Concrete-filled cold-formed stainless steel columns.
Departmental Events

An informal gathering was organised for all MSc(Eng) students including the current students and the graduates of the Department on January 26, 2016 from 5:00 to 6:30 p.m. Around 23 students and 6 teachers joined the event. It was a good opportunity for our students to meet their teachers and discuss matters of interest or concern in an informal setting.

The Centre for Innovation in Construction and Infrastructure Development (CICID) organised an international seminar entitled “Zero carbon buildings: state-of-the-art international research and development” and an international workshop entitled “Public and stakeholder engagement for building towards zero carbon” under the Construction Industry Council (CIC) funded project “Hong Kong Zero Carbon Partnership” at HKU on October 16, 2015. On the day over 200 professionals from government, industry, institutions and academia engaged with a blend of speakers from the U.K., U.S.A., Canada as well as local community.

The Centre for Innovation in Construction and Infrastructure Development (CICID), together with the Construction Industry Council (CIC) and Zero Carbon Building (ZCB), organised a strategic workshop as part of the CIC-funded project “Hong Kong Zero Carbon Partnership” at the ZCB on January 21, 2016. At the workshop renowned international and local speakers shared how stakeholders can work in partnership effectively for building towards zero carbon and zero energy, and around 60 established professionals discussed on the status quo and strategic future of the knowledge, attitude and behavior of zero carbon buildings.

Staff Award / Activities / News

Award

Dr. W. Pan was awarded the HKU Overseas Fellowship 2015-16 to Imperial College London, UK.
**Activities**

**Dr. W. Pan**
- delivered a lecture at Imperial College London, which was entitled “High-density Zero Carbon Building: Systems the Lever, Partnership the Fulcrum” on October 8, 2015.
- participated as an invited Panel Member in the Construction Industry Council (CIC) Consultation Forum entitled “Vision 2030 for the Hong Kong Construction Industry” at Central Plaza, Hong Kong on November 30, 2015.

**Dr. A.T. Yeung**
- made an invited presentation “Use of IT in civil engineering for real-time data collection” at the International Roundtable Meeting of the 2015 Japan Society of Civil Engineers Annual Meeting, Okayama, Japan, on September 16, 2015.
- made an invited presentation “Design of surcharging and prefabricated vertical drains for improvement of soft clay” at the Workshop on Geotechnical Engineering: From Ground Investigations to Improvements, ASCE Hong Kong Section, Hong Kong, on September 19, 2015.
- chaired the 29th Executive Committee Meeting of the Asian Civil Engineering Coordinating Council (ACECC) held in Best Western Gunsan Hotel, Gunsan, Korea, in his capacity as the Chair of the Executive Committee of ACECC on October 29, 2015.
- presented a keynote lecture “Geotechnical works of the Hong Kong-Zhuhai-Macao Bridge project” at the 15th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering, Fukuoka, Japan, on November 11, 2015.
- attended the Organizing Committee meeting of the 7th Civil Engineering Conference in the Asian Region (CECAR 7) in Honolulu, Hawaii, U.S.A. during November 20-21, 2015 as the chair of the International Scientific Committee. The Conference will be held from August 30 to September 2, 2016 at the Hilton Hawaiian Village Waikiki Beach Resort at Honolulu, Hawaii, U.S.A. The theme of the conference is “Building a Sustainable Infrastructure in the Asia Pacific Region”. The conference is organized by the Asian Civil Engineering Coordinating Council (ACECC) and hosted by the American Society of Civil Engineers. Dr. Yeung is also the current Chair of the ACECC which is composed of 13 civil engineering society members.
- attended the World Engineering Conference and Convention 2015 in Kyoto, Japan from November 27 to December 3, 2015. He was also the official representative of the Asian Civil Engineering Coordinating Council to attend the Executive Council Meeting and the General Assembly of the World Federation of Engineering Organizations.

**Professor Z.Q. Yue**
- participated in the 2015 United Conference of China Geosciences from October 11 to 14, 2015 in Beijing. He was invited to make two oral presentations entitled: (1) “Huge Differences in both Earthquakes and Tectonic Stresses in Continental and Oceanic Crusts”; (2) “Drilling Process Monitoring for Measurements of Rock Properties and In-situ Stresses”.
- participated in the 2015 AGU Fall Meeting from December 14 to 18, 2015 in San Francisco. He was invited to make one oral presentation entitled: “An alternative modeling framework for better interpretation of the observed volcano-hydrothermal system data”. He presented a methane gas model for the cause and mechanism of active volcanoes on the Earth.

**News**

**Dr. S.D.N. Lourenço** joined the Editorial Board of the Canadian Geotechnical Journal for a 4-year term.

**Dr. W. Pan** was re-appointed to serve as a member of the Authorized Persons Registration Committee Panel and a member of the Authorized Persons Registration Committee of the Buildings Department, HKSAR for a period of two years commencing January 1, 2016.

**Professor S.C. Wong**
- was appointed as a Member of the Appeal Tribunal Panel (Section 45 of the Buildings Ordinance (Cap. 123)), The Government of HKSAR, from December 1, 2015 to November 30, 2018.
- was reappointed as a Director of the Hong Kong Green Building Council from January 1, 2016 to December 31, 2017.
- was reappointed as a Member of the Development Committee of the West Kowloon Cultural District Authority from January 1 to December 31, 2016.
- was appointed as Co-opted Member of the Council, Chairman of Education and Examinations Committee,
Dr. J. Yang is ranked among the top 15 authors by number of publications in the world’s most premier geotechnical engineering journal, Géotechnique, over the last 15 years (2001-2015). This makes him the only Chinese scholar on the list, which comprises a number of distinguished academics in the field, including 6 Rankine Lecturers and 7 Fellows of the Royal Academy of Engineering.

Dr. A.T. Yeung
- was appointed to be a member of the Appeal Tribunal Panel Section 45 of the Building Ordinance (Cap 123), Development Bureau, Hong Kong SAR Government, December 1, 2015 – November 30, 2018.
- was appointed to be Adjunct Professor, College of Mining Engineering, Taiyuan University of Technology, Taiyuan, Shanxi, China 2015-2018 under the Shanxi 100 International Talents Scheme.

Research Highlights

New method named after the Hong Kong University tested as the most accurate

The world’s ever increasing demand for energy poses many challenges to the design and construction of offshore structures, such as oil and gas platforms, wind turbines and cross-sea bridges, most of which are founded on steel pipe piles. For the offshore geotechnical engineers worldwide, how to reliably and economically design these piles is a big challenge as the pile’s loading capacity is largely associated with the installation of these piles into seabed, during which a column of soil tends to form inside as soil enters the pile from the pile tip – a phenomenon known as soil plugging. The degree of soil plugging is affected by many factors, leading to very complicated load transfer mechanism. The most popular method of analysis for offshore piles is that recommended by the American Petroleum Institute, known as the API method, with its new edition issued in 2006. However, there has been considerable concern with the reliability and rationality of this method since it is highly empirical and does not distinguish between plugged and unplugged piles. Researchers and engineers have devoted great efforts to develop more reliable methods for analysis and design. Notably known are the ICP method developed at the Imperial College London and the ICP-based UWA method improved by well-known researchers in offshore geotechnical engineering at the University of Western Australia.

More recently, Dr. J. Yang of the Department of Civil Engineering and his co-worker, Dr. Feng Yu (a former Ph.D. student and research associate of HKU), have developed a new method for analysis and design of open-ended pipe piles named as the HKU method. Unlike other current methods, the HKU method properly takes into consideration the mechanisms of the annulus and plug resistance mobilization. Evaluation of the applicability of the HKU method has been conducted by Dr. Yang and his co-worker against a number of well-documented field tests including two fully instrumented large-diameter offshore piles in Tokyo Bay, Japan, and it has been shown that the HKU method has an attractive capability and advantage. A technical paper on HKU’s work was submitted in 2011 to the premier ASCE Journal of Geotechnical and Geoenvironmental Engineering and received comment from peer reviewers that “It deals with an important, still unsolved engineering problem that is very timely”. The paper was published in Volume 138 of the journal in 2012 (page 1116-1128).

In a recent study, researchers at the University of Stuttgart in Germany conducted a structured overview of these methods as well as the EAP-EAU method widely used in Germany and presented their results at the 40th Annual Conference on Deep Foundations held in Oakland, California in October 2015. They further reported a case study on the predictive performance of these methods against measurement from a high-quality load test on a 40-m long, steel pipe pile installed at Eemshaven, The Netherlands. Their study showed that the HKU method is the most accurate among the methods considered (“accurately correspond with the measurement” as stated in their paper; refer to the figure below which is reproduced from their paper). A more accurate method for design is not only of academic interest but particularly of practical significance. It may allow steel pipe piles to support heavier structures on top that is currently possible using the standard methods and thereby allow significant cost savings in the order of several million US dollars.
Scaffolding platform for slope site investigation works by Dr. A.T. Yeung

The research results of field and laboratory investigations on the engineering performance of the fir log scaffolding platform being used for slope site investigation in Hong Kong conducted by Dr. A.T. Yeung have been published by the Hong Kong Construction Association in a book.

Temporary fir log scaffolding platforms are often required for slope site investigation works. The structural members of the platform are fir logs of diameters ranging from 100 to 125 mm. The fir logs are held together by the friction between them at the connections and the tensions in nylon ties to construct the temporary platform. The platform is required to support the construction workers working on the platform, the drilling rig and associated equipment, the dynamic impacts induced by in-situ tests, in particular the SPT, and the reaction load induced on the platform during maneuvering of site investigation equipment and extraction of temporary steel casing. In addition to dead loads and live loads, the platform has to resist other natural forces, such as wind load. In particular, the foundation of the platform can be scoured by rapid running water during heavy rainstorms. Nonetheless, there is no established procedure for the structural analysis of these scaffolding platforms built of fir logs. The lack of analysis procedure poses a technical difficulty for any Independent Checking Engineer to make a quantitative assessment of the stability and structural conditions of the platform, not mention to certify its structural and stability adequacy with reasonable professional skill and confidence, as required contractually by Government infrastructure construction contracts. A study was conducted in an attempt to break through the impasse by a technically feasible and practical approach.

A full-scale field evaluation of the engineering performance of an existing platform configuration was conducted at a test site of the Kadoorie Research Institute of The University of Hong Kong in Shek Kong, New Territories. The instrumented platform was loaded to support a live load of 10 tonnes, four times the normal live load on the platform. Laboratory tests were performed on nylon ties, fir logs and connection joints in the laboratories of the Department of Civil Engineering to develop a better understanding of the engineering behavior of these structural components of the fir log scaffolding platform. It has been concluded that the empirical rules of thumb for the design and the state-of-practice for the construction routinely adopted by experienced and skilled scaffolders are satisfactory. Acceptance criteria should be developed on the basis of these aspects for the best benefits of the industry, the safety of construction workers, and public safety.

The purpose of the book is to provide practical guidance for practitioners undertaking the erection, use, alteration, dismantling and independent checking of these fir log scaffolding platforms. It is hoped that the book will serve as a standard reference for practitioners and promote continuing improvement to the industry.

Updates on Project Mingde

Mingde Pan Cultural and Community Centre at Dabao Village

This project commenced in early 2012 with a site inspection trip. After three years of hard work, it was finally completed and handed over to the locals at the end of 2015. With due consideration of uncertainties such as future birth rate in the village and to make the building more sustainable, in addition to classrooms, the building design included a sanatorium, a canteen and a basketball court. It would not only benefit the school children, but also all the villagers. The Completion and the Handover Ceremony of Mingde Pan Cultural and Community Centre was successfully held on October 17,
2015 with about 50 guests including the project architect, donor, contractor, students and committee members of Project Mingde, and villagers.

Village, in which about 15 students joined a visiting trip in January 2016 to explore the needs and feasibility of expanding the existing teaching block and student accommodation for Fengmu Primary School. A feasibility study report has been completed by the students. The follow up study will be carried out soon.

**Teacher accommodation of Daping Primary School**

Project Mingde collaborated with Guangxi University on our 7th project at Daping Village Primary School to build a teacher accommodation. Two study trips to Guangxi University were arranged in October and December 2015. About 20 students participated in the trips to learn the design codes in Mainland China from the teachers in Guangxi University and to discuss with their students about the structural design of our proposed building. The construction work will commence in mid-July, and tentatively be completed by the end of 2016. We are planning for a four-week summer camp to supervise the construction works.

**Proposed Teaching Block and Student Accommodation for Fengmu Primary School**

Project Mingde has identified a potential project in Fengmu Village, in which about 15 students joined a visiting trip in January 2016 to explore the needs and feasibility of expanding the existing teaching block and student accommodation for Fengmu Primary School. A feasibility study report has been completed by the students. The follow up study will be carried out soon.

**Name of students joined the site visits for various projects:**

**October 15-18, 2015 (Dabao):**
Wong Pak Yue Martin, Pung Chun Nok Samson, Shum Ka Yee Cynthia, Yang Zi yuan Marcus, Chu Wing Nin Winson, Kwok Ka K Kristie (Industrial Engineering)

**October 16-18, 2015 (Guangxi University, Nanning):**
Poon Tsing Leo, Lee Chak Fai, Liu Ka Chun Jackia, Tsang Siu Fung, Chan Sheung Chi Jason, Chan Wing Chuen Tom, Tse Yat Sing Oliver, Lau Cheuk Yin Andrew, Chan Lok Tin Dayday, Lai Hong Ting June (Industrial Engineering)

**December 28-30, 2015 (Guangxi University, Nanning):**
Poon Tsing Leo, Chan Lok Tin Dayday, Lau Cheuk Yin Andrew, Tang Cheuk Wa, Fong Chun Wai, Lai Hong Ting June (Industrial Engineering)

**January 12-15, 2016 (Fengmu):**
Chan Lok Tin Dayday, Kiu Ling Ho Rex, Lau Chung Ming, Leung Amanda Ka Wing, Liu Ka Chun Jackia, Piao Ximin Shelly, Shum Pui Ying Mimi, Tse Hoi Yan Vicky, Tse Yat Sing Oliver, Wong Chun Sing, Yeung Bozoo Yik Chun, Yu Sea Ki Victoria, Poon Chee Tou Calvin (Engineering), Cheung Wing Tung Ada (Surveying), Lai Hong Ting June (Industrial Engineering)

For more information about Project Mingde, visit our official website at [www.civil.hku.hk/mingde/](http://www.civil.hku.hk/mingde/).
**Student Activities / Awards**

**Activities**

**Message from our alumni, Mr. Lu Dapeng**

"I received the HKIE Joint Structural Division Award at the presentation ceremony of the Joint Structural Division on October 22, 2015 in recognition of my performance at the IStructE Examination. After obtaining my master’s degree from HKU, I joined Arup as a structural engineer in 2011. During my study at HKU, the Department of Civil Engineering not only provided me with academic knowledge in various related disciplines in the construction industry, but also widened my horizons. Most importantly, the department invited many professional engineers from the construction industry to share their valuable experience with us, and provided useful career guidance. All these have greatly benefited my career development.

**LU Da-peng Alex** (MSc(Eng) 2011)"

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**ICE Competition**

The ICE HKA G&S Communications Competition Hong Kong 2015-16 was the first communications competition in Hong Kong organized by the Institution of Civil Engineers. It was a mock public consultation session where the final competitors had to present a proposal of an engineering project and answer questions from the judges and audiences. The event took place on February 27, 2016 at the Hong Kong Polytechnic University. The judges were Mr. C.K. Hon (Director of Civil Engineering and Development Department), Mr. K.K. Ling (Director of Planning, HK SAR Government) and Ms. Eva Kong (Bid Manager). A total of 11 teams signed up for the competition, two of which consisted of HKU students. Only 6 among the 11 teams were selected for the final round where they had to present the proposal. One of the teams from HKU was nominated for the final round. The team name was Leaders of Tomorrow consisting of students of Year 2 (Saad Faizi, Saif Mohammed Chowdhury, Ajman Rakin Chowdhury and Anad Abdul Anees) and Year 3 (Anwar Ul Haq and Fauzan Mustafa) from the Department of Civil Engineering. The members are from Bangladesh and Pakistan. Competing with a number of teams containing graduates and experienced professionals, Leaders of Tomorrow emerged 3rd. It is a great achievement for the students individually and the Department as well.

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Awards

**Miss Chan Wing Lam** (CivE 3 2015-16) and **Mr. Li Hin Wai** (CivE 2 2015-16) were awarded the Young Tsun Dart Scholarship 2015-16 (Renewal).

**Mr. Cheung Yan Long** (CivE 2015 June graduate) was awarded the Chow Che King Prize 2014-15 and Ms. Chu Yuk Baw Prize in Structural Engineering 2014-15.

**Mr. Chow Ka Ho** (CivE 3 2015-16) was awarded the Edward Keller Achievement Award in Civil Engineering 2014-15.

**Mr. Kim Hyungyu** (Civ-EnvE 2015 June graduate) was awarded the Environmental Engineering Prize 2014-15.

**Mr. Kwan Pui Hei** (CivE 2 2015-16) was awarded the Walter Brown Memorial Prizes in Mathematics 2014-15.

**Mr. Lam Yan Wai** (CivE 4 2015-16) was awarded the Gammon Construction Limited Prize in Civil Engineering 2014-15.

**Mr. Lau Chi Hin** (CivE 4 2015-16) was awarded the HK Cheng Prize in Civil Engineering 2014-15.

**Mr. Liu Yingxiao** (CivE 3 2015-16) was awarded the Chan Kai Ming Prize in Engineering 2014-15 and CL Tse Prize in Civil Engineering 2014-15.

**Mr. Ng Hei Yin** (CivE 2015 June graduate) was awarded the HKIE Geotechnical Division Prize - Competition on AECOM Prize for Best Final Year Geotechnical Project 2015.

**Ms. Ng Lai Ling** (CivE 3 2015-16) was awarded the Tai Tung-Ngok Prize in Civil Engineering 2014-15.

**Mr. Ng Tsz Wai Jason** (CivE 2 2015-16) was awarded the HKU Engineering Alumni Association Scholarship 2014-15.

**Mr. Zahid Waqas** (CivE 3 2015-16) was awarded the Ho Iu Kwong Prize in Civil Engineering 2014-15.

**Mr. Wong Kin Wai** (CivE 4 2015-16) was awarded the Endeavour Merit Award under the HKSAR Government Scholarship Fund 2015-16.

**Mr. Xing Bodong** (CivE 2015 June graduate) was awarded the Ms. Chu Yuk Baw Prize in Civil Engineering (Final Year Project) 2014-15, Civil Engineering Project Prize 2014-15, Wing Lung Bank Ltd Prize in Civil Engineering 2014-15 and HKIE Geotechnical Division Prize - AECOM Prize for Best Student of the Year 2015.

**Ms. Xue Yafei** (CivE 2 2015-16) was awarded the CMA & Donors Scholarship 2015-16 and Ho Fook Prize in Engineering 2014-15.

**Mr. Yau Man Ho** (CivE 4 2015-16) and Mr. Yip Cheuk Yin Bryan (CivE 2 2015-16) were awarded the HKU Foundation Scholarship 2015-16.

**Miss Zhu Yuxi** (CivE 3 2015-16) was awarded the Legion d’Honneur Club Hong Kong Chapter and Consulate General of France Summer Courses Travel Grants.

Newsletter By Email

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Department of Civil Engineering

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