

To All Members,

Date: 10 November 2007

CANDIDATES APPROVED TO SIT FOR YEAR 2007 PROFESSIONAL INTERVIEW

The following candidates have been approved to sit for the Professional Interview for 2007.

In accordance with Bylaws 3.7, the undermentioned names are published as having applied for membership of the Institution, subject to passing the year 2007 Professional Interview.

If any Corporate Member of the Institution has any reason as to why any of the candidates is not a fit and proper person for election, he should communicate in writing to the Hon. Secretary. Such communication should be lodged a month from the date of publication.

Engr. Oon Chee Kheng, F.I.E.M., P.Eng.

Honorary Secretary, The Institution of Engineers, Malaysia

TRANSFER APPLICANTS		
Membership No	Name	Qualifications
CIVIL ENGINEERING		
24242	AMIR KAMAROL HEDZREE BIN KAMARUDIN	BE (UMIST) (CIVIL, 01)
21526	C.KAMALESAN A/L CHANDRASEKARAN	BE (HONS) (USM) (CIVIL, 00)
14868	CHAN YEW GEAP	BSc (FLORIDA) (CIVIL, 86) MSc (WEST VIRGINIA) (CIVIL, 89)
23261	CHAO MEANG SIONG	BE (QUEENSLAND) (CIVIL, 02)
24351	CHONG WENG HO	BE (HONS) (USM) (CIVIL, 02)
27113	FREDERICK SAMSON	BE (HONS) (UKM) (CIVIL, 99)
22417	HOE TIAN HEE	BSc (MISSISSIPPI) (CIVIL, 00) MSc (MISSISSIPPI) (CIVIL, 01)
18560	KAMAL'AZAM BIN SAIDIN	BE (HONS) (USM) (CIVIL, 94)
21659	KOH CHEE YONG	BE (HONS) (NOTTINGHAM) (CIVIL, 00)
23195	LEE YEU KIN	BE (HONS) (LIVERPOOL) (CIVIL, 01)
22667	LIEW BING FOOI	BE (HONS) (MELBOURNE) (CIVIL, 00)
19510	LIEW YEW KIM	BE (HONS) (UTM) (CIVIL - ENVT, 02)
18036	LOH ZHI SING	BE (HONS) (UTM) (CIVIL, 96)
19399	MOHD FAIZAL BIN ATAN	BE (HONS) (PORTSMOUTH) (CIVIL, 97)
21590	MUHAMAD SHUKRI RAHMI BIN ZAINOL ABIDIN	BSc (MISSOURI) (CIVIL, 89)
23232	OH JOL DIH	BE (HONS) (LEEDS) (CIVIL, 01)
18474	ONG PANG WEI	BSc (UNI. OF KANSAS) (CIVIL, 97)
15328	ONG YONG TONG	BE (HONS) (UTM) (CIVIL, 93) ME (NANYANG TECH UNI) (ENG, 96)
17619	POOVANARAJAH A/L THAVARATNAM	BE (HONS) (EAST LONDON) (CIVIL, 95)
23949	WAN YOON HIN	BE (HONS) (TASMANIA) (CIVIL, 01)
10099	WILLIS ANSOI	BE (HONS) (UM) (CIVIL, 86)
19327	YONG KOK WAI	BE (HONS) (UTM) (CIVIL, 99)
25883	ZULFA ASRI BIN ZULKIFLI	BE (HONS) (EAST LONDON) (CIVIL, 97)
ELECTRICAL ENGINEERING		
24835	HISHAM BIN ABD. GHAFUR	BSc (WICHITA STATE) (ELECT, 02)
23192	ISMAIL HASMAN BIN MOHAMED @ SALLEH	BE (HONS) (UM) (ELECT, 02)
24947	YEE SIEW HUAT	BE (HONS) (UTM) (ELECT, 02)
ELECTRONIC ENGINEERING		
18616	SAIFUL ADLI BIN ISMAIL	BE (HONS) (UMIST) (E'TRONIC, 95)
MECHANICAL ENGINEERING		
24492	ABDUL AZIZ BIN MAT ALI	BE (HONS) (UNITEN) (MECH, 01)
23103	AZIZUL AZMAN BIN RAMLI	BE (HONS) (UiTM) (MECH, 01)
25525	CHOW CHIN SEANG	BE (HONS) (UiTM) (MNFG, 99)
23911	MOHAMED FIRDHAUS BIN HI. NAWAWI	BE (HONS) (UiTM) (MECH, 03)
18015	MOHD TAJUDIN BIN REJAB	BE (HONS) (UiTM) (MECH, 98)
2352	MOHD ZULKIFLY BIN EMRAN	BE (HONS) (TOYOMA) (MECH, 00)
24779	NG GUAN LEE	BE (HONS) (UTM) (MECH, 01)
24439	SHAHRUL NIZAM BIN AHMAD SHARUDIN	BE (HONS) (UTM) (MECH, 03)

NEW APPLICANTS	
Name	Qualifications
CIVIL ENGINEERING	
AHMAD ZAINUDDIN BIN MESURI	BE (HONS) (UTM) (CIVIL, 01)
AMERAN BIN ISMAIL	BE (HONS) (UTM) (CIVIL, 95)
CHIENG KAI YONG	BE (HONS) (PLYMOUTH) (CIVIL, 02)
KONG KAM LOONG	BE (HONS) (UTM) (CIVIL, 00)

NEW APPLICANTS

Name	Qualifications
CIVIL ENGINEERING	
LAI LIANG KOONG MAWARDI BIN ZAKARIA MOHAMAD BIN AWANG MOHAMAD SUAIMI BIN RAMLI MOHD ZAIDI BIN ZAINAL MUHAMMAD AYATOLLAH BIN ZAINI	BE (HONS) (STRATHCLYDE) (CIVIL, 87) BE (HONS) (USM) (CIVIL, 00) BE (HONS) (MIDDLESEX POLYTECH) (CIVIL, 88) BE (HONS) (UM) (CIVIL, 98) BE (HONS) (UTM) (CIVIL, 00) BE (HONS) (UTM) (CIVIL, 04)
ELECTRICAL ENGINEERING	
BURHANNUDDIN BIN HI. OTHMAN CHUAH TIK LAM ISMAIL BIN YAAKOB KARUNAKARAN A/L SINNANDAVAR MOHD AZMAN BIN HASSAN MOHD ROZAIDI BIN RAMLEE MULIADY BIN CHE HAMAT ROS LI BIN ABD. RAHMAN TANG KOK CHIU	BSc (TOLEDO) (ELECT, 89) BE (HONS) (SUNDERLAND) (ELECT & E'TRONIC, 94) BE (HONS) (WOLLONGONG) (ELECT, 92) BE (HONS) (UM) (ELECT, 01) BE (HONS) (UWIST) (ELECT & E'TRONIC, 85) BSc (WASHINGTON) (ELECT, 87) BE (HONS) (UTM) (ELECT, 00) BSc (ABERDEEN) (ENG, 88) BE (HONS) (SHEFFIELD) (ELECT, 02)
ELECTRONIC ENGINEERING	
ROSHIDI BIN KHAMIS SAIFUL IDZWAN BIN ABDULD HAMID WAN MOHD SHUHAIMI BIN WAN JAAFAR	BE (HONS) (UKM) (ELECT & E'TRONIC SYST. ENG., 99) BE (HONS) (UNITEN) (ELECT & E'TRONIC, 01) BE (HONS) (UTM) (ELECT, 97)
MECHANICAL ENGINEERING	
AMIRUDDIN BIN ALI AWANG SALLEH BIN MAKMUD AZHAN BIN MUHAMMAD SUFIAN AZMI BIN MOHAMMED NOR CHAN CHUNG WEI HALIM MUSA BIN SAIRI MUHAMMAD DANIAL BIN ZAM ZAM AMIN NOR ROZAINI AFFENDI BIN NOR RASHID RAJA MAZUIR BIN RAJA AHSAN SHAH YAP HONG EN	BE (HONS) (UTM) (MECH, 00) BE (HONS) (UKM) (MECH & MATERIAL, 99) BE (HONS) (UTM) (AERONAUTICS, 98) BSc (TULSA) (MECH, 91) MASTER OF PHILOSOPHY (UMIST) (03) BE (HONS) (UTM) (MECH, 03) BSc (WASHINGTON) (MECH, 91) BE (HONS) (SALFORD) (MECH, 96) BE (HONS) (UM) (MECH, 03) ADV DIP (U'ITM) (MECH, 95) BE (HONS) (UPM) (MECH, 01)
TELECOMMUNICATION ENGINEERING	
NURIL AZMI BIN MUSLIMIN	BSc (SYRACUSE) (ELECT, 97)

2ND ANNOUNCEMENT CALL FOR PAPER AND REGISTRATION

9TH INTERNATIONAL HEAT PIPE SYMPOSIUM

November 17–20, 2008

Monash University Sunway Campus, Malaysia

<http://www.monash.edu.my/events/91HPS>

BEM APPROVED
CPD HOURS
PENDING APPROVAL

Abstract deadline
January 31, 2008

Organised by
Monash University

Supported by
OYL Research and Development Centre
The Institution of Engineers, Malaysia (IEM)

Sponsored by
The Japan Association for Heat Pipe
Fujikura Ltd, Japan
Institution of Mechanical Engineers (Malaysia Branch)

1-DAY INTENSIVE WORKSHOP ON DETERMINATION OF SOIL PARAMETERS FOR GEOTECHNICAL DESIGN

Date:

3 Groups on 3, 4 or 6 December 2007

Time:

8.30 a.m – 4.30 p.m

Venue:
IEM Hall

BEM APPROVED
CPD HOURS: 8
Ref No: IEM07/HQ/327/W

Speaker:
Professor John Atkinson

Registration Fees:
IEM Member RM500.00
Non-IEM Member RM700.00

Organised by
Geotechnical Engineering Technical Division
The Institution of Engineers, Malaysia

NOTICE

NOMINATIONS FOR ELECTION TO FILL VACANCIES FOR THE COUNCIL SESSION 2008/2009

The IEM Council at its 359th meeting on 22 October 2007 has decided to fill Council vacancies for the Session 2008/2009 in accordance with Article 5.2 of the Constitution. An election programme has also been approved by the Council for implementation.

The following Council vacancies will arise for the Session 2008/2009 as a result of Council members retiring at the end of the Session 2007/2008.

Office	No. of Vacancies	Terms of Office
Vice President	Three (3)	2 Sessions (2008/2009 and 2009/2010)
Honorary Secretary	One (1)	1 Session (2008/2009)
Honorary Treasurer	One (1)	1 Session (2008/2009)
Council Member – Civil Representative	One (1)	3 Sessions (2008/2009, 2009/2010 and 2010/2011)
Council Member – Mechanical Representative	One (1)	3 Sessions (2008/2009, 2009/2010 and 2010/2011)
Council Member – Electrical Representative	One (1)	3 Sessions (2008/2009, 2009/2010 and 2010/2011)
Council Member – Structural Representative	One (1)	3 Sessions (2008/2009, 2009/2010 and 2010/2011)
Council Member – Ordinary Representative	Seven (7)	3 Sessions (2008/2009, 2009/2010 and 2010/2011)

Notice inviting nominations for the Election of Council Members for Session 2008/2009 will be posted on the IEM Notice Board on **18 January 2008** and also on the IEM website (www.iem.org.my) for the information of all Corporate Members.

Nomination forms may be obtained at the IEM Secretariat or downloaded from the IEM website (<http://iem.org.my>) on and after 18 January 2008.

All nomination forms, duly completed, shall be sent in sealed envelope marked "*Confidential: Nomination Paper for Session 2008/2009*" to: -

The Honorary Secretary
The Institution of Engineers, Malaysia
Bangunan Ingenieur, Lots 60/62, Jalan 52/4
P.O. Box 223 (Jalan Sultan), 46720 Petaling Jaya, Selangor Darul Ehsan
Tel: 03-79684001 or 79684002

to reach him not later than 12.00 noon on **Friday, 1 February 2008**.

Regards.

Dato' Engr. Pang Leong Hoon, FIEM, P.Eng.
IEM Election Officer



IEM DIARY OF EVENTS 2007

For further enquiries on the events below, please contact IEM Secretariat at 03-7968 4001/2 or visit IEM Homepage at <http://www.iem.org.my> for further information and forms.

CONFERENCE & SEMINAR



Civil and Structural Engineering Technical Division

27 NOVEMBER 2007

Time: 5.30 p.m. - 7.00 p.m.

Talk on "Collaborative Design"

Speaker: Mr. Alan Jones

Venue: 2nd Floor, Conference Hall, IEM

(Invitation to Register)

Mechanical Engineering Technical Division

27 NOVEMBER 2007

Time: 5.30 p.m. - 7.30 p.m.

Talk on "Emergency Response Plan (ERP) - What a Facility Could Do in the First Few Minutes."

Speaker: Engr. Loo Chee Kin

Venue: 2nd Floor, Conference Hall, IEM

(Invitation to Register)

5 DECEMBER 2007

Time: 5.30 p.m. - 7.30 p.m.

Talk on "Helicopters Used as Flying Cranes-The Risks"

Speaker: Mr. Thanapalasingam

Venue: 2nd Floor, Conference Hall, IEM

(Invitation to Register)

13 DECEMBER 2007

Time: 2.00 p.m. - 5.30 p.m.

Half Day Course on "Power Plant and Air Pollution Control Systems"

Speaker: Mr. Shigehiro Miyamae

Venue: 2nd Floor, Conference Hall, IEM

(Invitation to Register)

Oil, Gas and Mining Technical Division

27-28 NOVEMBER 2007

Time: 8.30 a.m. - 5.30 p.m.

2 Day Course on Maintenance Planning

Speaker: Engr. Al-Khairi bin Mohd. Daud

Venue: Institut Sultan Ahmad Shah (ILSAS), Bangi

Fees: (a) IEM/TNB Member - RM1,100.00

(b) Non IEM Member - RM1,200.00

(Invitation to Register)

Agricultural and Food Engineering

Technical Division

6 DECEMBER 2007

Time: 9.00 a.m. - 1.00 p.m.

Half Day Seminar on "Hydroinformatics and Its Applications"

Speaker: Prof D.P. Solomatine,

Prof Z. Vojinovic

Venue: Seminar Room, 2nd Floor, Faculty

Engineering, UPM, Serdang

(Invitation to Register)

Geotechnical Engineering Technical Division

3 groups on either

3, 4 or 6 DECEMBER 2007

Time: 8.30 a.m. - 4.30 p.m.

1 Day Intensive Workshop on Determination of Soil Parameters for Geotechnical Design

Speaker: Prof. John Atkinson

Venue: 2nd Floor, Conference Hall, IEM

(Invitation to Register)

3 DECEMBER 2007

Time: 5.30 p.m.

Talk on "What is Failure and Why do Failures Occur?"

Speaker: Prof. John Atkinson

Venue: 2nd Floor, Conference Hall, IEM

(Invitation to Register)

Production and Manufacturing Engineering Technical Division

28 NOVEMBER 2007

Time: 5.30 p.m. - 7.00 p.m.

Talk on "Digital Factory Simulation"

Speaker: En. Muhamad bin Zambri

Venue: 2nd Floor, Conference Hall, IEM

(Invitation to Register)

Water Resources Engineering

Technical Division

24 NOVEMBER 2007

Time: 8.00 a.m. - 4.00 p.m.

Technical Visit to Coastal Protection Sites, Port Dickson

Venue: Port Dickson, Negeri Sembilan

Fees: (a) IEM Member - RM30.00

(b) Non IEM Member - RM50.00

(Invitation to Register)

Graduate and Student Section

6 DECEMBER 2007

Time: 7.00 p.m. - 9.00 p.m.

Talk on "Introduction to Vector Drives"

Speaker: Dr Hew Wooi Ping

Venue: 2nd Floor, Conference Hall, IEM

(Invitation to Register)

27-28 DECEMBER 2007

Time: 8.30 a.m. - 5.30 p.m.

2 Day Course on Steam Boiler- Operations, Trouble-Shooting, Inspection, Maintenance and Repair

Speaker: Engr. Mohd. Normarzuki bin Ya'acob

Venue: Institut Sultan Ahmad Shah (ILSAS), Bangi

Fees: (a) IEM/TNB Member - RM1,100.00

(b) Non IEM Member - RM1,200.00

(Invitation to Register)

26 - 30 November 2007

Package Trip to CAFEO 25 "Engineering and the Environment: Ensuring Survival for Future Generations"

Venue: Waterfront Cebu City Hotel and

Casino Lahug, Cebu City, Philippines

Organiser: The Philippine Technological Council

E-mail: sec@iem.org.my

Website: www.aseanengineers.com/CAFEO25/

(Last call for Registration)

Malaysia

27 - 29 November 2007

ASIA PACIFIC REGIONAL CONFERENCE AND EXHIBITION ON POWER QUALITY 2007 - TOWARDS COST-EFFECTIVE PQ SOLUTIONS

Venue: Sunway Pyramid Convention Center, Petaling Jaya, Selangor

Organiser: CIRED

E-mail: cired@tnb.com.my

Website: www.cired.org.my

(Invitation to Register)

Saudi Arabia

13 - 15 January 2008

SHOWCASING MALAYSIA SERVICES TO THE WORLD: THE 1ST MALAYSIAN SERVICES EXHIBITION (MSE 2008)

Venue: Sharjah, United Arab, Emirates

Organiser: MATRADE

Tel: 603-6207 7131/7100

(En. Sabi/Cik Hasziah)

Fax: 603-6203 7260/7257

E-mail: sabri@matrade.gov.my/

hasziah@matrade.gov.my

(Invitation to Register)

Hong Kong

24 - 26 January 2008

INSTRUCT E CENTANARY CONFERENCE: TURNING IDEAS INTO REALITY

Venue: Buena Vista Palace Hotel,

Orlando Florida

Organiser: American Society of Civil

Engineers (ASCE)

Tel: 703-295 6414

Fax: 703-295 6415

E-mail: conf2@sce.org

Website: [www//http.content.asce.org](http://http.content.asce.org)

(Invitation to Register)

Amsterdam

27 January - 1 Feb 2008

ENLIGHTENED UNDERGROUND: A FESTIVAL OF UNDERGROUND SPACE

Venue: Passenger Terminal Amsterdam (PTA)

Tel: +31(0)182 - 540 660

Fax: +31(0)182 - 540 661

E-mail: info@cob.nl

Website: www.thinkdeep.nl

(Invitation to Register)

Technical Visit to 1400MW Coal Fired Power Plant Project, Jimah, Negeri Sembilan

By: *Engr. Chen Chean Sin, M.I.E.M., P. Eng.*

The technical visit to the 2 x 700MW coal fired power plant project site organised by the Geotechnical Engineering Technical Division was successfully conducted on 7 July 2007. The visit was attended by 35 IEM members. The group assembled at the IEM building and departed at around 9.00 a.m. At about 10:30 a.m, the group arrived at the site and was welcomed by Engr. Sridhar Krishnan, the Geotechnical Specialist of Jimah O&M Sdn Bhd.

Before touring the site, Mr. Azmir Rizal Abdullah from Jimah O&M Sdn Bhd gave a brief introduction of the project. The coal fired power system and some environmental issues were also highlighted.

Engr. Sridhar then briefed the group on the design and construction of the cooling water intake pit, intake channel and the outfall culvert.

Subsequent briefings were carried out by S. Matsui and T. Furuse from Taisei Corporation on the design and construction of the coal unloading jetty and the construction of some important structures of the power plant such as the chimney, boiler plant, transformed yard, etc.

The participants were highly interested in the project and raised many questions during and after the briefings.

The briefings ended at about 12.00 p.m followed by a tour around the site. The components visited were:

- the 1.3km long trestle and the coal unloading jetty
- the temporary jetty
- cooling water intake channel where ground treatment work was going on
- the intake pit and chimney
- the boiler plant

The participants were interested to see the work done at the site and raised



many questions which were satisfactorily responded by the friendly representatives from Jimah O&M Sdn Bhd and Taisei Corporation.

The site tour adjourned for lunch at around 1.40 p.m. While enjoying the lunch, the participants did not let go of the last opportunity for further discussion and exchange of opinions.

The group left the site after lunch and arrived at the IEM building at around 4.00 p.m. ■

A Half-Day Seminar on ISO/IEC Standards for Structured Cabling

By: *Engr. Mah Soo, F.I.E.M., P. Eng.*

The IEM Electrical Engineering Technical Division (EETD) organised a half-day seminar on 'ISO/IEC Standards for Structured Cabling' on 3 October 2007 at IEM Conference Hall. The guest speaker was Mr. Patrick Attard who is a member of Standard Australia and has participated in the development of the various standards for structured cabling and optical fibre testing.

He introduced the subject matter by giving an overview of the importance for design engineers to have a good understanding of the industry standards and specifications on cabling infrastructure design especially in the present scenario with wider applications of IP-based delivery systems such as with LAN, WAN, VoIP and communication and



data transfer via the Internet.

The various relevant ISO/IEC Structured Cabling Standards were introduced and details of the specifications on mechanical, climatic and electromagnetic interference classifications and compliance were explained.

This was followed by an introduction

on the development of the 10 Gigabit Ethernet cabling technology in dealing with background noise as well as the Data Centre Design based on TIA 942.

Finally, he ended his presentation with an explanation on cabling installation practices, especially on the safety aspects, pathway cables segregation and the importance of system warranties from manufacturers.

The Q&A session was so actively participated that the seminar was extended beyond the usual 15 minutes allocation. The seminar was concluded with the normal show of appreciation by the participants and a token of appreciation was presented to the guest speaker by the Chairman of IEM Electrical Engineering Technical Division. ■

Technical Visits for the Delegates of 16th South East Asia Geotechnical Conference

By: *Engr. Simon Tan Siow Meng*, F.I.E.M., P. Eng. and *Engr. Y.W. Yee*, M.I.E.M., P. Eng.

In conjunction with the 16th South East Asia Geotechnical Conference held from 8 to 10 May 2007 at Sheraton Hotel Subang, three technical visits were organised for the conference delegates.

GENTING HIGHLANDS RESORT

The visit was attended by 40 delegates. They arrived at the cable car station at GohTong Jaya at about 10.30 a.m. While taking the 3km cable car ride (longest in Southeast Asia), the associated slope treatment surrounding the pylons was in plain view. At the hilltop, the visitors were briefed by Resorts World's Izwan Loke and Project Consultant Engr. Guo Yeng Yang. The historical development of the hill resort was explained together with a detailed presentation of slope treatment, protection and maintenance program. The delegates were impressed with the high density of development on the hilltop which

required the use of retaining walls of up to 40m high and deep foundation caissons. The host also showed the visitors our Malaysian hospitality by serving tea and lunch before they returned to Kuala Lumpur at 2.00 p.m.

SMART TUNNEL PROJECT

The visit to the Stormwater Management and Road Transportation (SMART) Tunnel Project was attended by 26 delegates. The delegates reached the control office at Jalan Davis around 9 a.m. They were briefed by the representatives from JPS on the project and were shown the traffic control centre. The delegates visited the attenuation pond after the briefing but were unable to visit the retention pond because of the extensive construction activities. Unfortunately, the delegates were unable to enter the tunnel as the tunnel was being prepared to be opened to traffic.

PUTRAJAYA

A total of 20 delegates joined the visit to Putrajaya. The delegates arrived at the Prime Minister's Complex (Kompleks Perdana Menteri) at 9.30 a.m. Representative from the Prime Minister's Department gave a 30-minute slideshow presentation on the development of Putrajaya. After having refreshments prepared by the Prime Minister's Department, the delegates were taken on a tour inside the Putrajaya International Convention Centre (PICC) guided by a tour guide from the Putrajaya Corporation (Perbadanan Putrajaya). Before heading back to Kuala Lumpur, the delegates took a tour around Putrajaya by coach while the tour guide introduced the colossal showcase of buildings/structures and main attractions in Putrajaya. The tour ended at 1.00 p.m. ■

Practical Use of Cohesive Fills in Reinforced Soil Structures

By: *Engr. Yee Yew Weng*, M.I.E.M., P. Eng.

The talk was held on 23 June 2007 from 9.30 a.m to 10.45 a.m and was attended by 172 people. The speaker, Mr. Mike Dobie, is no stranger to Malaysian soil engineers, having been heavily involved in the construction of the North South Expressway in 1980s. The talk was held in conjunction with the 18th AGM of the Geotechnical Engineering Technical Division that took place after the talk.

Dobie started off the talk by explaining that although granular fills are generally preferred for reinforced soil structures; these may not be readily available. Clay fills may be considered when the soil type used experiences only small volume change as they become wetter or drier e.g. low plasticity index. The structure being considered must also not be sensitive to movement.



Dobie also explained through case studies that it is important to allow space for outward movement of a wall during and after construction. A movement up to 0.4% (x height of wall) has been observed in one case where a 13m high wall was successfully built. The movement observed may be mainly due to swelling of the clay fill. Although not normally considered in

design, soil suction is prevalent in clay fills and acts to enhance the margin (Factor of Safety) against instability.

It is important to provide drainage all around the wall structure to prevent any source of water from entering and softening the clay fill. Basal drainage (free draining) should also be provided beneath the clay fill. Surface drainage should be adequate to prevent rain or runoff water infiltration. Interceptor drains would be necessary where the fill structure is built against an existing hillside. External drains should be maintained to prevent leaks into the fill.

At the end of the talk, Dobie kindly provided clarifications to queries from the floor. Engr. Liew SS then presented Dobie with a memento on behalf of IEM and the engineers in attendance expressed their thanks in great applaud. ■



Latest Elegant Technology Balancing Solutions using Pressure Independent Balancing and Control Valve (PIBCV) for Commercial Buildings

By: Engr. Ng Yong Kong, M.I.E.M., P.Eng

The speaker for the half day seminar was Mr. Mariusz Jedrezejewki from Danfoss Europe. He began the seminar by explaining that hydronic systems in commercial buildings were always in a dynamic state with valves and pumps activated on demand based on the heat load required. This in turn causes pressure fluctuations throughout every part of the HVAC (air-conditioning) system.

Some HVAC systems that did not consider the proper design and usage of balancing valves in branches or risers and terminal units, including FCUs, were also highlighted. Some FCUs may face an underflow situation to the coils while some may face overflow if there is no proper design of the hydronic balancing system. This will result in overcooling or undercooling in certain areas of the building which will affect the productivity and comfort of its occupants.

Different applications of the HVAC systems design such as a constant flow system using a three way control valve was mainly used in the late 1980s. At that time, the designer was designing a simpler HVAC system without considering the energy efficiency of the system in the buildings. As a three way valve always provide constant flow, therefore, it is easier to use a manual balancing valve to preset/balance it as needed by the designer. For water balancing, it will take up many resources such as manpower, measuring flow test kits and time to balance the whole system. For example, 100 FCUs will take up approximately more than two weeks for proper method balancing. Thus, the question asked is, how many people really do it?

In the late 1990s, the automatic flow limiter was invented using a diaphragm type or cartridge type valve to reduce manpower, and less time was spent in balancing as this new technology was self balancing when there is enough pressure available across the valve.

Human errors and additional labour can be avoided and saved by using such technology valves. Differential pressure controller using the diaphragm type existed more than 20 years ago. The inefficiency or limitation of using an automatic flow limiter in a variable flow system (two way control valve) was highlighted.

Probably the most effective system available today for high energy efficiency system in variable flow is by using an optimal, low cost and effective Pressure Independent Balancing and Control Valve (PIBCV). By using PIBCV, we can avoid the common problem of choosing a proper control valve while considering the requirements of acceptable valve authority. The common problem was in determining the characteristics of the circuit necessary to check the authority of the control valve.

Unstable room temperature or inaccurate regulation is often caused by the consequence of a control valve. This is due to the fact that it is impossible to select a traditional control valve with a flow coefficient which optimally fits the given design parameters. This problem is often caused by pressure drop fluctuations across the control valve, which occurs at varying loads in a commercial building.

Some of the benefits the designer or end-users encounter with the use of PIBCVs are:-

- Pump head optimisation easily achieved
- Require no balancing
- Provide a perfect control that increase end-user comfort and maintain a high delta T over the terminal unit (to avoid low delta T syndrome) which leads to a better conservation of energy usage
- Saves time for the designer to calculate control valve authority by the proper selection of the control valve, balancing valve etc

- Always the right flow/temperature even during day or night, sunny or rainy days
- Save installation costs as only one valve is needed instead of two valves
- HVAC system can be partially ready or commissioned floor by floor/block by block

Jedrezejewki then talked on the total energy saving potential by using the PIBCV valves in different HVAC systems application such as constant flow versus variable flow system.

For the pumping cost per valve in a year (ON/OFF regulation), the common application in FCU shows that:

1. Constant flow system:
Manual balancing valve and three way valve = 4.64 Euro/RM22.20
2. Variable flow system:
Manual balancing valve and two way valve = 3.51 Euro/RM16.85
(average 42% overflow)
3. Variable flow system:
PIBCV = 2.4 Euro/RM11.52
(average flow will be according to real demand)

Other than the savings in pumping cost, the other bottom-line savings for end users are:

- Upkeep and maintenance cost
- Heat loss of three way valves
- Efficiency of chiller/pump equipment
- Oscillation of room temperature
- Less complaints
- Less time spent on commissioning
- Not much consideration for the calculation of valve authority

A case study from the United States was presented in the ASHRAE journals July 2005 publication for the refurbishment of HVAC system from three way valves and manual balancing valve into PIBCV. The three cities in the US, namely, Seattle, Boston and Dallas had accumulated total energy cost savings per year of US\$269,835. ■



Talk on Career Development in Project Management from Traditional to Complex Projects by Prof. Dr David Dombkins

By: *Engr. Lee Boon Chong, MIEM, P. Eng.*

The Project Management Technical Division of IEM organised a talk entitled 'Career Development in Project Management from Traditional to Complex Projects' on 30 May 2007 at the premises of the IEM Bangunan Ingenieur. The talk was well received as a total of 135 members attended the talk.

Professor Dr David Dombkins, the National President and Chairman of the Australian Institute of Project Management and the Deputy Chairman of the College of Complex Project Management, gave the talk which covered the following topics:-

- Complexity in a project
- Typology of project types
- Projects as systems
- Competency standards for complex projects
- Lifecycle development of project management
- Fast tracking the development of complex project managers

The talk began with the showing of the project management continuum and illustrating the differences between Traditional, ExecPM and Complex Project Management. The definition of a

complex project was then defined. A complex project is generally defined as an open and emergent system that is non-linear, adaptive and unable to be decomposed or planned. The talk was followed by the showing of the typology of project types and ACAT level. The system concept that was applied to the three project types was discussed.

The talk moved on to the competency standards for both complex projects and Exec projects, touching on the issue of mindset, peer assessment, underpinning knowledge, workplace behaviours and special attributes. A competency-based pathway for career development in project management was presented, showing career pathways for engineers in project management.

Prof. Dombkins introduced the College of Complex Project Managers which offers international certification for complex project managers. He then showed the supply/demand for project managers and informed us that the current international supply/demand numbers of project managers varied by project types. For complex and Exec project managers, there is an acute shortfall (currently estimated to be at 90%) in supply.

Competency-based training requirements were depicted to explain the lifecycle development of project management, followed by a discussion on fast tracking the development of complex project managers. The talk ended with a report on project management initiatives within JKR. Prof. Dombkins proposed that the way forward for project management in Malaysia should include (1) instituting the Malaysian Project Management Association, (2) establishing vocational and professional courses and (3) developing project management as a profession.

In the ensuing question and answer session, the participants availed themselves of the opportunities to ask interesting and pertinent questions. There were active and enthusiastic discussions between the audience and the presenter. Copies of 'The Project Manager', the magazine of the Australian Institute of Project Management, were circulated with CD's on Competency Standards for Complex Project Managers issued as public release by the Department of Defence, Australian Government. The talk was adjourned at 7.30 p.m. with presentation of a memento to Prof. Dr David Dombkins as a token of appreciation. ■

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Seminar on 'Connections in Steel-Concrete Composite Construction' by Professor N. E. Shanmugam

By: *Engr. Sudharshan N. Raman, Grad. IEM.*

The Civil and Structural Engineering Technical Division of IEM organised an evening talk on 'Connections in Steel-Concrete Composite Construction' on 3 July 2007. The speaker for the event was Professor N. E. Shanmugam, a renowned engineer, academic and researcher in the area of structural steel design. Engr. Sudharshan N. Raman acted as the Chairperson for the session. The talk was attended by 109 participants including practising consultants, engineers from contracting firms, government agencies and academics from local institutions of higher learning. The participants represented a good mix of young engineers as well as experienced practitioners.

The speaker, Professor Shanmugam, is currently a Professor in the Department of Civil and Structural Engineering, Universiti Kebangsaan Malaysia; as well as a Professorial Fellow with the Department of Civil Engineering, National University of Singapore (NUS), where he taught at undergraduate and graduate levels for more than 20 years. His research interests include steel plated structures, steel-concrete composite construction, long-span structures and connections, cold-formed steel structures, elastic and ultimate load behaviour of steel structures, etc. He is a co-recipient of the George Stephenson Medal from the Institution of Civil Engineers, London.

Professor Shanmugam has published more than 200 papers in international journals and conference proceedings, edited three conference proceedings and co-authored chapters in Handbooks. He is a member of the editorial board of international journals such as the Journal of Constructional Steel Research, Journal of Thin-Walled Structures, Bridge Engineering – Proceedings of the

Institution of Civil Engineers, London, International Journal of Steel Structures, International Journal of Steel and Composite Structures, IES Civil and Structural Engineering Journal and International Journal of Structural Stability and Dynamics.

Professor Shanmugam is a Chartered Engineer (CEng), Fellow of the Institution of Structural Engineers, London, (FIStructE), Royal Institution of Naval Architects (FRINA), American Society of Civil Engineers (FASCE), The Institution of Engineers, Singapore (FIES) and The Institution of Engineers, India (FIEI). He is a Member-at-Large of the Structural Stability Research Council (SSRC), US. He is active professionally by providing advisory services and organising courses at basic and advanced levels on steel structures for practising engineers. Professor Shanmugam is an Honorary Fellow of the Singapore Structural Steel Society with which he has been closely associated since its inception and served for several years in the Council as the first Vice-President, President and Immediate Past President.

Professor Shanmugam's lecture was divided into two main sections. He commenced by explaining the basics of composite construction as a system that combines the high-strength performance of structural steel with the stiffness and compressive strength inherent in concrete. This was followed by a discussion on the advantages of composite construction, and the three parameters of a joint, i.e. the moment capacity, rotational capacity and stiffness. The principal factors influencing moment capacity of a joint was covered next, prior to the discussion on the design considerations and requirements of composite joints in accordance with EC4 (1994).

In the second section, Professor Shanmugam shared the results of experimental works undertaken at the Department of Civil Engineering, NUS, to evaluate the moment capacity of composite joints designed in accordance with EC4 (1994). The experimental works were carried out in three phases. The first phase was undertaken to evaluate the effects of parameters such as slab reinforcement ratio, stiffened/unstiffened column web and the type of column web stiffening on the performance of the connections. The second phase of the experiment considered the reversal of loading simulating joints in sway frame.

The following parameters were investigated during the testing stage:

- Bare steel vs composite connection
- Loading condition: Monotonic loading, and cyclic (ECCS 1986)
- Stiffened and unstiffened column web
- Methods of column web stiffening: Doubler plate, and concret encasement.
- Connection types: Haunched connection, extended end plate and flush end plate

The third stage of the experimental works was mainly undertaken to evaluate the performance of haunch beam-column connections, recognised as an efficient way for long span construction.

The floor was opened for an question and answer session soon after the lecture, and it proved to be a lively, interesting, informative and a fruitful one. Several participants took the opportunity to highlight real work problems that they face in their practices. The session concluded at 6.55 p.m. The speaker was then presented with a token of appreciation by the organisers of the event. ■



Report on Half-day Seminar on 'A Definitive Changeover Timetable; An Indefinite Changeover Outcome: The Case of BS to BS EN Changeover'

By: *Engr. Dr Jeffrey Chiang Choong Luin, M.I.E.M., P. Eng.*

In view of the impending withdrawal of BS 8110 as the pre-eminent structural concrete design standards in Malaysia by 2010, in line with British Standards Institute's (BSI) stance, in the United Kingdom, it is most timely that more public forums on this subject are being organised for awareness and discussion with practicing engineers and other stakeholders in the construction industry.

As a brief background to the presentations, after around 30 years in preparation, all parts of Eurocode 2 on concrete structures are now substantially completed. The main texts of Parts 1.1 and 1.2 of Eurocode 2 were published in 2004 and 2005 respectively, and the accompanying National Annexes followed shortly afterwards. Many universities in the UK have either switched or are in the process of switching their teaching from BS8110 to Eurocode 2. The UK industry is also switching but it will take some time for this to occur. The changeover from CP 114 to CP 110, for instance, was reported to have taken 10 years. There were many reasons for this reluctance to change, e.g. increased complexity, increased design costs or no competitive advantage. These concerns make for an uncertain future and will most likely impede the adoption of Eurocodes. Nonetheless, Eurocodes are here to stay and, like them or loath them, conflicting national standards in EU countries will soon be withdrawn and will, therefore, cease to be maintained.

On 22 September 2007, IEM Civil and Structural Engineering Technical Division co-organised a half-day seminar on the topic entitled, 'A Definitive Changeover Timetable; An Indefinite Changeover Outcome: The Case of BS to BS EN Changeover', in collaboration with University of Teknologi MARA (UiTM), American Concrete Institute (ACI) - KL Chapter and the Concrete Society of Malaysia (PERKOM).

About 150 participants attended the seminar, which was held at Dewan Kuliah A, Komplek S&T, UiTM, Shah Alam, from 8.30 a.m to 1.00 p.m. Two technical presentations were delivered during the seminar by two distinguished speakers. The chairperson of the session, Prof. Hamidah Mohd Saman of the Faculty of Civil Engineering, UiTM, introduced the first speaker, Dr Chanakya Arya, who is a Chartered Engineer and a Member of the UK Institution of Civil Engineers. He has a BSc in Civil Engineering from Birmingham University and a Doctorate in Civil Engineering from Imperial College of Science, Technology and Medicine. After a brief stint as a practicing engineer in the industry, he took up an appointment as a Lecturer in Civil Engineering at London South Bank University, a post he held for about 10 years. Dr Chanakya now lectures at University College London, University of London. His research over the past 20 years has focused on the problem of chloride-induced corrosion of steel reinforcement in concrete structures, and developing demonstrable cost-effective methods of assessing corrosion, and preventing, repairing and managing stocks of concrete structures vulnerable to corrosion damage. Dr Chanakya has authored over 40 papers and reports on these topics. He is also the author of 'Design of Structural Elements: Concrete, Steel, Masonry and Timber Design to British Standards and Eurocodes'. In 1995, Dr Chanakya patented a new design for reinforced concrete which he named Supercover Concrete.

Dr Chanakya presented most of the background to Eurocode 2 (BS EN 1992: Design of Concrete Structures) as well as its development and adoption in the UK, including the importance of references to two other Eurocode documents, i.e. Eurocode 0 (BS EN 1990: Basis of Structural Design) and Eurocode 1 (BS EN 1991: Actions on Structures).

BS EN 1992 Eurocode 2 is essentially based on limit state design philosophy, and mainly covers 50 years design working life for building structures. Some of the key features of the Eurocode 2 are that the contents are based on action effects (e.g. flexural, shear and axial effects of column actions), whereas BS 8110 is arranged in accordance to design elements (e.g. beams, slabs, columns). Another departure from BS 8110 is that the compressive strength of concrete specified is based on cylinder strength test, while BS 8110 specifies concrete cube strength in compression test. Nevertheless, both compressive strength values are specified, e.g. C 30/37, where cylinder strength is 30MPa with the corresponding cube strength of 37 MPa. Another item of interest is the material factor (γ_s) for steel reinforcement. In the BS 8110 1997 version, $\gamma_s = 1.05$, but in EC 2, $\gamma_s = 1.15$, i.e. back to BS 8110:1985 version. But in the UK, most reinforcing bars specified are of 500MPa yield strength and not 460MPa yield.

Eurocode 2 comes in three parts, i.e. Part 1.1: General Rules for Buildings, Part 1.2: Structural Fire Design, Part 2: Reinforced and Pre-stressed Concrete Bridges, and Part 3: Liquid Retaining and Containment Structures.

In summary, the other features of EC 2 as addressed by Dr Chanakya are:

- Combination of actions and load factors as applied to Ultimate Limit State (ULS) design
- Specifications for concrete and reinforcing steel for design purposes, including durability and concrete covers
- Permitted structural analytical approach, e.g. linear-elastic, plastic, strut and tie, non-linear
- Slenderness criteria for second order effects of isolated members
- ULS design for bending, shear, punching shear, torsion, strut and tie, and fatigue

- Comparison of design for flexure in beams using BS 8110 and EC 2
- Recommended range of angle of inclination for shear links, i.e. from 22° to 45°
- Design of deep beams using strut-and-tie model
- Sample shear design calculation procedure
- Serviceability limit states design for stress limits, crack control and deflection

Dr Chanakya ended his presentation at 10.30 a.m, after which there was a short intermission for a brief audience-speaker interaction, Q&A session and a short discussion.

The next speaker was Engr. M C Hee, who is a well-known figure in IEM as a respected course lecturer on BS 8110 from a consultant's perspective. Engr. Hee is a practicing Structural Consulting Engineer and a principal of M C Hee & Associates. He obtained his Bachelor of Engineering (BE) and Masters of Engineering Science from the University of NSW, Sydney, Australia. His expertise is in the design and construction of high-rise buildings particularly in value engineering and alternative design proposals. His philosophy is 'Design for simplicity and buildability' with a total concept approach.

He has more than 30 years of experience in this field, with many successfully completed projects locally as well as overseas. In addition, he is also well-versed in computer modelling of high-rise buildings and his current interest is in strut and tie applications in the field of structural engineering particularly for transfer girders and deep beams. Besides his practice, he is also very keenly involved in IEM activities. He was the past Honourable Secretary and

Treasurer of IEM, past Chairman of Civil and Structural Engineering Technical Division of IEM, Chairman of IEM Position Statement Committee for 'Concrete Code of Practice in the Local Construction Industry After Year 2006' when BS 8110 was expected to be withdrawn and Chairman of Technical Committee on Design Standards for Concrete Structures based on Eurocode 2. He has also conducted many practical concrete design courses for IEM and outside organisations.

Engr. Hee started off his presentation by introducing the background to the adoption and usage of various codes and standards for concrete design in Malaysian practice over the years prior to and in the aftermath of independence in 1957. These include BSCP 114, BSCP 110 and most recently BS 8110, culminating in the development of MS 1195:1991 which is the full adoption of BS 8110:1985 version, but its use is mandated in the local Uniform Building By-laws (UBBL).

In July 2001, IEM through its Civil and Structural Engineering Technical Division formed a Position Statement Committee to provide a stance by professional engineers on the policies and procedures required to recommend a course of action in adopting a suitable design standard for concrete structures design, in the face of impending withdrawal of BS 8110 by BSI, UK. In 2003, the committee recommended the adoption of EN 1992-1-2004 or Eurocode 2 in place of BS 8110 once the BS code was shelved. Engr. Hee took the audience through the formation of a Technical Committee in IEM (as an appointed Standards Writing Organisation - on par with SIRIM, CIDB or JKR) to study the development or adoption of a Malaysian Standards on design for

concrete structures, and the various technicalities involved, e.g. the formation of WGs to look into areas peculiar to Malaysian practices, with a view to drafting National Annexes so that local engineers are not being disadvantaged once the adoption of EC 2 is in full swing. Four WGs are working towards the requirements of these topics as National Annexes to supplement EC 2:

- Thin structural elements in the form of 125 x 125 column size to conform to infill brickwall panels, in one to two-story high buildings
- Creep and shrinkage behaviour of concrete structures in a tropical climatic condition
- Band beam behaviour for slab design and construction
- Durability design for concrete in tropical climates

Besides complementing the various topics already highlighted by Dr Chanakya, Engr. Hee also touched on the BS EN 1992 version of EC 2 which provides a more simplified approach in recommending various combinations of action for ULS and SLS design, showing typical examples in calculation and methodology. Flexure design and analysis calculations were also presented through a comparison of the approaches in both EC 2 and BS 8110.

The seminar adjourned by 1.00 p.m after an interesting and lively Q&A session. Finally, both distinguished speakers were presented with tokens of appreciation by the organisers of the event, for their most invaluable contributions to the knowledge and benefit of local practicing engineers in the field of structural concrete design. ■

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