & Land Use (FCLU) was organised for FCLU students from 9 to 13 January 2006. Most of the tour participants learnt a great deal during the tour and broadened their experience of the lifestyles of others.

Participants visited the laboratories and a modern building of School of Architecture and School of Civil Engineering in Tsinghua University

Students shared experiences with local students and visited the Beijing Institute of Civil Engineering and Architecture



The students in Tsinghua University shared the latest knowledge on keeping constant temperature and humidity indoors



Many places were visited, including sites of both ancient and modern architectures, e.g. Tsinghua University and Beijing Planning Exhibition Hall

Singing Contest on 16 February 2006

This is an annual function organized for all students of the Faculty. It gives a valuable opportunity for them to show their talents in music and build up their confidence.



The Annual Singing Contest ends with a big success.



Happy family: Committee of 12th FCLUSA

Gammon University Fellowship

金門英才計劃

Gammon Fellowship Programme is a comprehensive 1-year development programme offered by Gammon Construction Limited, one of the leading construction companies in Hong Kong. The Fellowship Programme aims to offer career-enhancement opportunities for university graduates in Hong Kong and the Chinese mainland and has been in place since 2002. The key features of the Programme include personal mentoring, summer training (8 weeks), site visits, company activities and priority to permanent career with Gammon.

This year (2006/07), four Year 2 students of BSc(Hons) in Building Engineering & Management programme have been selected as Gammon Fellows. Considering the fierce competition for this Fellowship, the results are encouraging.



Our Gammon Fellows (2006/07), from the left: Miss Raif Chan, Miss Codi Chan, Mr Jay Lee and Miss Timly Tse

Outstanding Building Services Engineering Students

屋宇設備工程學學生表現出色

Congratulations to Miss Hui Pui-shan, current PhD student in the Department of Building Services Engineering, who received the competitive student research project award for 2005 in the joint symposium – “New Challenges in Building Services” organized by The Chartered Institution of Building Services Engineers Hong Kong Branch, The Hong Kong Institution of Engineers (HKIE) Building Services Division and the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Hong Kong Chapter. The title of her research topic was “A Thermal Radiation Model for Human Skin Exposure: Experimental Verification and Applications in Corridor Designs”.



Miss Hui Pui-shan (left)

Congratulations to Mr Tang Hin-nam, current BEng(Hons) in Building Services Engineering student, who recently received HKIE Prize for outstanding engineering student (2004/05).



Mr Tang Hin-nam and other awardees

CSE Alumni Received HKIE Geotechnical Division Awards

土木工程校友獲香港工程師學會岩土界別獎項

Miss Cheng Yee-pik, alumna of Department of Civil & Structural Engineering (CSE), received the runner-up of the Best Final Year Geotechnical Project Award during The Hong Kong Institution of Engineers (HKIE), Geotechnical Division Annual Dinner held on 17 March 2006. At the same occasion, Mr Tsang King-cheung (CSE alumni) received the HKIE Geotechnical Division Prize. In addition, Mr Kelvin Kuo (CSE alumni) received the Best Geotechnical Paper of the Year Award by writing a paper entitled “Review of C580 for Excavation & Lateral Support Works in Mainland Project” with Ir. L.M. Mak of the LMM Consulting Engineers Limited.



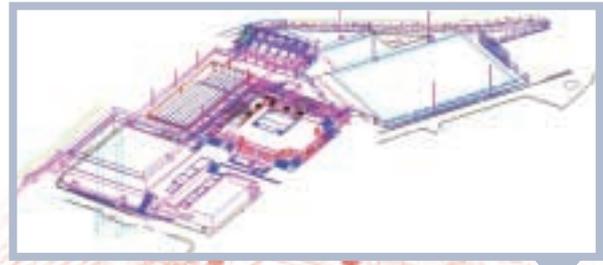
Professor K.T. Chau (second from the left) with Mr Tsang King-cheung and Miss Cheng Yee-pik (right)

LSGI Students Participated in Campus Map Updating

土地測量及地理資訊學系學生參與校園地圖更新計劃

The Hong Kong Polytechnic University campus has been rapidly developing. As a result, the base map in some areas of the campus needs to be updated to better reflect the changes and for reference of future campus planning. In view of the need for campus map updating and an environment to help the Department of Land Surveying & Geo-informatics (LSGI) nurturing students' awareness of community service, a campus map updating project was established between LSGI and Facility Management Office in 2005. Led by Professor Esmond Mok, Mr Joseph Lam and Mr Sydney Cheng, 33 volunteers participated in phase 1 of this project. Students from different classes carried

out surveys in various site conditions, and finally produced a 3-dimensional map of the surveyed areas. After six months of hard work, students not only gained valuable spatial data for campus map updating, more importantly; they fully utilized this golden opportunity to practise what they have learned. They have also gained a sense of belonging to the University as well as the awareness of contributing professional knowledge to society.



The map prepared by LSGI students

Student Exchange Programme with Malardalen University in Sweden

與瑞典梅拉達倫大學的學生交換計劃

The Department of Building Services Engineering (BSE) has signed a new agreement for developing a student exchange programme with the Malardalen University in Sweden.

Professor Lars Wester, Chair Professor of Energy Engineering and Mr Sune Lundin, Director for International Cooperation, have paid a visit to The Hong Kong Polytechnic University (PolyU). Three to five Bachelor of Engineering students from PolyU will have the opportunity to exchange for one semester each year. So far, the Department has developed four such programmes and twelve to fifteen students participate each year. BSE has also received a number of inbound students. Students have shown great enthusiasm for these exchange programmes.



Outbound students to Sweden



Inbound student from Sweden

Exchange Student Falls in Love with Hong Kong

交換生樂不思蜀

There are 8 exchange students in the Department of Civil & Structural Engineering from all over the world (including the Chinese mainland, Finland, Germany, Korea and England) in the 2005/06 academic year.

One of them is Mr Hanes Erick Ampiala, who is an exchange student from Finland. Hanes summed up his exchange experience by saying, "This exchange period has been a really great experience. I have met a lot of new friends, both local and other exchange students. Everybody has been really nice and helpful. The University has exceeded all my expectations and I have had a lot of fun with my classmates. I can honestly say that I have fallen in love with Hong Kong and its people."



Hanes with one of his classmates, Miss Mak at PolyU

Miss Jiang Xun-yi, an exchange student from Wuxi, Jiangsu Province in the Chinese mainland wrote appreciately that, "Professors or lecturers usually give us enough space to think for ourselves, instead of imposing all information upon us. In addition to academic work, there is a variety of extra-curricular activities organized on the campus and in students' halls. All of these activities have greatly improved my interpersonal, communication and public speaking skills. I treasure my university life in Hong Kong."



Miss Jiang Xun-yi, a CSE undergraduate student from the Chinese mainland.

Highly Commended Paper Award from Emerald Literati Network

優秀論文獲國際嘉獎

Emerald Literati Network awarded in 2006 the Highly Commended Award to Ms Ann Yu - a PhD candidate in the Department of Building & Real Estate and her two staff supervisors, Professors Geoffrey Shen and Edwin Chan, for their joint paper entitled "Application of value management in project briefing". The paper presents a research project which seeks to establish a value management framework for project briefing which systematically identifies and clarifies client requirements, and represent these requirements precisely and explicitly to facilitate the design process. This paper also introduces the theoretical foundation of the research project and describes the process for the development of the value management framework for project briefing purposes, and how comprehension of the nature, characteristics and problems of the briefing process is improved. The paper was published in the journal "Facilities", Volume 23, Issue 7/8, 2005.



Ms Ann Yu - a PhD candidate in the Department of Building & Real Estate

Mr Chan Yiu-bun, CSE Alumnus, broke two Hong Kong Swimming Records at the First Asian Indoor Game

土木工程校友破香港游泳紀錄



1st Asian Indoor Games Bangkok 2005

Mr Chan Yiu-bun, alumnus of Department of Civil & Structural Engineering (CSE), represented Hong Kong at the 1st Asian Indoor Games at Bangkok, Thailand. This game attracted the participation of 2343 athletes from 45 countries in Asia. Yiu-bun together with 3 other Hong Kong swimmers broke two Hong Kong



Mr Chan Yiu-bim

swimming records. They broke the "Hong Kong Short-course Swimming Records" of Men's 4x100m medley relay and Men's 4x100m freestyle relay. Yiu-bun was the former Team Captain of the Hong Kong Polytechnic Swimming Team and was the recipient of the most outstanding athlete award of The Hong Kong Polytechnic University in 2003.

HKIS Outstanding Dissertation / Project Award

香港測量師學會優秀論文／項目獎

The Hong Kong Institute of Surveyors (HKIS) Outstanding Dissertation/Project Award is dedicated to the pursuit of Surveying and Built Environment knowledge. It provides tangible acknowledgement of outstanding research work in this area.

Two awardees this year were from The Hong Kong Polytechnic University. They are Mr Stanley Chan who received the Top Award (Land Surveying) and Mr Gary Chan who received the Second Award (Land Surveying). Both are graduates of the BSc(Hons) in Surveying & Geo-Informatics.

FCLU Students' Association Forthcoming Activities 建設及地政學院學生會活動前瞻

Activity Name	Date	Contact Person
Joint University Party	December 2006	Cheung Chi-lun Tel: 6037-5509 E-mail: 05152755d@polyu.edu.hk
Study Tour	January 2007	Wong Chun-hei Tel: 9161-8875 E-mail: 05059123d@polyu.edu.hk
CLU Cup	October 2006-February 2007	Ng Wai-lun Tel: 6078-6065 E-mail: 05916560d@polyu.edu.hk
CLU Singing Contest	February 2007	Lau Ho-wan, Alvin Tel: 6019 2587 E-mail: 05911564d@polyu.edu.hk

Recent Events

活動剪影

Outstanding FCLU Students Honoured

傑出學生獲學院嘉許

The Faculty of Construction & Land Use (FCLU) held the annual Dean's Honours List and Outstanding Students Presentation Ceremony on 4 February 2006 at Jockey Club Auditorium, The Hong Kong Polytechnic University, to give recognition to students of outstanding academic performance in the 2004/05 academic year. More than 90 outstanding FCLU students who had been selected to the Dean's Honours List, were presented with awards at the Ceremony. Four students, one from each of the faculty departments, who had further excelled in both academic and personal development, were awarded the prize for the most outstanding student. The principals of the schools attended by awardees were invited to share the joy of the Ceremony.



Awards recipients and their teachers posing for a group photo



Professors Poon Chung-kwong (left) and John Gilleard (right) and the outstanding students of the four departments.

FCLU Outstanding Student 2005 Message from Luk Siu-fung



Mr Luk Siu-fung

I am honoured to be selected for the award of the Outstanding Student of the FCLU. The University provided me with many opportunities which widened my horizons. My exchange study at the University of Nottingham was fruitful and unforgettable. Apart from improving my language proficiency, I also learnt more about British culture and made a great number of new friends. I believe all of this will be beneficial to my future career development.

Faculty Distinguished Lecture on "Facility Management: Wicked Problems; Inventive Solutions" on 9 February 2006

學院傑出學人講座

Professor Franklin Becker, Professor and Chair, Department of Design & Environmental Analysis of Cornell University, was invited to talk about some of the dilemmas or wicked problems Facility Management (FM) faces, and some of the inventive solutions firms have implemented to address them. He argued that FM discipline's continued growth and development requires not only practice-driven research, but also vision-driven research that explores solutions to wicked problems at the point where "the rubber meets the sky".



Professor Franklin Becker receiving a souvenir from Professor Andrew Baldwin

Faculty Teaching and Learning Forums

教與學論壇

The Faculty of Construction & Land Use is consistently devoted to enhancing and providing quality teaching and learning (T&L). To share experiences and good practices in the delivery of outcome-based curriculum and the implementation of e-learning, the Faculty held two T&L Forums.

With the aim of leading to the development of all-round students with professional competence, our constituent departments have reviewed and enhanced the curricula of their academic programmes for the triennium 2005-08. These newly revised outcome-oriented programmes were put forward for implementation in September 2005. A Faculty T&L Forum to share experiences in the delivery of outcome-based curriculum and criterion-referenced assessments was held on 1 April 2006. More than 50 staff members attended.

The Faculty is also actively promoting and supporting the effective use of modern educational technologies in all



An energetic and devoted teaching team

learning endeavours. Faculty members are strongly encouraged to use e-learning appropriately to enhance the effectiveness of their teaching. In order to promote the adoption of e-learning as an integrated complement to classroom instruction/interaction, the Dean provided a matching sum of HK\$230,000 to support three e-learning projects in the Department of Building Services Engineering. The projects are "Development of a Web-based Teaching Package for the Design Project of Building Services Engineering Systems", "Development of an Information Systems", and "Visualisation of Principles and Theories in Building and Environmental Engineering". The three project teams shared their experiences and interim outputs on the effectiveness of e-learning at a Faculty T&L Forum held on 20 May 2006.

Chan Ka-kui BEM Student Exchange Programme Support Scheme

陳家駒建築工程及管理學學生交流資助計劃



Professor Andrew Baldwin and Professor Chan Ka-kui sign the letter of understanding

Professor Chan Ka-kui has donated a sum of HK\$100,000 to The Hong Kong Polytechnic University under the Second Matching Grant Scheme of the University Grants Committee. The donation together with the Matching Grant allocated to the Department of Building & Real Estate (BRE) will be used to set up "Chan Ka-kui Building Engineering and Management (BEM) Student Exchange Programme Support Scheme" to provide financial assistance to BEM students to undertake Student Exchange Programmes approved by the Head of BRE. A sum of no more than HK\$25,000 will be granted each year from 1 January 2006 onwards until all the funds are exhausted.

Housing Society PM Student Exchange Programme Support Scheme

香港房屋協會物業管理學學生交流資助計劃

The Hong Kong Housing Society has donated a sum of HK\$160,000 to The Hong Kong Polytechnic University under the Second Matching Grant Scheme of the University Grants Committee. The donation to the Department of Building & Real Estate is to be used to establish the "Housing Society Property Management (PM) Student Exchange Programme Support Scheme" to provide financial assistance to PM students undertaking Student Exchange Programmes approved by the Department.



Professor Andrew Baldwin and Miss Wong Lai-chun, Executive Director of the Hong Kong Housing Society, sign the letter of understanding

Reception for Donors Contributing to the Support of BRE

建築及房地產學系的捐贈者聚首一堂

Consistent effort and dedication contributed by members of the Department of Building & Real Estate (BRE) have resulted in an encouraging award from the Second Matching Grant exercise which took place between 1 August 2005 to 28 February 2006. A total of HK\$1,269,809 had previously been raised to support the development of the Department, making it one of the best performers amongst academic departments of the University, earning praise from various sectors of the community.



Donors posing for a group photo

A reception was arranged in the Foyer of the Jockey Club Auditorium on 26 April 2006 to thank donors for their generous contributions. The fund-raising team consists of Professor Francis Wong, Professor Barnabas Chung, Professor Eddie Hui, Ms Connie Yap, and chaired by Professor Geoffrey Shen.

BRE hosts Building Inspection & Diagnostic Technology Conference

樓宇檢測及診斷科技學術會議

Hundreds of professionals from the building industry gathered on campus to attend the conference hosted by the Department of Building & Real Estate (BRE) on building inspection and diagnostic technology on 16 January 2006. The keynote speaker, Mr Lam Siu-tong, Assistant Director of the Buildings Department of the Hong Kong SAR Government, shared his views on the proposed mandatory building inspection scheme. The Conference provided a platform for participants to exchange views on diagnostic technology for inspecting buildings.

Asian Coalition for Building Science and Construction Engineering (ACBC)

亞洲屋宇科技及建築工程聯盟

On 27 March 2006, Professor Francis Wong signed a Memorandum of Understanding (MOU) between School of Architecture and Architectural Engineering, The University of Seoul (UOS), Department of Building & Real Estate, The Hong Kong Polytechnic University and the Department of Architectural Engineering, Osaka University, Japan. The signing ceremony took place at UOS, Seoul, Korea.

The purpose of the MOU was to provide a basis for interaction and collaboration between students and academic staff participating in ACBC. The MOU also aims to contribute to the building and construction industry of both countries and Hong Kong, and to expand interaction and collaboration between the construction industries of Asia and Europe.

ACBC is a network of individuals and institutions that conducts joint workshops/seminars annually on key issues of building sciences and construction engineering,

including structural design and analysis, building environment and facilities, construction engineering and management of buildings, and natural risks or hazards protection services. The broad objective of the ACBC is to foster cooperation and enhance learning between faculty and students working in the areas of building sciences and construction engineering.

The scope of collaboration includes, but is not limited to, the following:

- (1) Organization of joint workshop/seminar;
- (2) Participation in joint research projects;
- (3) Exchange of faculty members and staff for the purpose of education and research;
- (4) Exchange of graduate and undergraduate students for the purpose of education and research;
- (5) Cross registration; and
- (6) Expansion of cooperative ties with participants in other areas.



Meeting with the President of The University of Seoul, Professor Sang-Bum Lee on 27 March 2006

Signing ceremony of the MOU



BEAR Conference 2006

建築工程教育及研究學術會議 2006

The Chartered Institute of Building (CIB) Working Commission W89 International Conference on Building Education and Research (BEAR) 2006 was launched with great success at the Kowloon Shangri-La Hotel, Hong Kong on 10-13 April 2006. The Conference was jointly organized by the Research Centre for Construction and Real Estate Economics and Research Centre for Construction Innovation of the Department of Building & Real Estate.

The BEAR 2006 Conference enabled building and construction practitioners to share their practical experience and successful outcomes, particularly in the areas of sustainability and innovation. Academics and researchers were able to disseminate their latest research findings; and government officials and policy-makers discussed their construction related policies and strategies.

Participation was received from over 160 local and international delegates from more than 16 countries, making this the second largest W89 gathering to date and one of its most successful. The opening speech was made by Mr Yue Chi-hang, JP, Director of the Architectural Services Department of Hong Kong SAR Government, followed by a keynote speech delivered by Professor Roger Flanagan, The University of Reading, UK, exploring the competitiveness and profitability of the construction sector. Altogether, over 110 fully authored and refereed papers were published and presented, covering the four main themes:

- i) Education in the Built Environment;
- ii) Construction Project Management;
- iii) Construction Technology and Innovation; and
- iv) Sustainable Development in Construction.



Full house participation from 160 conference delegates

Public Policy Research Forum

公共政策研究論壇

The 2nd Forum of the Public Policy Research Institute (PPRI), The Hong Kong Polytechnic University was held on 27 April 2006. The purpose of this Forum was to update the public with the latest research development of PPRI, whose mission is to promote excellence in public policy evidence-based research.



Professor Eddie Hui (right)

Major clusters of public policy research, each of which involves cross-department collaborations, have been developed. These areas consist of Environment, Finance, Health and Welfare, Housing and Planning, Logistics, Tourism. Public policy research in the area of 'Housing and Planning' is mainly supported by the Research Centre for Construction and Real Estate Economics in the Department of Building & Real Estate.

During the breakout session on that day, three presentations were given for 'Housing and Planning':

"The Paradox between Redevelopment and Rehabilitation: a Holistic Solution through the URA's Urban Renewal Experience" presented by Mr Billy Lam, SBS, JP, Managing Director of Urban Renewal Authority;

"Urban Redevelopment and Rehabilitation: Views from Professionals" presented by Mr Tony Chan, Executive Director of Vigers Appraisal & Consulting Limited; and

"The Benefits of Rehabilitation: Value Enhancement?" presented by Professor Eddie Hui, Mr Joe Wong & Ms Janice Wan of Department of Building & Real Estate, PolyU.



Mr Yue Chi-hang delivering his opening speech

Professor Roger Flanagan giving his keynote speech



CSE Researchers Invited by HKO to Join the Guangdong-Hong Kong-Macau Earthquake Conference

土木工程學人獲邀參加粵港澳地震學術會議

Professor K.T. Chau and Dr Y.L. Wong of the Department of Civil & Structural Engineering were invited by the Hong Kong Observatory (HKO) to join the Hong Kong Delegation attending the Guangdong-Hong Kong-Macau Earthquake Conference held on 1-2 March 2006. This was the 2nd conference of its kind and provided an opportunity for collaboration between government officials and academia from Guangdong, Hong Kong and Macau.



Professor K.T. Chau and Dr Y.L. Wong are the 6th and 7th from the left in the second row



Speakers of the Guangdong – Hong Kong – Macau Earthquake Conference

CSE Researcher Invited to Join the Chinese delegation to 100th San Francisco Earthquake Conference

三藩市地震 100 週年學術會議



Professor K.T. Chau (first from the left) at the 100th San Francisco Earthquake Conference

Professor K.T. Chau of the Department of Civil & Structural Engineering was invited as keynote speaker to join the Chinese delegation at the 100th San Francisco Earthquake Conference held on 17-22 April 2006 in San Francisco. The Conference was opened by California Governor, Mr Arnold Schwarzeneger. There were over 100 technical sessions and over 4,000 participants from all over the world.

Forthcoming Events

最新動向

Activity Name	Date/Venue	Organizer/Contact Person
<p>International Workshop on Constitutive Modelling – Development, Implementation, Evaluation, and Application</p>	<p>12 - 13 January 2007 Hong Kong SAR, China</p>	<p>Professor Yin Jian-hua Department of Civil & Structural Engineering Tel: 2766-6065 E-mail: cejhyin@polyu.edu.hk</p>
<p>International Networking for Young Scientists 2007 (British Council, HK): “Hong Kong Sustainable Built Environment in the Context of Pearl River Delta”</p>	<p>24 - 26 January 2007 Hong Kong SAR, China</p>	<p>Professor Edwin Chan Department of Building & Real Estate Tel. 2766-5800 E-mail: bsedchan@polyu.edu.hk</p>
<p>10th International Conference on Atmospheric Sciences and Applications to Air Quality (ASAAQ) in Hong Kong</p>	<p>14 - 16 May 2007 Hong Kong SAR, China</p>	<p>Professor Wang Tao Department of Civil & Structural Engineering Tel: 2766-6059 E-mail: cetwang@polyu.edu.hk</p>
<p>Location Asia 2007 – International Conference and Exhibition in the Field of Positioning, Navigation and Timing</p>	<p>4 – 5 April 2007 Inter-Continental Hong Kong Hong Kong SAR, China</p>	<p>Dr Lilian Pun Department of Land Surveying & Geo-Informatics Tel: 2766 5959 E-mail: lspun@polyu.edu.hk</p>
<p>2007 Asian-Pacific Network of Centers for Earthquake Engineering Research Meeting</p>	<p>29 - 30 May 2007 The Hong Kong Polytechnic University Hong Kong SAR, China</p>	<p>Professor Kam-Tim Chau Department of Civil & Structural Engineering Tel: 2766-6015 E-mail: cektchau@polyu.edu.hk</p>

Invitation for Programmes Admissions 2007

For details about the programme structure, curriculum and subjects, please contact the departments or visit their websites:

Department of Building & Real Estate (BRE)

建築及房地產學系

Enquiries: (852) 2766-5807 / 5808 / 7770

Website: <http://www.bre.polyu.edu.hk>

Department of Building Services Engineering (BSE)

屋宇設備工程學系

Enquiries: (852) 2766-5850

Website: <http://www.bse.polyu.edu.hk>

Department of Civil & Structural Engineering (CSE)

土木及結構工程學系

Enquiries: (852) 2766-6051 / 6052

Website: <http://www.cse.polyu.edu.hk>

Department of Land Surveying & Geo-Informatics (LSGI)

土地測量及地理資訊學系

Enquiries: (852) 2766-5968

Website: <http://www.lsgi.polyu.edu.hk>

Application Period for Full-Time Bachelor's Degree and Sub-Degree Programmes

* Local applicants:

From 11 January to 16 February 2007

* Non-local applicants:

From 20 January to 31 March 2007

* Students applying on the basis of current year Mainland Joint Entrance Examination (JEE) results:

From 1 February to 31 May 2007

Application Period for Part-Time Bachelor's Degree and Sub-Degree Programmes

From 24 January to 5 March 2007

Application Period for Taught Postgraduate Programmes

From 20 December 2006

Programme Entrance Requirements

Please check the most up to date information on the Study@PolyU website at www.polyu.edu.hk/study

Enquiries on Application and Admission

Admission Office

Academic Secretariat

The Hong Kong Polytechnic University

Hung Hom, Kowloon, Hong Kong

Email: asadmft@polyu.edu.hk (Full-Time)

Email: asadmpt@polyu.edu.hk (Part-Time)

Email: asadmppg@polyu.edu.hk (Taught Postgraduate)

Fax: (852) 2334-6671

Telephone: (852) 2333-0600 (24-hour automated service)

Website: www.polyu.edu.hk/study

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We welcome your articles, news and updates. All correspondence should be directed to:

FCLU News
Faculty of Construction and Land Use
The Hong Kong Polytechnic University
Hung Hom, Kowloon
Hong Kong

Tel: 2766 5034
Fax: 2362 2574