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To All Members, Date: 11 July 2005

CANDIDATES APPROVED TO SIT FOR PROFESSIONAL INTERVIEW

The following candidates have been approved to sit for the Professional Interview for year 2005.

In accordance with Bylaws 3.7, the undermentioned names are published as having applied for membership of the Institution, subject to passing the year 2005 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.

Ir. M. C. Hee
Honorary Secretary
The Institution of Engineers, Malaysia

TRANSFER APPLICANTS		
Membership No	**Name**	**Qualifications**
Civil Engineering		
21136	Chong Chon Shung	BE (Hons) (Liverpool) (Civil, 98)
20695	Gira Ak Sambang	BSc (Glasgow) (Civil, 95)
18325	Lee Yee Thai	BE (Hons) (Monash) (Civil & Comp, 94)
18710	Sharil Azmir bin Ahmad Shaffie	BE (Hons) (UTM) (Civil, 96)
Electrical Engineering		
21160	Chuah Teong Siang	Part I & II (IEM/BEM) (Elect, 2000) BSc (Cheng Kung) (Elect, 80)
17626	Yong Yeen Seng, Edmund	BE (Hons) (Oxford Brookes) (Elect & E'tronic, 89)
Electronic Engineering		
16538	Ong Wooi Beng	BE (Hons) (USM) (E'tronic, 90)

IEM NEGERI SEMBILAN BRANCH EXECUTIVE COMMITTEE MEMBERS FOR 2005/2006

EXECUTIVE COMMITTEE 2005/2006	
Branch Chairman	Ir. Hj. Ahmad Husaini bin Hj. Sulaiman
Vice Chairman I	Ir. Hj. Mohd. Daiman bin Hj. Yunus
Vice Chairman II	Ir. Hj. Zulkifly bin Madon
Honorary Secretary	Ir. Mohammed Noor bin Abu Hassan
Honorary Treasurer	Ir. Tung Kwok Choon
Committee	Ir. Hj. Badiuzzaman bin Harun
	Ir. Mohamad Zawawi bin Ahmad
	Ir. Mohd. Aminudin bin Mohd. Amin
	Ir. Yong Kee Chong
Immediate Past Chairman	Ir. Hj. Jamil bin Ibrahim

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IEM DIARY

For further enquiries on the events below, please contact IEM Secretariat at 03-7968 4001/2

Mechanical Engineering Technical Division
12 AUGUST 2005
Energetic Friday: 1/2 Day Technical Course on Practical Application, System Design and Implementation of Energy Saving Projects

25 AUGUST 2005
1 Day Technical Course on "Some New Chiller Tricks!"

16 SEPTEMBER 2005
1 day Technical Seminar on Practical Bearings Application, Maintenance & Design

Civil & Structural Engineering Technical Division
13 AUGUST 2005
1 Day Seminar on Key Aspects of Building Steelwork Design to BS 5950 and Eurocode 3

Information Technology Special Interest Group (ITSIG)
15 AUGUST 2005
SCADA Systems from an IT Perspective

Project Management Technical Division
16 – 18 AUGUST 2005
A 3-Day Course on Essentials of Project Management

Agricultural & Food Engineering Technical Division
13 AUGUST 2005
Talk on What is in Your Food

Standing Committee on Corporate Affairs
24 SEPTEMBER 2005
IEM Public Colloquium on Earthquake "Steady: Your Ground is Moving!" Speakers: Y. Bhg. Dato' Ir. Prof. Dr Sahoi Hamid bin Abu Bakar / Ir. Dr Ch'ng Guan Bee

Geotechnical Engineering Technical Division
4 OCTOBER 2005
IEM-GSM October Forum 2005

Electrical Engineering Technical Division
11 AUGUST 2005
Half-Day Seminar on Energy Efficiency for SustainableEconomic Development and Demand Side Management

3 SEPTEMBER 2005
9th Raja Tan Sri Ir. Zainal Lecture

IEM Penang Branch
30 SEPTEMBER - 1 OCTOBER 2005
2 Day Technical Course on Geotechnical Engineering 2005
(*For further enquiries, please contact Ms. Ng at 04-818 2045 or the website at http://penang.tripod.com*)

CONFERENCE & SEMINAR

17 - 18 August 2005
SHORT COURSE ON COMPOSITE MATERIALS: DESIGN AND APPLICATIONS FOR INFRASTRUCTURE
Venue : Dewan Taklimat, Faklti Kejuruteraan, University Putra Malaysia
Organiser : Universiti Putra Malaysia
Tel : 03-8946 7856
Fax : 03-8941 3402
E-mail : khairiah@eng.upm.my
(Invitation to Register)

22 - 23 August 2005
NATIONAL WORKSHOP ON TSUNAMI AND EARTHQUAKE HAZARD MITIGATION
Venue : Equatorial Hotel, Penang
Organiser : Universiti Putra Malaysia
Tel : 03-8946 7856
Fax : 03-8941 3402
E-mail : khairiah@eng.upm.my
(Invitation to Register)

14 - 16 September 2005
"INFRAMATRIX 2005: AN INFRA-RED THERMOGRAPHY EVENT"
Venue : Prince Hotel, Kuala Lumpur
Organiser : Total Solution System Integrator Sdn Bhd
Tel : 03-5192 3212
Fax : 03-5192 2728
E-mail : rene@tssi.com.my (Ms. Rene Lee)
(Invitation to Register & Call for Paper)

27 - 29 September 2005
INTERNATIONAL SYMPOSIUM AND EXHIBITION ON GEOINFORMATION 2005 (ISG 2005): "GEOSPATIAL SOLUTIONS FOR MANAGING THE BORDERLESS WORLD"
Venue : Grand Plaza Park Royal Hotel, Batu Feringghi, Penang
Organiser : USM, UPM, UTM, KLIUC, The Institute of Surveyors, Malaysia
E-mail : isg2005@eng.usm.my / isg_2005@yahoo.com
(Invitation to Register& Call for Paper)

1 - 3 October 2005
2ND ASIA PACIFIC CONFERENCE ON RISK MANAGEMENT FOR PREVENTIVE MEDICINE
Venue : Renaissance Hotel, Kota Bharu, Kelantan
Organiser : Malaysian Society of Risk Management for Preventive Medicine, Asia Pacific Chapter
Tel : 09-766 4494 / 09-766 3741
Fax : 09-764 8454
E-mail : apcrmpm@kck.usm.my
Website : www.kck.usm.my/apcrmpm
(Invitation to Register)

28 November - 1 December 2005
"TUNNELS: NEW WAYS, NEW CHANCES"
Venue : Congress Center Leipzig, GERMANY
Organiser : International Tunneling Association (ITA)
Tel : +49 (0) 2215 9795 0
Fax : +49 (0) 2215 9795 50
E-mail : info@stuva.de
Website : www.stuva.de
(Invitation to Register)

22 - 25 November 2005
12TH WORLD WATER CONGRESS OF IWRA
Venue : New Delhi, INDIA
Organiser : Central Board of Irrigation, Power and Geographical Committee of the International Water Resources Association (India)
(Invitation to Register)

12 - 13 December 2005
"INTERNATIONAL CONFERENCE ON CONSTRUCTION AND REAL ESTATE MANAGEMENT (ICCREM 2005)
Venue : The Bayview Beach Resort, Pulau Pinang
Organiser : Pusat Pengajian Perumahan, Bangunan dan Perancangan, Universiti Sains Malaysia
Website : http://www.hbp.usm.my/iccrem2005/
(Call for Paper)

13 - 14 June 2006
INTERNATIONAL SEMINAR ON CIVIL AND INFRASTRUCTURE ENGINEERING 2006
(ISCIE 2006)
Venue : UiTM, Shah Alam
Organiser : Faculty of Civil Engineering UiTM
Tel : 03-5544 3311 / 5543 5242 / 5543 5244
Fax : 03-5543 5275
E-mail : hjhzm6@yahoo.com / hami_dh@yahoo.com
(Invitation to Register& Call for Paper)

5 - 6 September 2006
6TH ASIA PACIFIC STRUCTURAL ENGINEERING AND CONSTRUCTION CONFERENCE 2006 (APSEC 2006)
Venue : Sunway Lagoon Convention Centre, Petaling Jaya
Organiser : UTM, JKR, CIDB, STC and CTMC
Tel : 07-521 8159 / 8182
Fax : 07-521 1355
E-mail : APSEC2006@utm.my
Website : http://www.spacec.utm.my/seminar
(Invitation to Register& Call for Paper)

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Route to the Internationally-Recognised IStructE Chartered Membership

By: Ir. Ong Sang Woh

The IEM/IStructE (Malaysia Division) Joint Seminar on Route to the Internationally-Recognised IStructE Chartered Membership was held on 10 July 2004 at IEM. The speaker was Dr Chiew Sing-Ping and 35 participants attended the event.

The speaker explained that the Chartered Membership (Part 3) examination of the Institution of Structural Engineers, UK is internationally recognised as a stringent measure of Professional Competence for structural engineers.

The joint seminar examined the requirement for the registration of professional engineers in the UK, USA, Canada, China and HKSAR and the assessment of the Chartered Membership in terms of mutual recognition in these countries. The insight into the 2-step approach to Chartered Membership was outlined at the joint seminar. The 2-step approach comprises the following:

(a) The Chartered Membership Professional Review Interview (covers initial professional development regulations and the 13 core objectives), and

(b) The Chartered Membership (Part 5) Examination (format of the 7 hours design examination and review of past examination questions.)

The route to a Professional Engineer is as follows:

1. Accredited basic engineering education (4 years at university level)
2. Initial professional development (training)
3. Test of professional competence
4. Registration of professional engineer status (PEng/PE)
5. Annual renewal and continuing professional development (CPD)
6. Further registration for specialised works, for example, accredited checker (AC, for Malaysia & Singapore), structural engineer (SE, for 12 US States), registered structural engineer (RSE, for Hong Kong), structural engineer of record (SER, for British Columbia, Canada).

In the present engineering environment it is the level of professional competence that distinguishes the many professional engineers in practice today. The test for professional competence nowadays is geared towards an exam orientated approach. The criteria test for the professional competence in the following countries are indicated as follows:

1. The Institution of Structural Engineers Chartered Membership professional review (interview and 7 hours CM examination).
2. The 8 hours fundamentals of engineering (FE) examination and the 8 hours principles and practices of engineering examination, for example in civil engineering (PE-Civil) of the National Council of Examiners in Engineering and Surveying (NCEES), USA.
3. The 8 hours general examination (GE) and the 8 hours professional examination (PL) of the National Administration Board of Engineering Registration (Structural), NABER(S), Ministry of Construction, PRC.
4. The 8 hours professional practice (PE) examination of the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC), Canadian Council of Professional Engineers (CCPE).
5. The 6 hours fundamentals of engineering (FF) and the 6 hours practice of engineering (PE) examination of the Professional Engineers Board (PEB), Singapore (*still under discussion*).

In terms of international recognition, three schemes are presently in place. These schemes are:

1. Mutual recognition of basic university engineering education – Washington Accord between Engineers' Mobility Forum (EMF) countries. (Note: At present Malaysia is a provisional member)
2. Mutual recognition of professional qualification – frameworks for agreement and registers of professional engineers, for example ASEAN Engineer Register, APEC Engineer Register, EMF International Engineer Register, FEANI (European Federation of National Engineering Associations) Eur. Ing. Register, etc.
3. Recognition of professional competence test – Agreement between ISE and NABER, HKIE, APEGBC, IEAustralia.

Candidates intending to qualify as member of the Institution of Structural Engineers and thereby as Chartered Structural Engineers have to demonstrate that they have obtained the minimum standards required for the core objectives. The minimum standards are:

A **Appreciation** – A general appreciation of the subject is required as well as an understanding of how the subject may effect, or integrate with other subjects.

K **Knowledge** – A knowledge and understanding of the subject and its application is required.

E **Experience** – The subject should be performed independently or under supervision.

B Ability – Perform the subject without supervision and be competent to advise others.

A1so, the 13 core objectives for the Initial Professional Development (IPD) of Chartered Structural Engineers are:

1.0 Personal
- 1.1 Institution
- 1.2 Communication

2.0 Engineering
- 2.1 Conceptual Design
- 2.2 Analysis and Design
- 2.3 Materials
- 2.4 Environment
- 2.5 Construction

3.0 Management and Commercial
- 3.1 Management Skills
- 3.2 Law
- 3.3 "Health and Safety"
- 3.4 Commercial Awareness
- 3.5 Contract Documentation
- 3.6 Quality Systems

In the old IStructE examination format, the Candidate is required to answer one question out of seven questions. There are two questions on steel structure, two questions on concrete structure, one question each on bridge structure, offshore structure and a general question on structure refurbishment with constraint and conditions. However for the April 2004 exam there were eight questions instead of seven questions; the eighth question is on the earthquake/ seismic resistant structure.

The Chartered Membership (Part 3) examination (IStructE UK) is a two-part examination paper of 7 hours' duration. The distribution of marks for Part A and Part B is fifty each based on the April 2004 examination format, whereas the former format mark distribution is forty and fifty for Part A and Part B, respectively. In general Part A tests conceptual design and com-munication skills. The candidates have to prepare a design appraisal with appropriate sketches indicating two distinct and viable solutions for the proposed structure. Part B tests the design and analysis of the structure, the establishment of the form and size for all the principal structural elements and the ability to present general arrangement plans, sections and sketches. The written detailed method statement for safe construction and the outline construction programme is also included in Part B.

The example for the year 2002 IStructE examination was also discussed. Statistical analysis of the pass failure rate was presented in the seminar and followed by a lively Q&A session.

Lastly, notwithstanding the difficulty and the toughness of the IStructE examination, the Speaker gave three tips on how to pass the Part 3 examination. The tips are knowing what you are faced with, time management in answering parts of the questions and the use of reference materials for the examination. Also for all aspiring candidates in the globalisation age and with the mobility of practising professional engineers, it is envisaged that it would be a challenge to sit for the Internationally-Recognised IStructE Chartered Membership (Part 3) Examination. ■

Note: The Organisers for the above Seminar are the Civil & Structural Engineering Technical Division, IEM and IStructE (Malaysia Division). Application forms for Graduate and Chartered Membership can be obtained from IStructE (Malaysia Division), or down-loaded from *http://www.istructe. org.uk*.

REPORT

Geotechnical Engineering Technical Division

Talk on Cut Slopes – Difficulties in Meaningful Assessment of Slope Stability in Sedimentary Formations

By: Ir. Tan Yean Chin, Geotechnical Engineering Technical Division

The talk by Ir. Dr C.T. Toh on 26 June 2004 was attended by more than 100 participants. Ir. Dr. Toh presented the technical background on the planning, design and analysis of cut slopes in residual soils of sedimentary formations. He emphasised on the importance of understanding the geological formation in slope design and highlighted the difficulty of obtaining reliable representative soil parameters and groundwater profiles for the design of cut slope in the sedimentary formations. Therefore, it is important to carry out confirmatory geological slope mapping of the exposed slopes by experienced engineering geologists or geotechnical engineers to detect any geological discontinuities that may contribute to the following potential failure mechanisms, namely planar sliding, anticline sliding, active-passive wedge, toppling and also 3-D wedges. All these discontinuities cannot be fully addressed during the design and analysis stage as they are still not yet exposed and field tests such as boreholes or trial pits are not able to detect these discontinuities adequately for incorporation into designs. The speaker also presented many case histories of slope failures that reminded the audiences of the difficulty of designing cut slopes in sedimentary formations. A lively discussion took place after the talk.

The writer recommends that in the design of cut slopes in sedimentary formations, moderately conservative assumptions for the soil/rock parameters and also for the groundwater profile should be made to ensure adequacy in design and only carry out adjustments on site if necessary based on the results of the geological slope mapping and re-analyses of the slopes.

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HON. SECRETARY'S REPORT

The following notes were extracted from decisions taken at the 359th meeting of the Executive Committee of the Council held on 9 May 2005 for the information of members.

REVIEW OF IEM ORGANISATIONAL AND ADMINISTRATIVE STRUCTURE

Y. Bhg. Datuk Ir. Hj. Keizrul bin Abdullah, the Deputy President, has been appointed by the Council to review the report on the IEM Organisational and Administrative Structure. The current Council felt that it is timely to look into the set up of IEM and to review its structure to meet the changing times.

The Council had held a Council Retreat on 10 October 2004 to brainstorm on the effectiveness of IEM and various issues raised at this Brainstorming brainstorming session have to be reviewed and carefully studied. A working paper on the Brainstorming brainstorming session and the review of the IEM Organisational and Administrative Structure report has been prepared and Y. Bhg. Datuk Ir. Keizrul bin Abdullah's committee would need to make an in-depth study of the recommendations.

AD-HOC COMMITTEE ON IEM PUBLICATIONS – THE LEGAL IMPLICATIONS

The Ad-Hoc Committee Chairman chaired by the President, Ir. Prof. Dr Ow Chee Sheng had has finalised some guidelines on the IEM publications of reports/, articles/, etc., by IEM, taking into the consideration of possible legal implications on of the published contents.

COUNCIL VACANCIES FOR SESSION SESSION 2005/2006

Ir. Dr Judin bin Abdul Karim (JKR) and Y. Bhg. Datuk Ir. Abdul Hadi bin Mohd. Deros (TNB) have been invited to serve in the Council for the session 2005/2006.

CASUAL VACANCY ON COUNCIL

Due to the election of some of the current serving members to a higher position in the Council, there would be six (6) vacancies in the Council for the remaining sessions listed as follows:

2 vacancies for sessions 2005/2006 and 2006/2007
4 vacancies for session 2005/2006

Excomm further noted that one of the vacancy vacancies for the sessions 2005/2006 and 2006/2007 would be filled by Ir. Muhammad Imran bin Baharuddin, the candidate with the next highest vote in the last elections. This is in accordance with the IEM Constitution and Bylaws.

A By-Election has to be conducted as there is no more candidate from the list of the last election for the remaining postpositions. Excomm appointed Y. Bhg. Dato' Ir. Pang Leong Hoon as the Election Officer to conduct this By-Election with the following members as his scrutineers:

Ir. Manogaran s/o K. Raman
Ir. Prof. Ishak bin Abdul Rahman
Ir. S. Kukanesan
Ir. Assoc. Prof. Siti Hawa binti Hamzah

MOSTI DIALOGUE

The following proposals were made by IEM to the Minister of Science, Technology and Innovation Malaysia when he attended the IEM Annual Dinner as Guest of Honour:

a) IEM and MOSTI to have at least a dialogue meeting twice in a year
b) Minister requested the IEM to organise a golf circuit amongst its members at the branch and head office

MITI DIALOGUE DIALOGUE

The Minister of International Trade has invited the IEM President to serve on her Academic – Industry Consultative Committee (AICC). The role of this Committee is:

• to discuss and seek co-operation between the industries and the academia to overcome mismatch in employment;
• effort to generate experts from the level of polytechnics to institutions of higher learning;
• to obtain input on R&D to be led by academics for the need of the industries.

PII/IEM/IES TRIPARTITE MEETING AND CONFERENCE 2005

It was noted at the meeting that the SIJORI (Singapore-Johor-Riau) Triangle would be organised in Jakarta, Indonesia in July 2005. One of the topics for discussion is the setting setting-up of a polytechnic in Sumatra essentially to train Technicians technicians for the oil palm industry.

G/S SECTION OPEN DAY

The G/S Section of the IEM would be organising the Open Day on 2 July 2005. The programme of the Open Day included includes a gathering session of young graduates, the Annual General Meeting and the Annual Dinner. Y.B. Datuk Ong Tee Keat, Deputy Minister of Youth and Sports accepted the invitation to be a panelist at the Forum on Career in Engineering in Our Nation.

VISIT BY PRESIDENT, THE INSTITUTION INSTITUTION OF MECHANICAL ENGINEERS, UK

The President of The Institution of Mechanical Engineers, UK made a courtesy call on the IEM President on 29 March 2005. IEM hosted a dinner for him and his spouse at the Chinese Restaurant, PJ Hilton.

IEM DIRECTORY 2004/2005

Excomm has directed the Standing Committee on Finance to look into the cost implication of mailing the IEM Directory. The cost of mailing is RM 1.75 for Peninsular Malaysia and RM 3.50 for East Malaysia.

ENGINEERING WEEK PROGRAMME

The Standing Committee on Welfare and Service Matters has been requested to look into incorporating the Members Recognition/Certificate Presentation as part of their launching programme.

INTERNATIONAL ENGINEERING MEETING, HONG KONG (13-17 JUNE 2005)

Excomm agreed to sponsor the President and the Chairman of the Standing Committee on Admissions and Qualifications to attend the meeting. The programme of the meeting included the issues of the Washington Accord, APEC and Engineers Mobility Forum and also the accreditation process for the international benchmarking of engineering qualifications.

AGREEMENT OF CO-OPERATION WITH KENCA

The IEM is looking into the preparation and signing of the agreement of co-operation with Korean Engineering and Consulting Association.

WINNERS OF THE PRESIDENTIAL AWARD OF EXCELLENCE 2005	
The Presidential Awards of Excellence were won by	
Champion	Geotechnical Engineering Technical Division
1st Runners Up	Building Services Technical Division
2nd Runners Up	Environmental Engineering Technical Division
Most Improved Technical Division	Chemical Engineering Technical Division
Special Prize	Civil & Structural Engineering Technical Division
Special Prize	Production & Manufacturing Engineering Technical Division

CAFEO 23 – 10-11 DECEMBER 2005

The event would be held in Vientiane, Laos PDR. Papers are been solicited for this Conference. The theme would be "Enhancing ASEAN Co-operation in Engineering for Poverty Alleviation and Sustainable Development ."

IEM/ICHEME CO-OPERATION

IEM is assisting The Institution of Chemical Engineers, UK to arrange the evaluation workshop for accreditation of chemical engineering degrees at local universities.

POSITION PAPER ON EARTHQUAKES

IEM has set up a Position Paper on Earthquakes to prepare an IEM statement on this issue.

REPORT

APEC/EMF REGISTERS
With effect from 1.1.2005, the National Monitoring Committee of the two registers has agreed to waive the entrance fee and subscription for the year. IEM members keen to sign up for the register would require to pay RM 150.00 for the two registers.

COURTESY CALL ON THE PRIME MINISTER
IEM President together with presidents of fellow professional institutions made a courtesy call on the Prime Minister on 7 June 2005. Issues highlighted by the IEM included:

a) Need for a budget allocation for operations of NGOs
b) Review of the Scientific Civil Service
c) An institutional land for professional associations to be housed in a one stop center
d) Service tax issue.

COUNCIL ORIENTATION AND INDUCTION
IEM will be conducting the induction programme on 18 July 2005 for the newly elected Council members.

BIM ANNUAL DINNER
IEM will be supporting the BIM Annual Dinner scheduled on 23 July 2005 at the Legend Hotel.

COURTESY CALL ON THE CHIEF MINISTER OF PENANG
The President together with the Chairman and Branch Committee made a courtesy call on the Chief Minister of Penang. The meeting looked into the avenues the State Government could assist the Branch in organising events for its members.

Report submitted by
Hon. Secretary, IEM

ANNOUNCEMENT

POSITION PAPER ON WATER QUALITY AND THE CLEANLINESS OF BEACHES

IEM HAS FORMED A COMMITTEE TO DRAFT A POSITION PAPER ON WATER QUALITY AND THE CLEANLINESS OF BEACHES. WE WELCOME SUGGESTIONS FROM IEM MEMBERS AND REPRESENTATIVES FROM VARIOUS STAKEHOLDERS TO THIS COMMITTEE.

Ir. Dr. Gue See Sew (ssgue@pc.jaring.my)
Chairman
Position Paper on Water Quality and the Cleanliness of Beaches

- Reply (03-7957 7678) -

Chairman
Position Paper on Water Quality and the Cleanliness of Beaches
The Institution of Engineers, Malaysia

Dear Sir,

POSITION PAPER ON WATER QUALITY AND THE CLEANLINESS OF BEACHES

My suggestion(s) for this position paper is/are as per attached.

Name : _____

Organisation : _____

Address : _____

_____

Telephone : _____ Handphone: _____

Fax : _____ Email : _____

Signature : _____ Date : _____

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IEM TRAINING CENTRE SDN. BHD. (127273-K)

1009A, 9th Floor, Block E, Kelana Parkview Tower,
No. 1, Jalan SS 6/2, Kelana Jaya, 47301 Petaling Jaya, Selangor Darul Ehsan
Telephone No. 03-78049851 Fax No. 03-78049131 E-mail: iemtc@mail.ru

AUGUST 2005		
COURSE TITLE	**DATES**	**VENUE**
Contract Administration For Site Personnel In Engineering/Construction Contracts	9 & 10 August	Kota Kinabalu
Turnkey Design & Build Contracts – Nature, Rights, Obligations & Duties	9 & 10 August	IEM Training Centre
BEM Mandatory Course – Safety & Health At Work	10 & 11 August	IEM Training Centre
BEM Mandatory Course – Engineering Management Practice	11 & 12 August	Kota Kinabalu
Contract Administration For Site Personnel In Engineering/Construction Contracts	16 & 17 August	IEM Training Centre
IT Applications For Project Management	17 & 18 August	KL
BEM Mandatory Course – Code Of Ethics/Regulations	18 & 19 August	IEM Training Centre
Contract Administration For Site Personnel In Engineering/Construction Contracts	23 & 24 August	Kuching
BEM Mandatory Course – Safety & Health At Work	23 & 24 August	Kuching
BEM Mandatory Course – Code of Ethics/Regulations	25 & 26 August	Kuching
BEM Mandatory Course – Engineering Management Practice	29 & 30 August	IEM Training Centre

SEPTEMBER 2005		
COURSE TITLE	**DATES**	**VENUE**
Turnkey Design & Build Contracts – Nature, Rights, Obligations & Duties	3 Sept	Sheraton Subang
Advanced Topics In Analysis & Design Of Concrete Structures	5 & 6 Sept	Sheraton Subang
BEM Mandatory Course – Safety & Health At Work	7 & 8 Sept	IEM Training Centre
Claims In Construction/Engineering Contracts	13 & 14 Sept	Johor Bahru
BEM Mandatory Course – Code of Ethics/Regulations	15 & 16 Sept	Johor Bahru
BEM Mandatory Course – Engineering Management Practice	19 & 20 Sept	IEM Training Centre
Contract Administration & Supervision For Contractors/Suppliers	20 Sept	Ipoh
BEM Mandatory Course – Engineering Management Practice	21 & 22 Sept	Ipoh
BEM Mandatory Course – Code of Ethics/Regulations	21 & 22 Sept	IEM Training Centre
Steam Boiler – Operations, Trouble-shooting, Maintenance & Repairs	28 & 29 Sept	IEM Training Centre
Claims in Construction/Engineering Contracts	27 & 28 Sept	Penang
BEM Mandatory Course - Code of Ethics/Regulations	29 & 30 Sept	Penang

***For further enquiries, request for course contents and registration form, please contact Mr. Choy/Puan Haslinda at the above address, telephone number or fax number.)*

ANNOUNCEMENT

Please be informed that a "Half-Day Talk on Law for Construction Contracts Administrations" scheduled on 13 August 2005 has been POSTPONED to 27th August 2005 (Saturday).
We apologise for the inconvenience caused.

ASEAN ENGINEERS' ATTACHMENT PROGRAMME in MALAYSIA

The 20th Conference of the ASEAN Federation of Engineering Organisations (CAFEO) in 2002 concluded with a resolution, which includes:

1) AFEO member institutions to request their respective governments to offer training for engineers of the less developed member countries. The training should target areas that would alleviate poverty.

2) AFEO member institutions to arrange on-the-job industrial training and placements for engineers from less developed member countries.

3) AFEO to establish a common standard for benchmarks on engineering education and the development of professional engineers. The blueprint on benchmarks would improve engineering standards in ASEAN and also facilitate mobility of engineers and engineering services.

In line with this resolution, the following Malaysian companies are offering an attachment programme for qualified engineers particularly those from Cambodia, Laos, Myanmar and Vietnam to spur further cooperation between the countries and the possibility of joint-venture opportunities after completion of the attachment.

Engineers who go through the attachment programme will among other things study the system and gain an opportunity to understand the country and companies' practices. They will also gain knowledge and experience of the structure and system of practice in the engineering field.

PURPOSE OF ATTACHMENT PROGRAMME
Leading towards further cooperation between engineers and/or companies including possible Joint Venture opportunity upon completion of programme.

The companies offering the attachment programme are:

(A) G & P PROFESSIONALS SDN BHD

G & P Professionals Sdn Bhd consists of specialist consulting firms that provide a wide range of quality engineering services, which includes geotechnical, civil & structural, mechanical & electrical, infrastructure, maritime and project management.

The company is offering attachment in the field of geotechnical and structural consultancy experience to qualified candidates.

Qualifications
Candidates must have successfully gone through an engineering programme that is recognised by the ASEAN Engineers Register along with sufficient experience within the field. They must have at least five years' experience (must be recent) in geotechnical or structural engineering consultancy.

The Package
Duration: 3 months (extendable)
Allowance to cover living and transportation expenses of about RM2, 000/month.

Places Offered: Two

More information on G & P Professionals Sdn Bhd can be viewed via: http://www.gnpgroup.com.my

(B) AE CONSULTANT

AE Consultant is a consultancy firm providing Civil & Structural Engineering Services

The Company is offering attachment programme in the field of Structural Consultancy experience to qualified candidates.

Qualifications
Candidates must have a successful engineering programme that is recognised by The ASEAN Engineers Register along with sufficient experience within the Structural Engineering field.

They should have at least 4 years of recent experience in Structural Engineering design works and on site experience, and be able to communicate in English orally and in writing.

The Package
Duration: 3 to 6 month (extendable)
Allowance to cover living expenses and transportation of about RM 2,000/month. Accommodation can be arranged for the successful candidates upon request.

Places Offered: Two

More inquiries please email to ***aecsb@po.jaring.my***
attention to: Ir. Cheong Chee Kwong.

HOW TO APPLY?
Interested applicants are welcome to submit their completed official application form to the registrar of their respective country for vetting. After vetting, forms of shortlisted candidates will be sent to the respective companies for selection.

The official form can be downloaded from:
http://www.aseanengineers.com/opportunity/Attachment_Programme.html

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Professional Interview Essay – Section A

By: Sdr. Ng Kong Yong, B.E. Hons (Malaya)

Question: *Discuss energy efficient features of an air-conditioning system of a high rise office building.*

For a high rise office building the operation hours of the air conditioning system would be in the region of nine to at most fourteen hours (8.00 a.m. to 10.00 p.m.)

Under such operating conditions the energy efficient features of various types of air conditioning system are discussed below:

Centralised Chilled Water system – Water Cooled

For this system, air handling units and fan coil units are operated in conjunction with the major centralised equipment, namely water cooled chillers, chilled water and condenser water pumps, cooling towers and the main electrical switchboard.

High efficiency chillers of 0.5 to 0.65 kWe/ton should be selected and they should operate with environmentally acceptable refrigerants in line with our national policy on non ozone depleting substances. Chillers selected should also be able to operate at reasonable efficiency under low or partial load conditions. Use of multiple chillers and/or chiller with multi-compressors will provide such flexibility.

For high rise buildings, the application of primary and secondary chilled water piping circuits should be considered in conjunction with variable speed drives incorporated in the secondary pumpsets. Significant energy savings will be realised during part load operation.

Cooling towers, wherever feasible, should be located near the chillers so that the horsepower of the condenser water pumpsets is kept low to save energy. Cooling tower motors should consider the use of variable speed drives or 2 speed motors for efficient part load operation.

Variable Speed Drives (VSD) should be installed in Air Handling Units to reduce motor kW when running at part load conditions.

Variable Air Volume (VAV) boxes should also be incorporated to further enhance the system in terms of comfort control and energy savings.

A Heat Recovery Wheel is another energy efficient device that can be used in an exhaust-supply air system configuration, whereby outdoor air is pre-cooled by the cool exhausted air. This energy efficiency feature is extensively implemented in major landmark high rise office buildings in Malaysia. The use of Heat Recovery Wheels reduces the capacity of AHU cooling coils which in turn reduces their motor kW ratings.

Variable speed drives and VAV boxes are today widely used in all government buildings in Putrajaya, commercial buildings, university buildings and shopping complexes.

The latest energy efficient product and technology to be introduced in Malaysia is the heat pipe system.

For high rise office buildings, it would also be advisable to fit low e-glass facades that do not absorb too much solar energy which will in turn reduce cooling load requirements.

Apart from high rise office buildings, for other buildings such as hospitals and hotels, where hot water is required, a very energy-efficient feature is the use of a de-superheater heat reclaim system. Instead of discharging heat off to the cooling tower, it is instead diverted to heat up water before going to the cooling tower. As a result, the cooling tower will discharge less heat and at the same time we have free heating. Many new hospitals and hotels now implement such a feature.

However, all of the above mentioned energy efficient features will not be as effective if a good, reliable, intelligent Building Automation System (BAS) is not properly used or installed.

Each AHU has to have enough sensing points like supply air and return air sensors, pressure sensors, filter pressure sensors, flow meter sensors, etc., installed. The chillers should be able to interface with all the components in the system like pumps, AHUs, FCUs, VAV boxes and the BAS.

The Building Automation System must be able to monitor and control the entire air conditioning system and send appropriate signals to open or close relevant components for optimal energy efficient operation and at the same time maintain comfort condition.

Centralised Chilled Water System – Air Cooled

This system is basically similar to its water cooled counterpart described above, except that there is no need for cooling towers and condenser water pumps.

While water cooled chillers can achieve 0.5 to 0.65 kWe/ton efficiency, air cooled chillers operate at 1.00 to 1.30 kWe/ton efficiency and are hence not so energy efficient compared to water cooled chillers.

For air cooled chillers, the maximum tonnage capacity of one chiller is about 500 ton. An important rule is to consider the use of multiple compressors and the compressors should preferably be of the high efficient scroll or screw types instead of the once popular reciprocating type.

Reciprocating air cooled chillers represent obsolete technology providing efficiencies of 1.20 to 1.30 kWe/ton, while scroll or screw air cooled chillers deliver efficiencies of 1.05 to 1.20 kWe/ton.

Here again, the refrigerant used should be of a non-CFC type. For a high rise building a "green" or environmentally-friendly air conditioning system is important for its

marketability and for a good corporate social responsibility (CSR) image.

In Malaysia, not many high rise office buildings use air cooled chillers.

Other energy efficient features and devices previously mentioned such as variable speed secondary pumping, VSD in AHUs, VAV boxes, the Heat Recovery Wheel, the de-superheater and a good integrated Building Automation System are also applicable with this system.

Water Cooled Package System – Ducted

For this system, the capital cost is lower than the chiller systems mentioned above. The energy efficient features that can be incorporated into this system are:

- 2 speed or variable speed drives in cooling tower fan motors.
- Variable speed motors in the water cooled packaged units but extreme care must be taken to ensure there is no freezing of coil at part load conditions.
- Use of high efficiency multiple scroll compressors.

Air Cooled Package System – Ducted

There is not much energy efficient features that can be incorporated for this system except for its low first cost, and the use of high efficiency multiple scroll compressors.

VRV (Variable Refrigerant Volume) System

This system is becoming popular in the last few years. The special feature is the application of variable speed drives in conjunction with variable refrigerant technology and less space is needed for condensing units.

District Cooling System (DCS)

A District Cooling System is basically a centralised chilled water system whereby all the major equipments like chillers, chilled water and condenser water pumps, electrical switchboard, cooling towers and probably controls are housed in a central plant.

The difference is that this central plant will then serve several buildings. The basic energy efficient features and devices mentioned previously are all applicable. On top of that, for DCS, we can also consider:

- using primary, secondary and tertiary pumping circuitries with VSD in the secondary and tertiary circuits;
- using absorption chillers;
- a co-generation system if the system is large enough, incorporating a Thermal Energy System.

Thermal Energy System (TES)

The most popular Thermal Energy Storage System used in this part of the world is the ice storage system with various types including ice balls, tube in coil, etc.

The most important consideration here is the tariff for peak and off peak load and the ton-hours. The chillers selected have to be able to run efficiently for dual mode, i.e. ice-mode or normal chilled water mode.

This system should not be blindly used unless proper design and operation data are analysed and the capital and running costs are properly evaluated.

All other energy efficient features and devices mentioned previously are also applicable for this system.

The above represents some of the energy efficient features that can and should be incorporated for high rise office building design and implementation. ■

Professional Interview Essay – Section B

By: Sdr. Ng Kong Yong, B.E. Hons (Malaya)

Question: ***Recent years have seen increased national and international protocols and regulations and national acts and legislation on the control of many forms of pollution. Discuss the needs and consequences of observing these regulations with special reference to the particular industry you are involved in.***

We are finally told of the harmful effects to the environment when halocarbon refrigerants are lost or released to the atmosphere after blissfully using them for well over half a century.

Halocarbon refrigerants were first introduced for use in the HVAC industry (Heating, Ventilation and Air-Conditioning) in the 1930s. Since then and especially in the 1970s, most chillers use halocarbon CFC-11 and CFC-12 replacing ammonia-based or absorption chillers.

However, in the 70s and 80s, we were told that these refrigerants could react with ozone changing it to oxygen. This, in turn, would allow more UV light to pass through toward Earth. If left unchecked, the ozone layer will be depleted and this will increase the 'hole in the sky.'

Hence the most important and well-known international agreement ever known in the air conditioning industry – The Montreal Protocol on substances that deplete the ozone layer was drawn up under the guidance of the United Nations Environmental Program (UNEP) in September 1987.

In June 1990, the parties to this Protocol met in London to consider the implications of new scientific evidence that showed the ozone layer was depleting faster than originally thought. The countries met again in November 1992 in Copenhagen in Denmark, and in December 1993, 122 countries formally ratified the Montreal Protocol.

First and foremost, what's so important about the ozone layer? The ozone layer protects us from certain harmful UV (Ultra Violet) lights from the sun. If this ozone layer is depleted, harmful UV light will not be shielded and the following effects will result:

- increased rate of skin cancer,
- increased rate of cataracts,
- crop yield will be affected thereby

causing hunger or famine to mankind,
- climatic change, and
- production of phytoplankton will be affected which in turn will impact marine life.

Some of the common items associated with ozone depletion are:
- aerosol propellants
- fire extinguishers
- air conditioning equipment
- Styrofoam containers
- foam insulation
- computer and electronics goods

Hence it is clear that ozone depletion will adversely affect the survival of mankind if left unchecked.

Another important issue is that of Global Warming. This awareness has led to the Framework Convention on Climate Change signed in Rio de Janeiro in 1992 to check the release or usage of greenhouse gases. Greenhouse gases include chlorofluorocarbon (CFC), hydrochlorofluorocarbon (HCFC) and hydrofluorocarbon (HFC) commonly used in air conditioning equipments. One of the main culprits is the release of carbon dioxide gas to the atmosphere from motor vehicles as well as energy usage in whatever form, e.g. chillers, in power generation, etc., and mainly from industrialisation.

To save Planet Earth and to save mankind for generations to come, these international initiatives and action plans are necessary. For the air conditioning industry, usage of chlorofluorocarbon (CFC) refrigerants in new chillers are banned and most chiller owners, consultants or suppliers have since resorted to chillers that use non-CFC refrigerants.

A meeting in London in 1990 recognised the fact that developing countries require technical and financial assistance in phasing out the use of CFCs in the air conditioning industry. The UN had come out with the Multi Lateral Fund managed by the World Bank to assist the Article 5 countries (developing countries) like Malaysia in phasing out the usage of CFCs.

The Malaysian government, under the Department of Environment, the Ministry of Science, Technology and Environment, had responded with the Environmental Quality (Refrigerant Management) Regulation 1999, which came into force on 1 January 2000.

Under this Environmental Quality Act 1994 and in the 1999 Regulation, some of the relevant actions are:

a) It is an offence to vent refrigerant into the atmosphere.
b) A person handling CFC equipment should have approved training in recovery and reclamation of refrigerants.
c) It is an offence to export CFC refrigerants without approval.
d) No new machines shall use CFCs.

Around the same time, the Malaysia Chapter of ASHRAE, under MASHRAE ODS Centre Sdn Bhd received Multilateral Funding from the World Bank for their project on the recovery, reclamation and recycling of CFCs used in chillers in the air conditioning industry.

MASHRAE together with DOE of Malaysia had embanked on a nationwide campaign and training for chiller owners, service contractors and end users in Kuala Lumpur, the Klang Valley, Penang, the Lumut Naval Base, Kuching and Kota Kinabalu.

The trainers lectured on the harmful effects of ozone layer depletion, what we must do as good corporate citizens and why we must do our part for our future generations. For service maintenance contractors and end users, they can be fined up to a maximum of RM10,000.00 if they are caught venting refrigerant to the atmosphere or violate any of the regulations in the Environment Quality Act.

The quote: "It is environmentally acceptable if you have a CFC chiller, but it is environmentally unacceptable if you release CFC into the atmosphere" was repeatedly drilled into the minds of participants so that they will in turn educate others.

For owners with aging chillers they had the option of either changing over (retrofitting) to other more environmentally friendly refrigerants like HFCs or replacing them with completely new non-CFC chillers.

However, it is acknowledged that enforcement by DOE officers is lax due to shortage of staff coupled with priority as this issue is not deemed to be life threatening (at least for now.) So it is left to the industry to self-regulate for the time being.

The success in eradicating ozone depletion has to depend on every individual on Earth. In Malaysia, under the Mobile Air Conditioning (MAC) area in working motor vehicles, the back conversion of HFC to CFC is unfortunately quite rampant.

With the price of CFC getting higher due to diminishing supply, the emergence of unscrupulous smugglers cannot be taken lightly.

The government on their part can certainly help by not issuing Approved Permits (AP) to import such refrigerants and to allow the MASHRAE ODS Center to reclaim and recycle the CFC refrigerants used in chillers.

On a sad note, we have industrialised countries like the USA who refuse to sign (at the moment) the Kyoto Protocol on the Framework Convention on Climate Change that restrict or limit the release of carbon dioxide gas to the atmosphere even though the EU countries and Russia had ratified this Protocol.

In the air conditioning industry, besides using CFC, HCFC and HFC, there are alternative refrigerants that can be researched or considered to be used, especially in chillers.

They are ammonia, carbon dioxide, water or lithium bromide solution used in absorption chiller and most promising of all hydrocarbons (HCs) especially R-290 propane.

It is very unfortunate that not much funds have been used in research and development on the use of HCs in chillers, even though millions of refrigerators in European countries are now using HC refrigerants. Why is this so?

CFC, HCFC or HFC are synthetic refrigerants and together with the POE oils (for HFC applications), they are monopolised by a limited number of large manufacturers in developed countries. HCs on the other hand are non-patentable and hence cannot be monopolised.

With good marketing strategies against HCs and ammonia on flammability issues (even though HFC can decompose at high temperatures to form lethal nerve gas) some multinational corporations in developed countries continue to dictate the direction of refrigerants used in chillers.

With good servicing practices like reclamation, recovery and recycling, and public awareness on the consequences of ozone depletion and global warming, the author is optimistic that good sense will ultimately prevail to make this planet a safer place for our children and generations to come. ■

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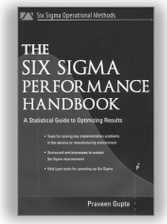

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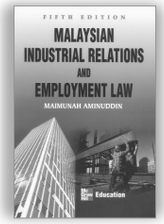

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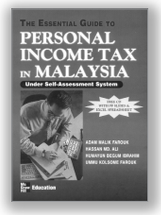

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